SEX

A Manual

BERSERKER

BOOKS

INDEX

The Enjoyment of Vulgarity

Julius Evola

One of the most indicative signs of the influence of the regressive processes that we have described in the preceding pages of this book [L'Arco e la Clava] with regard to customs and tastes, is the enjoyment of vulgarity, with its more or less subconscious undercurrent of pleasure taken in degradation and self-contamination. Related to it are the various expressions of a tendency towards deformation and a taste for the ugly and the base. A few observations with regard to this matter will perhaps not be devoid of interest.

It is almost unnecessary to point to this tendency in certain forms of a new literary realism, in its choice of subject matter, which does not — as the term otherwise might suggest — deal with "reality" in general, whether individual or social, but only with its most vulgar, base, dirty, or squalid aspects. This subject matter becomes an object of "commitment," to the point that the term "committed literature" has often been used by authors of this type, whose works are also linked to the specific intent of social and political agitation. However, what above all matters here is that the representatives of this movement do not, in general, themselves come from the world they so morbidly or tendentiously focus their attention on. They are, in fact, members of the bourgeoisie, even the upper bourgeoisie with intellectual pretensions, but which also takes an obvious pleasure in descending into degradation or succumbing to the unwholesome enticements of the inferior.

The same characteristic appears in a much larger domain, in varied forms, for example in the vulgar manner of speaking. Low-class slang has become so common that not only novels and stories, but even radio and television do not hesitate to make use of it on some occasions. The same observation can be made with regard to this phenomenon as was made above. Since this manner of speaking is not that of their social class, of the social environment to which they belong by birth, and since youths, girls, and even elderly persons from the middle classes, from the respectable bourgeoisie, and even parts of the aristocracy, imagine themselves to be demonstrating anti-conformism, freedom, and "modernity" by ostentatiously making use of slang, the real meaning of the phenomenon must simply be a pleasure taken in self-degradation, self-abasement, and self-contamination. To anyone who speaks of freedom from convention here, one should reply that all convention has different aspects; conventional or not, certain customs are — or were — intrinsic to a given class, are — or were — its "style" and distinguishing mark. To take pleasure in flouting them simply means wanting to transgress all limits and all boundaries, and opening oneself to that which lies below. Until recently, the tendency was exactly the opposite: many men and women of the lower classes sought, more or less artificially and clumsily, to imitate the manners, the speech and the behavior of the upper

classes. Today the reverse is true, and people think they are emancipated, when, in fact, they are merely vulgar and idiotic.

Another, similar phenomenon, is the taste for the ugly, vulgar, and slovenly in clothing and hair-styles, which has also become fashionable in some circles: workers' or cyclists' jerseys, farmers' jackets and pants, shirts untucked and tied in knots, and so on, together with long and dishevelled hair, and the careless and coarse manners and attitudes that American films have taught a boorish youth, with its whiskey shots and "double gin." The most prodigious phenomenon of this kind is the fashion, which has not yet waned, of blue jeans for girls, and even for ladies: blue jeans being, as we know, work pants. The passivity and tolerance of the male sex is, in this regard, astonishing. These young women ought to be put in labor and concentration camps; that, rather than luxurious existentialist apartments, would be an appropriate place for them and for their "practical" outfits, and might bestow upon them a salutary reeducation.

In a different field, another manifestation of the taste for vulgarity is the fashion of "screaming" singers, unfortunately widespread in Italy. The tendency is the same. One takes pleasure in descending to the level of the street, of the marketplace: the primitivism of the vulgar voice, at best an almost animal instinctiveness in expression and emotion. Another aspect of the same phenomenon are the ecstasies that white men and women for some time now have been sent into by the raucous and graceless singing of the Negro, which almost seems to take pleasure in its own vileness. At the time of this writing, a particular instance of vulgar singing were the Beatles, who aroused delirious enthusiasm among the youth. Apart from their hairstyles, which are of the kind indicated above, the very name chosen by this group is revealing: these screamers called themselves "the Beatles," choosing as their symbol the most disgusting of insects [the Italian word scarafaggio can mean either "beetle" or "cockroach"]: yet another obvious example of the pleasure in abjection. We can also point out in passing, by way of illustration, that a member of the Roman aristocracy, who had opened a nightclub, wanted to call it "The Sewer," had he not been prevented from doing so by the police. But back to the Beatles: have they not been made Knights of the British Empire by Queen Elizabeth of England? These are signs of the times. The swamp has even flooded the palaces, which are now, however, only faded relics.

If these phenomena, as we have already stated, fundamentally stem from a pleasure in lowering and debasing oneself, we may add that this pleasure is the same that, in the field of sexology, characterizes masochism and auto-sadism. In terms of "depth psychology," it is a destructive drive turned against the self. Thus, we should reflect upon the unconscious, but no less active "guilt complex" at work in these phenomena. Perhaps that is their most interesting and, in a way, most positive side. It is as if people sensed the failure to realize their true being, the renunciation of every higher meaning of life which characterizes the present time, and as if, as a result of this obscure feeling of guilt or betrayal, they took pleasure precisely in self-degradation, self-harm, and self-contamination.

But there are also cases where the destructive impulse is turned, not inward, not against ourselves, but outward, or cases where the two directions meet and are mingled. Concerning such cases, we could speak about that another set of typical modern phenomena, the scope of which ranges from the most banal everyday life to the level of culture. Indeed, the sadistic tendency, in the general sense, is also manifested in an aspect of the art and literature that enjoys focusing on types and situations pertaining to a broken, defeated, or corrupted humanity. The well-known pretext is that "this too, is life," or that all this must be shown for the sole purpose of provoking a reaction. In reality, what is here at work is rather what the Germans call Schadenfreude, a spiteful pleasure, a variety of sadism, of sadistic enjoyment. One enjoys seeing not upright, but fallen, failed, or degenerate man: not the upper limit, but the lower limit of the human condition (we could repeat here, at least in part, what we will say later about the "laughter of the gods"). There was a time when it was mostly Jewish (and Russian) writers and artists that were active in this domain; today, the phenomenon has become ubiquitous.

We see similar phenomena even outside of literature, for example in music and figurative arts. Here again the critics and exegetes have their pretexts. We are told that the meaning of these displays is an "existential revolt," and in some cases also the political and social motives of leftist "committed intellectuals." In a well-known book on the Philosophy of Modern Music, Adorno rightly wanted to interpret atonal music along those lines: the irruption of sounds that shatter the norms of traditional harmony and rebel against the canon of the harmonic triad would be the expression of existential revolt against the false ideality and conventions of bourgeois and capitalist society. However, we recognize that in this case, the issue should not be addressed too simplistically; in order to judge, we must consider the variety of possible orientations. Besides what we have already stated about contemporary music in Ride the Tiger, we will return to this issue in another chapter of this book. There is no doubt, however, that in many cases the "valid elements" that we sought to uncover in contemporary music are nonexistent, and that, to a large extent, the right view is instead the one expressed by an American, John Hemming Fry, in a book entitled The Revolt against Beauty, published between the wars. This author speaks of the sadistic and destructive drives that permeate many areas of contemporary art, manifested in the deformations, distortions, and primitivism that characterize a vast category of works of figurative art, painting, and sculpture: the elective affinities with the art of savages and Negroes being, in some cases, a further, quite eloquent indication.[1]

Naturally, our positive standard will not be beauty in the academic, empty, and conventional sense. Instead, we should refer to the opposition between form and the formless, to the idea that every truly creative process consists in the domination of form over the formless, in Greek terms, in the passage from chaos to cosmos. In its higher meaning, recognized not only by the classical authors but also by Nietzsche, the "beautiful" corresponds precisely to the perfect and dominant form, to "style," to the law that expresses the sovereignty of an idea and a will. From this point of view, the advent of the formless, chaotic, and the "ugly" are signs of a destructive process: not of power but of impotence. It has a regressive character. Psychologically, it always has the same

basis: a sadistic tendency, a pleasure in contamination in both the artist and in those who appreciate and enjoy art of this kind (if it is a sincere enjoyment, and not a stupid reverse conformism, as it is in most cases). It is not for nothing that in all representations of demons in fairy-tales or superstition, the grotesque distortion of the human figure is a key element: just as in the works of certain modern artists in fashion today.

Some of the latest dances also have typical self-sadistic traits. It is no longer simply a matter of "syncopated" or intense elemental rhythms (in which case we could even recognize a positive element in all this, as we have stated elsewhere), but dances with grotesquely epileptic and simian movements. It is almost as if they expressed a joy in degrading to the maximum anything noble in the human form through paroxysmal contortions, jumps, and puppet-like convulsions. There is a real sadism in the so-called "arrangements" practiced by almost all the orchestras currently in fashion, which specialize in anarchic "solos" as well as cutting up, tampering with, deforming, and decomposing themes from yesterday's jazz and popular music that were once still acceptable, to the point of absolute unrecognizability.

Finally, a specific area that must be considered is pornography and obscenity, so widespread nowadays. There is no need to provide examples here. Various controversies, sometimes touching the problem of censorship, have been raised with regard to writings deemed obscene, but have never arrived at any clear notions of this issue. It may be of interest to quickly bring up the trial for "obscenity" brought against the famous novel by D. H. Lawrence, Lady Chatterley's Lover, a trial that took place in London thirty-two years after its first publication, on the occasion of the release of a cheap edition of the book in England, where it had been banned until then.

In England, as in other countries, the law defines as obscene anything that may have a tendency to corrupt and pervert. It does not permit the prosecution of works that, despite being "obscene," are valuable in the domains of art, science, or "any other field of public interest." Two things were at issue in the case of Lawrence's novel: the obscene language and some descriptions of erotic scenes, which "left nothing to the imagination."

We must distinguish these two points. With regard to the second, a general problem arises: to what extent sex in itself could be something "obscene" and unclean, so that to talk about it and draw attention to sexual experiences could have a corrupting effect. We know that Lawrence not only denies this, but even makes sex a kind of religion: he saw in sexual experience a means "to realize the living and undivided wholeness of the person."

In a later chapter we will discuss at some length the nature of the various contemporary trends that glorify sex and propound sexual freedom. For the moment, we will merely state that our view has nothing to do with bourgeois puritanism and its various taboos. One can indeed go beyond the prejudices of Christian sexophobic moralism and recognize that, in many higher civilizations, sex was not at all considered to be something shameful, unclean, and "obscene." The problem is something else. Today, it is rather to take a stand against anything that only

serves to incite a kind of chronic obsession centered around sex and woman, and that is, fundamentally, a systematic attack, conducted on a grand scale, against virile values. For where love and sex predominate, the influence of women predominates, in one way or another. This obsession is fed in countless ways, mostly by media that are not not strictly speaking “obscene,” in magazine illustrations, advertising, films, beauty contests, literature on ”sexual education” with scientific pretensions, female immodesty, striptease shows, shop windows exhibiting lingerie, etc. “Racy” novels are only one particular instance of this. It is the total phenomenon that should be made visible in order to expose its corrupting action, not on the basis of a petty moralism, but because of its surreptitiously corrosive effect on those interests and values that must always remain dominant in any higher type of civilization.

But with regard to the particular matter we are discussing, what is relevant is the “obscene” in the proper sense. In order to adequately define the “obscene” and “pornographic,” a recourse to etymology is sufficient. “Pornographic” comes from porne, which in Greek means “a low-class prostitute” (as opposed to the courtesan); the application of the term to writings that do not only concern themselves with prostitution and low-class prostitution, is arbitrary. The term “obscene,” on the other hand, comes from the Latin word caenum, which means filth, dirtiness, mud (also excrement). It can therefore be used to characterize an aspect of recent erotic literature, which brings us back to our main theme, the taste for all that is dirty, inferior, vulgar. What is relevant here is the choice, in many authors from Lawrence onwards, of the most vulgar, low-class words, ”obscene” words, precisely, to designate sexual organs and sexual acts.

What Henry Miller has written in defense of obscenity [“Obscenity and the Law of Reflection”], with its characteristic confusions, is typical. Miller is also regarded as openly “pornographic.” For him, “obscenity” in literature, with recourse to the most vulgar erotic language, is a form of protest, rebellion, and liberating destruction; through it, Miller wants to awaken man, by means of an anti-conformism that does not hesitate to perform ”sacrilegious acts.” “Ultimately, then, [the artist] stands among his own obscene objurgations like the conqueror midst the ruins of a devastated city. . . . he knocked to awaken [. . .].” Here, we are really at the limits of the ridiculous.[2] Since Miller is not a theoretician, but primarily a novelist, he should provide some compelling examples of these miraculous powers of “obscenity”; but his books are not even exciting in the manner of certain risqué literature; instead, it all boils down to the grotesque and the dirty when subject matter of this kind is treated and erotic scenes are described. All that remains is the satisfaction in pure and simple obscenity in the etymological sense mentioned above, the reference to sex being secondary, and, for our purposes, irrelevant, since it is possible to speak of even the most risqué matters while avoiding vulgarity and obscenity. A short book generally categorized as pornographic literature, Gamiani, is said to have been written by Alfred de Musset to win a bet that he could describe the wildest and most perverse erotic scenes in a way “that leaves nothing to the imagination” without using a single vulgar word; certain works of anonymous French literature sold under the counter (for example, Vingtquatre nuits charnelles), offer further examples of the same kind. Thus, beyond any moralistic sexual taboo,

the salient point is precisely “obscenity” — and the current use of obscene language, regardless of absurd pretexts like those concocted by Miller and Lawrence, belongs essentially to the tendency of self-degradation and contamination, of which we have enumerated a series of typical expressions. That the extolment and the exaltation of sex is associated with obscene language that can only make sex disgusting and repellent, can only be considered singular. Anti-conformist revolt, which has descended from Nietzschean heights to the level of solidarity with the Negro, has found a worthy counterpart in those who have recourse to the dirty and vulgar language of the street. If the justifications of obscenity mentioned earlier are made in good faith, we must simply conclude that those who make them do not even realize the nature of the influences they are subject to, that they merely undergo them and are used by them, pulled along by a deep current, the multitudinous manifestations of which all rigorously converge in a single direction.

Attentive observers will have no difficulty in extending the list of phenomena enumerated here, all of which betray the same origin, and are telltale signs of an atmosphere now prevalent everywhere. We do not need to repeat that any form of conformism is alien to us: in general, conformism consists of residues of bourgeois mores and culture which do not deserve to survive, and which are increasingly affected by processes of dissolution which have become irreversible. Under certain conditions, these processes of dissolution may even be a prerequisite for a new and better order. But this is certainly not the case in everything we have discussed here so far. With regard to all of that, one must only speak of debasement, vulgarity and pure degradation as essential components of the taste and mores predominant today.

Notes

1. In the case of genuine, original works by Negroes and primitives, it should be noted that this is not a matter of artistic style; deformation and distortion are usually a component of “magic art,” which is not based not on the subjective imagination, but on the actual perception of certain dark, elemental powers.

2. In another misuse of terms, Miller says that “the whole edifice of civilization as we know it” is “obscene,” which is nonsense, since that edifice is, if anything, absurd and meaningless. For Miller, who is an extreme pacifist, what is particularly “obscene” is modern mechanized warfare, and war in general: another absurdity that reflects the same overwhelming tendency to emphasize only that which, in any given experience, is of an inferior character. The negative, and sometimes degrading and demoralizing aspects of modern warfare — the only ones that are described and emphasized by authors like Barbusse and Remarque — can be contrasted with what men like the early Ernst Jünger and Drieu La Rochelle personally experienced in the same “total war.”

Evola on Feminism

by Julius Evola

Taken from “ Il Corriere Padano ”, XI, 5 January 1933

The leveling and depersonalizing disease that prostrates modern civilization has such complex and sprawling aspects, that not everyone is able to recognize him behind the masks to oppose each of its forms a decisive revolt and a conscious reaction.

The lady and the knight, one of the most significant archetypes of the power of the Man-Woman relationship correctly framed in the sacred riverbed of Tradition (in the image, “ The End of the Quest ” by Frank Dicksee, 1921)

So it is a fact that, it does not pay to have compromised by now almost irreparably those differences in caste, nature and internal dignity that they did at first to any healthy traditional organization; striving to bring every value back under the law of quantity and the anonymity of the mere social collective, a contaminating ideology wants that, after the leveling between man and man, one also proceeds to that between sex and sex and in this one considers a « conquest, a « progress ». Epperò, from the same anti-hierarchical and anti-qualitative strain of many forms of modern degenerescence we see the conate « feministic » stand out and take shape in the two countries that are almost like the two branches of a single pincer in the act of closing, from East and West, around ancient Europe: Soviet Russia and America – since the Bolshevik equalization of women to men in every respect of social life is perfectly reflected with the complete emancipation that has long been granted to them beyond from the ocean.

Here it is not a question of personal aversions, nor of prejudices of an era or a people. In the feminist phenomenon it is essentially to be considered a symptom which, reconnected from a precise logic to many others, indicates the advent of a conception through which the very ideal of « culture », of civilization, especially in the traditional classical sense, he comes to be fatally hit.

The fundamental meaning of each civilization was that of a victory of form over formless, of « kosmos » over « chaos ». Thus, and characteristically, at the center of the classical vision of life and the state we find precisely the cult and enhancement of the limit, of the form, of the difference, of the clear personality. The world is « kosmos », and not « chaos », since, similar to a harmonious living organism, it it consists of a set of finite parts, which each have a precise function, proper and unmistakable in the whole; whose good, whose « truth » therefore does not consist in the cessation of their individuality and in going back to the unqualified, the identical, the indefinite – towards what they become mystically or atomistically one thing – but instead consists in being more and more themselves, in expressing their own nature better and better, in bringing their identification deeper and deeper, thus making the great body completely richer, more varied and determined.

To the evasion and pantheistic visions, which place the good in the impersonal, in the undifferentiated, and almost intend to be individuals as a fault or punishment, our best traditions always opposed this enhancement of difference, limit, identification. So they established the principle, by virtue of which, on the basis of natural differences between beings, a hierarchical order could arise and constitute itself in « gens », in the city, in the State and, at the limit, in the Empire.

Immediately, nothing and no being of nature is only « self »; but this condition of « mixing », which was recognized for « the things below », it was traditionally considered a condition of imperfection, and he set himself the task of institutional norms, morals and, finally, asceticism, the overcome it the nuclear distinct types, genres, classes and individuals – just as the artist draws his figures from the shapeless matter. Such was the traditional concept of culture or civilization: shape – we repeat – victorious over « chaos ».

Ejaculation is Healthy

“Ejaculation reduces the risk of early stage, low-grade prostate cancer,” Jay Lutins, MD, a urologist at the Center for Urologic Care in Pittsburgh, tells LivingHealthy. Although an explanation for the study outcome has yet to be determined, according to researchers, the correlation might have to do with the release of beneficial hormones during orgasm. And there’s more to it than just prostate health—ejaculation also reduces stress, helps promote sleep, lowers anxiety and elevates mood. “Ejaculation and orgasm cause the release of several substances [like] endorphins, which are known to reduce stress and boost confidence. Also released is serotonin, which is a known antidepressant,” says Lutins. Various hormones associated with sleep, such as prolactin, oxytocin and vasopressin, are also released in the brain during ejaculation. And how you get off doesn’t matter. According to Lutins, the same health benefits apply whether you achieve missile liftoff via masturbation or through intercourse.

Incidentally, it turns out that ejaculate is also healthy to ingest. “It’s chock-full of fructose, fatty acids, magnesium, sodium, potassium, vitamin B12 and proteins that nourish the sperm,” Lutins says. “And to top it all off—no pun intended—it’s low-calorie as well, containing between five and 25 calories [per shot].”

There are two instances, however, when ejaculation isn’t always a good thing. The first is called “retrograde ejaculation” (or “dry orgasm”): when the semen goes into the bladder instead of exiting from the penis because the muscle that blocks entry to the bladder isn’t functioning properly. “This occurs in patients who have had surgery on the prostate,” says Lutins, who adds that diabetics are also prone to this condition, though rarely. According to the Mayo Clinic, you can tell if you’re experiencing a dry orgasm if you see very little or no ejaculate despite feeling

the orgasmic sensation. Retrograde ejaculation can cause male infertility, but there is medical treatment that can reverse its infertility impact.

Second, orgasms aren't good for a man who is suffering from a cardiac condition or has recently undergone cardiac surgery. "Sexual activity is stressful on the heart soon after surgery since a man's pulse, respiratory rate and blood pressure rise during physical activity associated with sex and ejaculation," according to Lutins.

So, provided you don't have dry orgasms or heart issues, it seems fair to say that when it comes to ejaculation, the more the better. And in case you're curious, what's the norm when it comes to how often men ejaculate? On average, males ejaculate about 5,000 times and 17 liters over a lifetime, according to Lutins. Studies have shown that men under 30 average three to five times a week, and by the time they turn 50, the number decreases to once a week on average.

The bottom line: Ejaculating is more than just a good feeling. No one has summed up the medical wonders of ejaculation better than the Prince of Soul himself, Marvin Gaye, in his classic tune: "Sexual healing, oh baby; Makes me feel so fine; Helps to relieve my mind; Sexual healing baby, is good for me."

"Is Abstinence Healthy?"

"Overall, there are no known health risks to abstinence. In fact, there are several possible benefits."

What? This isn't true. Yes sperm can be reabsorbed back into the body. And this happening for too long a period can cause problems. spermatoceles are much more common in men who do not ejaculate regularly. Also, the rates of benign prostatic hypertorphy, prostatic cancer, prostatic calculi, premature ejqaculation and impotence are all higher in men who do not ejaculate regularly. Simply put regular ejaculation is important to good sexual health. Any Urologist can tell you this. Moreover, masturbation and orgasm are important to good psychological well-being. Orgasm floods the brain with endorphins and melatonin, both give a sense of contentment and well-being. And it also allows one to connect with oneself sexually and maintain a healthy sexuality.

Yes, many younger people today are "choosing" abstinence to the extent that they forego masturbation. But many psychologist see this as a form of sexual maladjustment, neurotic reaction to feelings of sexual inadequacy, or possible endocrine problems. It isn't healthy. There is no such person as "Mr. Right" or "Miss Right"; this is just a silly romantic notion, so saving oneself for him or her, is to deny oneself a healthy sexuality for the sake of a fantasy.

Questioner, your friend's postion is self-contradictory. He was in a relationship and having sex, but the intimation is that not as much as he wanted. So he supplemented with masturbation.

There's nothing wrong with that; most men in committed relationships continue to masturbate, because it's important to have a sexual relationship with oneself. Yet now that he's single, he doesn't masturbate. He satisfied his urges before, but not now that he doesn't have a partner. So, there are two possibilities here: 1) he's not being straight with you. Remember, there are two types of men in the world: those who jerk off and those who lie about it. or, 2) Your friend needs some counseling to find out why he has suddenly decided to deny himself sexual pleasure. It may very well be that he has some outstanding issues from his break-up that he isn't dealing with.

Misconceptions of Male Abstinence and the Ejaculation Hypothesis

Apparently, members of the notorious image board known as 4chan are now quitting the act of fapping. My god… what is the world cumming to!?! And, it seems to all be revolving around the post I wrote a few months ago called, The Effects of Male Masturbation on Attracting Women.

In the last week or so there have been multiple threads on the 4chan board /r9k/ where some of the guys are experimenting with the "7 Day Abstinence Cycle" which I discuss in the article as an effective way of taking advantage of your body's peak testosterone levels along with other advantages controlled by the central nervous system in order to help attract women. Of course, with most discussions on the Internet, it is ripe with debate including the usual fan boys, trolls, and detractors.

After reading through some of the threads, there are a few questions and criticisms from the brobots that I'd like to discuss as a follow up to the original male masturbation post.

The Magic Pill

First, abstaining from ejaculation is NOT a means to an end. If you happen to go seven full days without masturbating, there will be no buxom blond genie that appears out of thin air and bangs the shit out of you. My friends, this is not a magic pill solution, it is merely one tool in the grand scheme of the overall attraction process. For example, residing yourself to your mother's basement for seven days straight isn't going to do much of anything, regardless of your fapping habits. You still need to make an effort to go out, meet and interact with women.

The Placebo Effect

There are some that say that this whole seven day cycle nonsense is merely a placebo effect. Basically, indicating that the seven day cycle has no effects on your body and that the only reason that someone would have positive results is because their belief in it tricked them into getting the results they wanted.

Well, I'm not a scientist, so yea, maybe this whole thing is bullshit. However, I did point out in my original article at least three sources of research published in respectable scientific journals which do indicate there is some merit to the seven day abstinence cycle. They include:
?A research on the relationship between ejaculation and serum testosterone level in men

?Pharmacological and physiological aspects of sexual exhaustion in male rats
?Subjective Experiences During Dopamine Depletion

Also, for the sake of argument, lets say that it is a placebo effect. If someone is getting the results they desire, i.e. – attracting more women into their life, then who the hell cares what the cause is?! If a placebo is going to aid me in shagging that hottie at the end of the bar, then I could care less, the result is still the same.

To a scientist this may sound like sacrilege, but I'm not a scientist, I just want to get laid.

The Seven Day Cycle

Some people are taking the seven day cycle too strictly and/or confusing it. In the original article I try to explain that seven days of abstinence is needed to reach your peak in testosterone, because on day seven testosterone production spikes 147%. Now this does not mean that you can or should masturbate on day seven. In fact, if you are following the seven day cycle, you shouldn't masturbate until AFTER day 7 in order to get the full effects. It would be even more beneficial, in my opinion, to wait until 10 days, so as to give you three days of testosterone pumping horny male motivation.

So why even masturbate at all? Well, hopefully if you are getting laid, then you shouldn't have to. However, in the event that you aren't getting any action, it is still helpful to masturbate from time to time as to release tension and to remind your body that you are or want to be sexually active. For example, some people have reported that extended time periods (more than a month) of no ejaculation had severely lowered their sex drive as to not wanting to masturbate or pursue sexual intercourse at all.

Testosterone and Dopamine

Then there are some people who are focusing too much on the testosterone discussion. Increased testosterone by itself is not going to attract women. It's what testosterone does for your body that will help you to attract women. And yes, there are other ways to increase testosterone levels other than abstinence, like regular exercise or a healthier diet for example.

Also, keep in mind the third study that I cited regarding dopamine depletion. In that study, it showed that men who were excessively depleted of their dopamine levels through ejaculation had shown signs of depression, irritability and social anxiety. So guys that have chronic masturbatory regimes, wanking-off multiple times per day every day, are likely depleting their dopamine which contributes to their depression, anxiety and anti-social behaviors.

Don't Whack It Until You've Tried It

There are some things in life that we either do not have the resources or knowledge to test for ourselves, this is not one of them. This experiment is something that every male with a little will power can try. So before you cast doubt, why not just give it a go? Not jerking off for seven

days isn't going to kill you, so what's the harm? Give it a shot, observe what happens, then reassess if it is for you or not.

"Its not that masturbating is bad for you, its just that sex is a biological imperative. Everything you do is ultimately to get fucked. So if you're jerking it all the time your body is in 'I'm getting it all the time, might as well not even try' mode."

- Anonymous

Tips for Abstaining from Masturbation

For those willing to try this out, I will tell you that it is difficult the first 2-3 days, but it can be done, especially if you put up road blocks to help prevent the urge. Here are a few tips that have helped me:
?If you have a porn folder on your computer, get rid of it. You don't have to delete it permanently, just move it to a flash drive and put it somewhere inconvenient to access.
?If you go to any regular pron sites on the web like RedTube, YouPorn or xHamster then add blocks to those sites on your browser. I know you can simply remove the blocks if you get super horny but it helps to keep you from spontaneously cumbursting
?Exercise. When you get the urge to fap, do some push-ups or go for a run. I've noticed that regular exercise somehow helps to relieve the horniness
?Only go to bed when you are tired and ready to fall asleep. Don't watch TV in bed. If you are just laying there doing nothing, then one thing is bound to lead to the other…
What you're doing is basically compressing your urethra (see this diagram and this one) to prevent anterograde flow. Since it's got to go somewhere, it's going retrograde, probably into your bladder and maybe some back into your epididymus. You'd have to ask a urologist about any long-term damage, but my guess would be 1) possibly some inflammation of the urethra leading to increased risk of urinary tract/bladder infection 2) changing the pH of the urine in the bladder (it's usually mildly acidic, but prostatic fluid and semen is basic) which might affect things long term and 3) probably the biggest concern would be potential damage to your two bladder sphincters (one under subconscious control, the other under your own conscious control).

But again, all speculation.

Retrograde ejaculation

Retrograde ejaculation occurs when semen, which would normally be ejaculated via the urethra, is redirected to the urinary bladder. Normally, the sphincter of the bladder contracts before ejaculation forcing the semen to exit via the urethra, the path of least resistance. When the bladder sphincter does not function properly, retrograde ejaculation may occur.

Contents [hide]

Signs and symptoms[edit]

Retrograde ejaculation is sometimes referred to as a "dry orgasm." Retrograde ejaculation is one cause of male infertility.[1] Men often notice during masturbation that they do not have semen release but there is an orgasm.[2] Another underlying cause for this phenomenon may be ejaculatory duct obstruction.

During a male orgasm, sperm are released from the epididymis and travel via small tubes called the vas deferens. The sperm mix with seminal fluid in the seminal vesicles, prostate fluid from the prostate gland, and lubricants from the bulbourethral gland. During climax, muscles at the end of the bladder neck tighten to prevent retrograde flow of semen. In retrograde ejaculation, these bladder neck muscles are either very weak or the nerves controlling the muscles have become damaged.[3]

Causes[edit]

A malfunctioning bladder sphincter, leading to retrograde ejaculation, may be a result either of:
Autonomic nervous system dysfunction.
Operation on the prostate. It is a common complication of transurethral resection of the prostate, a procedure in which prostate tissue is removed, slice by slice, through a resectoscope passed along the urethra.

It can also be caused by a retroperitoneal lymph node dissection for testicular cancer if nerve pathways to the bladder sphincter are damaged, with the resulting retrograde ejaculation being either temporary or permanent. Modern nerve-sparing techniques seek to reduce this risk; however, it may also occur as the result of Green Light Laser prostate surgery. Surgery on the bladder neck accounted for about ten percent of the cases of retrograde ejaculation or anejaculation reported in a literature review.[4]

Retrograde ejaculation is a common side effect of medications, such as tamsulosin, that are used to relax the muscles of the urinary tract, treating conditions such as benign prostatic hyperplasia. By relaxing the bladder sphincter muscle, the likelihood of retrograde ejaculation is increased.

The medications that mostly cause it are antidepressant and antipsychotic medication; patients experiencing this phenomenon tend to quit the medications.[5][6]

Retrograde ejaculation can also be a complication of diabetes, especially in cases of diabetics with long term poor blood sugar control. This is due to neuropathy of the bladder sphincter. Post-pubertal males (aged 17 to 20 years) who experience repeated episodes of retrograde ejaculation are often diagnosed with urethral stricture disease shortly after the initial complaint arises. It is currently not known whether a congenital malformation of the bulbous urethra is responsible, or if pressure applied to the base of the penis or perineum immediately preceding ejaculatory inevitability may have inadvertently damaged the urethra. This damage is most often seen within 0.5 cm of the ejaculatory duct (usually distal to the duct).

Retrograde ejaculation can also result from pinching closed the urethral opening, to avoid creating a mess upon ejaculation (known as Hughes' technique).[7]

Conditions which can affect bladder neck muscle[edit]

Medications to treat high blood pressure, benign prostate hyperplasia, mood disorders, surgery on the prostate and nerve injury (which may occur in multiple sclerosis, spinal cord injury or diabetes).[8]

Diagnosis[edit]

Diagnosis is usually by way of a urinalysis performed on a urine specimen that is obtained shortly after ejaculation. In cases of retrograde ejaculation, the specimen will contain an abnormal level of sperm.

Especially in case of orgasmic anejaculation, anejaculation can often be confused with retrograde ejaculation, and they share some fundamental aspects of the etiology. Urinalysis is used to distinguish between them.

Tests[edit]

A physical exam of the genitals is applied to ensure that there are no anatomical problems. The urine will be examined for the presence of semen. If there are no sperm in the urine, it may be due to damage to the prostate as a result of surgery or prior radiation therapy.[9]

Treatments[edit]

The treatment depends on the cause. Medications may work for retrograde ejaculation but only in a few cases. Surgery rarely is the first option for retrograde ejaculation and the results have proven to be inconsistent.[10] Medications do not help retrograde ejaculation if there has been permanent damage to the prostate or the testes from radiation. Medications also do not help if prostate surgery has resulted in damage to the muscles or nerves. Medications only work if there has been mild nerve damage caused by diabetes, multiple sclerosis or mild spinal cord injury.

Medications[edit]
Tricyclic antidepressants like imipramine.

Antihistamines like chlorphenamine.
Decongestants like ephedrine and phenylephrine.

These medications tighten the bladder neck muscles and prevent semen from going backwards into the bladder. However, the medications do have many side effects and they have to be taken at least 1–2 hours prior to sexual intercourse. In many cases, the medications fail to work at the right time because most men are not able to predict when they will have an orgasm.[citation needed]

Infertility treatments[edit]

If a couple is experiencing infertility as a result of retrograde ejaculation and medications are not helping, the male's ejaculate may be centrifuged and the isolated sperm injected directly into the woman through the use of intrauterine insemination.[3] In more severe cases, in-vitro fertilization with intracytoplasmic sperm injection may be used.[1]

History[edit]

Taoists and some fields of alternative medicine recommend and teach deliberate retrograde ejaculation as a way of "conserving the body's energy". One manner of achieving this is by applying pressure to the perineum during orgasm. It was believed that doing this caused the sperm to travel into the head and nourish the brain, or that energy is conserved physically by keeping the sperm (and thereby, the "intelligence" that created it) in the body.[11] This approach has since been discredited by modern medicine, as the retrograde-ejaculated sperm actually go into the bladder and are simply lost at the next urination.[12] However, there are other Taoist perspectives on the general subject of ejaculation and techniques that do not involve retrograde ejaculation (see Taoist sexual practices).

Due to its aforementioned effects on fertility, there is a potential misconception that inducing this condition can be used as a method of contraception. However, it is neither reliable nor effective, due to some sperm still potentially emerging. Many doctors also do not recommend inducing retrograde ejaculation due to the risk of putting pressure on the pudendal nerve.[citation needed] Such pressure can cause numbness in the penis.[citation needed]
Taoist sexual practices

Taoist sexual practices (pinyin: fángzhongshù)

, literally "the bedroom arts", are the ways Taoists may practice sexual activity. These practices are also known as "Joining Energy" or "The Joining of the Essences". Practitioners believe that by performing these sexual arts, one could stay in good health, and attain longevity.

Contents [hide]

History[edit]

Some Taoist sects during the Han dynasty performed sexual intercourse as a spiritual practice, called "Héqì" (??, "Joining Energy"). The first sexual texts that survive today are those found at the Mawangdui tombs. While Taoism had not yet fully evolved as a philosophy at this time, these texts shared some remarkable similarities with later Tang dynasty texts, such as the Ishinpo. The sexual arts arguably reached their climax between the end of the Han dynasty and the end of the Tang dynasty. After 1000 A.D. [CE], Confucian puritanism became stronger and stronger, so that by the advent of the Qing dynasty, sex was a taboo topic in public life. These Confucians alleged that the separation of genders in most social activities existed two thousand years ago, and suppressed the sexual arts. Because of the taboo surrounding sex, there was much censoring done during the Qing in literature, and the sexual arts disappeared in public life. As a result, some of the texts survived only in Japan, and most scholars had no idea that such a different concept of sex existed in early China.[1]

Ancient and medieval practices[edit]

Qi (Lifeforce) and Jing (Essence)[edit]

The basis of all Taoist thinking is that qi is part of everything in existence.[2] Qi is related to another energetic substance contained in the human body known as jing (?), and once all this has been expended the body dies. Jing can be lost in many ways, but most notably through the loss of body fluids. Taoists may use practices to stimulate/increase and conserve their bodily fluids to great extents. The fluid believed to contain the most Jing is semen. Therefore, Taoists believe in decreasing the frequency of, or totally avoiding, ejaculation in order to conserve life essence.[3]

Male control of ejaculation[edit]

Many Taoist practitioners link the loss of ejaculatory fluids to the loss of vital life force: where excessive fluid loss results in premature aging, disease, and general fatigue. While some Taoists

contend that one should never ejaculate, others provide a specific formula to determine the maximum amount of regular ejaculations in order to maintain health.[4] The general idea is to limit the loss of fluids as much as possible to the level of your desired practice. As these sexual practices were passed down over the centuries, some practitioners have given less importance to the limiting of ejaculation. Nevertheless, the "retention of the semen" is one of the foundational tenets of Taoist sexual practice.[5]

There are different methods to control ejaculation prescribed by the Taoists. In order to avoid ejaculation, the man could do one of several things. He could pull out immediately before orgasm, a method which Joseph Needham termed "coitus conservatus".[6] A second method involved the man applying pressure on the perineum, thus retaining the sperm. While, if done incorrectly can cause a retrograde ejaculation, the Taoists believed that the jing traveled up into the head and "nourished the brain."[7]

Jing[edit]

Another important concept of "The Joining of the Essences" was that the union of a man and a woman would result in the creation of jing, a type of sexual energy. When in the act of lovemaking, jing would form, and the man could transform some of this jing into qi, and replenish his lifeforce. By having as much sex as possible, men had the opportunity to transform more and more jing, and as a result would see many health benefits.[3]

Yin/Yang[edit]

The concept of Yin and yang is important in Taoism, and consequently also holds special importance in sex. Yang usually referred to the male sex, whereas Yin could refer to the female sex. Man and Woman were the equivalent of heaven and earth, but became disconnected. Therefore, while heaven and earth are eternal, man and woman suffer a premature death.[8] Every interaction between Yin and Yang had significance. Because of this significance, every position and action in lovemaking had importance. Taoist texts described a large number of special sexual positions that served to cure or prevent illness.[9]

Women[edit]

For Taoists, sex was not just about pleasing the man. The woman also had to be stimulated and pleased in order to benefit from the act of sex. Sex should not happen if one or the other partners desire it more. If sex were performed in this manner, the woman would create more jing, and the man could more easily absorb the jing to increase his own qi. Women were also given a prominent place in the Ishinpo, with the tutor being a woman. One of the reasons women had a great deal of strength in the act of sex was that they walked away undiminished from the act. The woman had the power to bring forth life, and did not have to worry about ejaculation or refractory period.

Women were often given a position of inferiority in sexual practice. Many of the texts discuss sex from a male point of view, and avoid discussing how sex could benefit women. Men were encouraged to not limit themselves to one woman, and were advised to have sex only with the

woman who was beautiful and had not had children. While the man had to please the woman sexually, she was still just an object.[10] At numerous points during the Ishinpo, the woman is referred to as the "enemy"; this was because the woman could cause him to spill semen and lose vitality. In later sexual texts from the Ming, women had lost all semblance of being human and were referred to as the "other," "crucible", or "stove" from which to cultivate vitality. The importance of pleasing the woman was also diminished in later texts.[11] The practise was known as Caibu (??), as a man enters many women without ejaculation.

Women were also considered to be a means for men to extend men's lives. Many of the ancient texts were dedicated explanation of how a man could use sex to extend his own life. But, his life was extended only through the absorption of the woman's vital energies (jing and qi). Some Taoists called the act of sex “The battle of stealing and strengthening.”[12] These sexual methods could be correlated with Taoist military methods. Instead of storming the gates, the battle was a series of feints and maneuvers that would sap the enemy's resistance.[13]

When and where[edit]

Another text, Health Benefits of the Bedchamber, indicates that certain times were better for intercourse than others. A person had to avoid having intercourse on quarter or full moons and on days when there were great winds, rain, fog, cold or heat, thunder, lightning, darkness over heaven and earth, solar and lunar eclipses, rainbows and earthquakes. Having intercourse at these times would harm a man's spirit and would cause women to become ill. Children conceived at these times would be mad, stupid, perverse or foolish; mute, deaf, crippled or blind; unfilial and violent.

Also important was selecting the right day for intercourse if a person desired children. After the woman's period, the first, third or fifth days were the best. If on these days the man ejaculated after midnight, the child would likely be male. If a female child was desired, the man needed to ejaculate on the second, fourth or sixth days after the cessation of the woman's period.

The location of sex was also important. People had to avoid the glare of the sun, moon or stars, the interior of shrines, proximity to temples, wells, stoves and privies, and the vicinity of graves or coffins.

If these suggestions were followed the family's offspring would be good, wise and virtuous. If they were not followed, the offspring would be evil and the family would eventually die off.[14]

Longevity and immortality[edit]

Some Ming dynasty Taoist sects believed that one way for men to achieve longevity or 'towards immortality' is by having intercourse with virgins, particularly young virgins. Taoist sexual books, such as the Hsuan wei Hshin ("Mental Images of the Mysteries and Subtleties of Sexual Techniques") and San Feng Tan Cheueh ("Zhang Sanfeng's Instructions in the Physiological Alchemy"), written, respectively, by Zhao Liangpi and Zhang Sanfeng (not to be confused with semi-mythical Zhang Sanfeng who lived in an earlier period), call the woman sexual partner ding (?) and recommend sex with premenarche virgins. Zhao Liangpi concludes that the ideal ding is

a premenarche virgin just under 14 years of age and women older than 18 should be avoided.[15] Zhang Sanfeng went further and divided ding into three ranks: the lowest rank, 21- to 25-year-old women; the middle rank, 16- to 20-year-old menstruating virgins; the highest rank, 14-year-old premenarche virgins.[16]

According to Ge Hong, a 4th-century Taoist alchemist, "those seeking 'immortality' must perfect the absolute essentials. These consist of treasuring the jing, circulating the qi and consuming the great medicine."[17] The sexual arts concerned the first precept, treasuring the jing. This is partially because treasuring the jing involved sending it up into the brain. In order to send the jing into the brain, the male had to refrain from ejaculation during sex. According to some Taoists, if this was done, the jing would travel up the spine and nourish the brain instead of leaving the body. Ge Hong also states, however, that it is folly to believe that performing the sexual arts only can achieve immortality and some of the ancient myths on sexual arts had been misinterpreted and exaggerated. Indeed, the sexual arts had to be practiced alongside alchemy to attain longevity. Ge Hong also warned it could be dangerous if practiced incorrectly.[17]

Sex magic

The examples and perspective in this article may not include all significant viewpoints. Please improve the article or discuss the issue. (June 2010)

Sex magic (sometimes spelled sex magick) is any type of sexual activity used in magical, ritualistic or otherwise religious and spiritual pursuits. One practice of sex magic is using the energy of sexual arousal or orgasm with visualization of a desired result. A premise of sex magic is the concept that sexual energy is a potent force that can be harnessed to transcend one's normally perceived reality.[citation needed]

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Paschal Beverly Randolph[edit]

Paschal Beverly Randolph

The earliest known practical teachings of sex magic in the Western world come from 19th-century American occultist Paschal Beverly Randolph, under the heading of The Mysteries of Eulis:

If a man has an intelligent and loving wife, with whom he is in complete accord, he can work out the problems [of how to achieve magical results] by her aid. They are a radical soul-sexive series of energies...The rite is a prayer in all cases, and the most powerful [that] earthly beings can employ...it is best for both man and wife to act together for the attainment of the mysterious objects sought.

Success in any case requires the adjuvancy of a superior woman. THIS IS THE LAW! A harlot or low woman is useless for all such lofty and holy purposes, and just so is a bad, impure, passion-driven apology for a man. The woman shall not be one who accepts rewards for compliance; nor a virgin; or under eighteen years of age; or another's wife; yet must be one who hath known man and who has been and still is capable of intense mental, volitional and affectional energy, combined with perfect sexive and orgasmal ability; for it requires a double crisis to succeed...

The entire mystery can be given in very few words, and they are: An upper room; absolute personal, mental, and moral cleanliness both of the man and wife. An observance of the law just cited during the entire term of the experiment -- 49 days. Formulate the desire and keep it in mind during the whole period and especially when making the nuptive prayer, during which no word may be spoken, but the thing desired be strongly thought...[1]

Randolph himself was greatly influenced by the work of English Rosicrucian and scholar of phallicism, Hargrave Jennings.

Ida Craddock[edit]

In the latter part of the 19th century, sexual reformer Ida Craddock published several works dealing with sacred sexuality, most notably Heavenly Bridegrooms and Psychic Wedlock. Aleister Crowley reviewed Heavenly Bridegrooms in the pages of his journal The Equinox, stating that it was:

...one of the most remarkable human documents ever produced, and it should certainly find a regular publisher in book form. The authoress of the MS. claims that she was the wife of an angel. She expounds at the greatest length the philosophy connected with this thesis. Her learning is enormous.

...This book is of incalculable value to every student of occult matters. No Magick library is complete without it.[2]

Sexual techniques from Craddock's Psychic Wedlock were later reproduced in Sex Magick by O.T.O. initiate Louis T. Culling.[3]

Ordo Templi Orientis[edit]

Carl Kellner, the founder of Ordo Templi Orientis, (O.T.O.), claimed to have learned the techniques of sex magic from three adepts in this art.[4] Beginning in 1904, references to these secrets, Kellner, and the O.T.O. began appearing in "an obscure German masonic periodical called Oriflamme."[4] In 1912, the editors of Oriflamme announced:

Our order possesses the key which opens up all Masonic and Hermetic secrets, namely, the teachings of sexual magic, and this teaching explains, without exception, all the secrets of Freemasonry and all systems of religion.[4]

Aleister Crowley[edit]

Crowley in Golden Dawn garb
Aleister Crowley became involved with Theodor Reuss and Ordo Templi Orientis following the publication of The Book of Lies between 1912 and 1913.[5] According to Crowley's account, Reuss approached him and accused him of having revealed the innermost (sexual) secret of O.T.O. in one of the cryptic chapters of this book. When it became clear to Reuss that Crowley had done so unintentionally, he initiated Crowley into the IX° (ninth degree) of O.T.O. and appointed him "Sovereign Grand Master General of Ireland, Iona and all the Britains."[5][6][7]

While the O.T.O. included, from its inception, the teaching of sex magick in the highest degrees of the Order, when Crowley became head of the Order, he expanded on these teachings and associated them with different degrees as follows:[8]
VIII°: masturbatory or autosexual magical techniques were taught, referred as the Lesser Work of Sol
IX°: heterosexual magical techniques were taught
XI°: anal intercourse magical techniques were taught.

Professor Hugh Urban, Professor of Comparative Religion at The Ohio State University, noted Crowley's emphasis on sex as "the supreme magical power".[6] According to Crowley:

The Book of the Law solves the sexual problem completely. Each individual has an absolute right to satisfy his sexual instinct as is physiologically proper for him. The one injunction is to treat all such acts as sacraments. One should not eat as the brutes, but in order to enable one to do one's will. The same applies to sex. We must use every faculty to further the one object of our existence.[9]

Writings on sex magic[edit]

Main articles: Works of Aleister Crowley and Libri of Aleister Crowley

Crowley wrote extensively on the topic of sex magick. Some of these works were published and made available to the general public, others were secret and could only be obtained by initiates of Ordo Templi Orientis.
Liber IAO - IAO. Sexual Magick. Gives three methods of attainment through a willed series of thoughts. The active form of Liber CCCXLV.
De Nuptis Secretis Deorum Cum Hominibus - Sexual magick
Liber Stellae Rubeae - According to Crowley, a secret ritual of Apep, the heart of IAO-OAI, delivered unto V.V.V.V.V. for his use in a certain matter of The Book of the Law (Liber AL vel Legis). Sexual Magick veiled in symbolism.
Liber Agape vel C vel Azoth - The Book of the Unveiling of the Sangraal wherein it is spoken of the Wine of the Sabbath of the Adepts. Secrets instructions of the ninth degree of the O.T.O. (Sex Magick)
Liber Cheth vel Vallum Abiegni - A perfect account of the task of the Exempt Adept considered under the symbols of a particular plane, not the intellectual. Sexual magick veiled in symbolism.
Liber A'ash vel Capricorni Pneumatici - Analyzes the nature of the creative magickal force in man, explains how to awaken it, how to use it and indicates the general as well as the particular objects to be gained thereby. Sexual magick heavily veiled in symbolism.
The Book of Lies - includes some techniques in symbolic language, including extended mutual oral sex (Chapter 69) while intoxicated on hashish.
The Paris Working - A record of homosexual magick operations.
Energized Enthusiasm - An essay developing the idea of creativity as a sexual phenomenon. Specially adapted to the task of attainment of control of the Body of Light, development of intuition, and Hatha yoga.

Arnold Krumm-Heller[edit]

According to Samael Aun Weor, Arnold Krumm-Heller taught sexual magic without ejaculation.[10]

Maria de Naglowska[edit]

Maria de Naglowska (1883-1936) was a Russian occultist, mystic, author and journalist who wrote and taught about sexual magical ritual practices while also being linked with the Parisian surrealist movement. She established and led an occult society known as the Confrérie de la Flèche d'or (Brotherhood of the Golden Arrow) in Paris from 1932 to 1935. In 1931, she compiled, translated and published in French a collection of published and unpublished writings by American occultist Paschal Beverly Randolph on the subject of sexual magic and magic mirrors. Her translation and publication of Randolph's previously little known ideas and teachings was the source of Randolph's subsequent influence in European magic.[11] She augmented the text with what she claimed were some of his oral teachings.[12] The following year, she published a semi-autobiographical novella, Le Rite sacré de l'amour magique (The Sacred Ritual of Magical Love.)

Later that year, she also published La Lumière du sexe (The Light of Sex), a mystic treatise and guide to sexual ritual that was required reading for those seeking to be initiated into the

Brotherhood of the Golden Arrow. Her later book on advanced sexual magic practices, Le Mystère de la pendaison (The Hanging Mystery) details her advanced teachings on the Third Term of the Trinity and the spiritually transformative power of sex, and the practice of erotic ritual hanging and other sensory deprivation practices. Beyond occult subjects, Maria Naglowska also influenced the surrealist art movement. The Lexique succinct de l'érotisme in the catalog of the 1959 International Surrealist Exhibition in Paris noted her important influence.[13] Surrealist Sarane Alexandrian wrote a detailed account of her life.[14]

semen retention

The avoidance of male ejaculation either through sexual abstinence, or by practicing sexual intercourse without ejaculation.

Importantly, semen retention does not refer to the avoidance of orgasm. In this practice, orgasm is separated from ejaculation, making it possible to enjoy the full pleasure of sexual intercourse - including orgasm - without experiencing seminal ejaculation.

Semen retention is an ancient practice, believed to maximize male physical and spiritual energy. Much of the history appears to be rooted in Taoist sexual practices.

Worldwide, this practice exists in many cultures, under different names;

Sexual continence

Seminal conservation

Sexual transmutation (Napoleon Hill, Think and Grow Rich)

Coitus Reservatus (Latin)

karezza (Italian)

maithuna (Hindu Tantra)

Sahaja (Hindu Yoga)

"cai Yin pu Yang" and "cai Yang pu Yin" (Taoist sexual practices)

Semen retention is not to be confused with modern-day practices such as NoFap and Orgasm control. Although both of these treat Orgasm and ejaculation specially, they ultimately permit ejaculation-

NoFAP - the avoidance of porn and masturbation. Orgasm and ejaculation are allowed with a partner, but solo sex is avoided.

Orgasm control, also referred to as edging, peaking, or surfing. Orgasm and ejaculation are delayed, but eventually allowed at the end of the sexual session.

Purported Benefits

Practitioners ascribe near-mystical superpower qualities to semen conservation, which include;

Self-confidence and a notable boost in courage

Attractiveness to the opposite sex

Energy and focus

Mental clarity and awareness, including social situations

Motivation, to do things that are good for you - gym, create, think, date, socialize.

Groundedness, calmness, significantly reduced anxiety

Sex drive, including harder erections and loss of any erectile dysfunction (ED)

Deeper voice

Weight loss

Increased muscle mass

Better sleep

Clearer skin / no acne

and many more...

This post on r/NoFAP equates semen retention to steroids.

I radiate masculinity and so do all people who practice Semen Retention. ... my opinion is that semen retention is comparable to taking steroids, because both ENORMOUSLY increase your testosterone. But from semen retention you actually live longer, unlike with steroids where you're likely to die with 30-35.

An purported example of the strength afforded from semen conservation;

Methods

The simplest, and therefore perhaps the easist method of semen retention is sexual abstinence, which avoids both orgasm and ejaculation.

Those that engage in sexual union with a partner, and wish to experience orgasm without ejaculation, use two primary methods to avoid ejaculation;

The man can pull out immediately before orgasm, a method which Joseph Needham termed "coitus conservatus".

A second method involved the man applying pressure on the perineum, thus retaining the sperm. While, if done incorrectly can cause a retrograde ejaculation, the Taoists believed that the jing traveled up into the head and "nourished the brain."

In theory, semen retention could be practiced during masturbation. However this is not described in the Taoist texts- perhaps because it precludes the Joining of the essences between the male and the female.

Scientific Basis

An important question is whether there exists actual scientific evidence that semen retention could be causing the above perceived benefits.

It turns out that there appear to be five scientifically-measurable areas of impact of semen retention;

Increase in Testosterone levels.

Increase in brain androgen receptors [ARs]

Decrease in Dopamine levels.

Decrease in Prolactin levels.

Increase in Serotonin levels.

Increase in Testosterone

The most scientifically provable result of semen retention is likely to be increased testosterone. This study on male masturbation determined that;

When men don't masturbate for 7 days their testosterone levels increase by 45.7%

Significant testosterone increase could explain a number of the purported physical benefits, including deeper voice, thicker hair, greater strength and power and weight loss.

It may also explain some of the psychological benefits, including increased energy and focus, increased courage, self-confidence, and by correlation, the "chick magnet" effect.

Increase in brain androgen receptors [ARs]

This post suggests that androgen receptors play an important role.

Testosterone does nothing for you if you don't have androgen receptors (ARs). ARs are what allow your body to use testosterone, such as to develop a deep voice and other manly traits. Without ARs, testosterone is useless. ... Porn / frequent masturbation hasn't been proven, at least in the short term, to really affect testosterone levels, however, overly active sexual activity/satiety (such as porn with frequent masturbation) has been proven, at least in lab mice, to significantly reduce the amount of androgen receptors in the body. It also upregulates estrogen receptors. It takes at least 15 days of abstinence to reverse these brain changes.

Citing the following studies;

Relationship between Sexual Satiety and Brain Androgen Receptors [Karger]

Relationship between sexual satiety and motivation, brain androgen receptors and testosterone in male mandarin voles

Decrease in Prolactin

This article offers some excellent insights on the role of Prolactin...

[Following ejaculation] two events happen simultaneously. Dopamine plummets and prolactin soars. Dopamine is "go get it!" and prolactin is "whoa!" This mechanism shifts your attention elsewhere: to hunting and gathering, taking care of babies, building shelters, and so forth. Without this natural, protective shutdown, you would pursue sex to the exclusion of all other activities.

This post suggests that the reduction of prolactin has many benefits.

And more, and more.

Mystical Basis

In Taoist sexual practices;

Traditional Chinese Medicine (TCM) cites three vital forces of life. Jing (精) or "essence," along with qì and shén, is considered one of the Three Treasures (Sanbao 三寶).

Jing is the life force. It nourishes, fuels, and cools the body, and is an important concept in internal martial arts. One is said to be born with a fixed amount of jīng (pre-natal jīng, also sometimes called yuan qi) and also can acquire jīng from food and various forms of stimulation (exercise, study, meditation.) Jīng is therefore considered quite important for longevity.

Jing's most concentrated form is believed to be in semen, therefore releasing semen outside of the body, through ejaculation, is a directly a loss of Jing. In sexual intercourse with a woman, this powerful energy is used to create a new life- however when reproduction is curtailed (birth control, pulling out, or masturbation), that energy is simply wasted.

The production of semen in men, and menstrual blood in women, is considered to be the biggest strain on jing.

Many Taoist practitioners link the loss of ejaculatory fluids to the loss of vital life force: where excessive fluid loss results in premature aging, disease, and general fatigue.

The general idea is to limit the loss of fluids as much as possible to the level of your desired practice.

Another important concept of "The Joining of the Essences" was that the union of a man and a woman would result in the creation of jing, a type of sexual energy. When in the act of lovemaking, jing would form, and the man could transform some of this jing into qi, and replenish his lifeforce. By having as much sex as possible, men had the opportunity to transform more and more jing, and as a result would see many health benefits.

Read more about Jing here.

A diagram of how the Three Treasures interact, from here.

Hinduism

In Hinduism, similar ideas exist;

Shakti (□□□□□, or Śakti) literally translates as power, ability, strength, might, effort, energy, capability. It is believed to be the primordial cosmic energy and represents the dynamic forces that are thought to move through the entire universe in Hinduism and Shaktism.

Hindus believe that Shakti is both responsible for creation and the agent of all change.

The most significant form of Shakti is thought to be the Kundalini Shakti, a mysterious psychospiritual force which is said to be located at the base of the spine, equating with intense form of creative, sexual energy.

Historical Notes

This practice extends to so many cultures and timeperiods, that it could be far more thoroughly researched. A few key historical notes;

From Wikipedia-

Some Taoist sects during the Han dynasty performed sexual intercourse as a spiritual practice, called "Héqì" (合气, "Joining Energy").

Many Taoist practitioners link the loss of ejaculatory fluids to the loss of vital life force: where excessive fluid loss results in premature aging, disease, and general fatigue. While some Taoists contend that one should never ejaculate, others provide a specific formula to determine the maximum amount of regular ejaculations in order to maintain health.

The basis of all Taoist thinking is that qi (lifeforce) is part of everything in existence. Qi is related to another energetic substance contained in the human body known as jing (精) (essence), and once all this has been expended the body dies.

Jing can be lost in many ways, but most notably through the loss of body fluids. Taoists may use practices to stimulate/increase and conserve their bodily fluids to great extents.

The fluid believed to contain the most Jing is semen. Therefore, Taoists believe in decreasing the frequency of, or totally avoiding, ejaculation in order to conserve life essence.

Transmutation of Sexual Energy

For those wanting to learn how to do this, the best tool to start the process of transmuting sexual energy the "Mool bandha" practice. This is very simple and helps to raise energy from lower chakras to higher ones. Build up of creative energy (which has its origin in the base chakra and builds up in the sacral chakra as sexual/procreative energy) results in sexual urges if it is not raised up further. This is especially the case if one's mind is focussed on sexual thoughts, as attention is what directs energy to a purpose.

So the secret of transmutation is to use the breath and attention to move energy to higher centres. Initially this is to the solar plexus in the abdomen then to the heart. From the heart you can start manifesting your true self and whatever you need around you to fulfill your purpose in this life. If you go even higher up to the third eye you will obtain a new sense of perception and understanding and see much much more than you currently can. And further up is the crown chakra which connects you to the source of everything - cosmic energy.

To carry out this practice, you need to be able to feel the sexual energy in your sacral/ genital region. Close your eyes and pay attention to it. Link it with your breath. Then take a conscious breath of inhalation focussing on the breath as it goes from your upper body down your spine and meets the energy you feel in your sacral area. As you do this contract and hold your PC muscles, so that you have fully clenched this when your breath and attention reach the base of your spine. Hold your breath and attention for a few seconds then slowly and consciously visualise the energy moving up to your abdomen and heart as your breathe out. Repeat this every time you feel a sexual build up and this tension will dissolve as your energy is moved up. You will feel orgasmic energy in your abdomen and then heart. It will then manifest in whatever you choose in a very powerful way. If you want further spiritual growth, you can proceed to higher

chakras, and when you connect to cosmic energy, the pleasure is a thousand fold what people experience with usual sexual release from lower chakras.

Have any of you utilized techniques to draw the energy you produced by not releasing your seed into higher energy levels on your body? I learned of these techniques from a book by Mantak Chia, and I have not ejaculated in 28 days. I have been almost daily spending time to meditate on drawing energy upward and have still yet to feel it pass my heart chakra area. I feel the emotional connections and relationship issues representative of this blockage are in line with my current issues, so it makes sense. I was just curious on others experience on here with similar method

That stuff is dangerous. It also burns/wastes jing by activating hormones/erection. That's why you feel burned out or less sharp after edging. You then move energy up, concentration practice/meditation does a similar thing except it pulls energy up to the brain. LIke that mind is made stronger.....chi is actually made into shen. But if oyu just circulate energy to skull, it wont convert to shen, wont provide the mental boost and strength and the brain will quikcly consume it, because it only consumes/burns energy. Much energy is wasted in this manner.

Correcting Estrogen Imbalance

Many female problems, including PMS, uterine fibroids, endometriosis, and ovarian cysts are estrogen dependent. Therefore, it is advisable to decrease sources of exogenous estrogen in the diet. It is also important to enhance the functioning of the liver and gastrointestinal tract in order to ensure optimal metabolism and elimination of estrogen metabolites.

To regulate your hormones:

- Ensure adequate daily fiber intake (aim for 30 grams/day – see table below) in order to eliminate excess estrogen
- Consume foods that decrease estrogen levels; decrease consumption of foods that increase estrogen levels (see table below)
- Do regular castor oil packs over your liver
- Drink warm lemon water
- Maintain ideal body weight
- Engage in regular aerobic exercise
- Have regular infra-red sauna's

Factors that contribute to Hormone Imbalance:

- Being overweight
- Synthetic hormones (i.e. HRT, oral contraceptives)

- Stress – Cortisol (the stress hormone) competes for the same receptors as progesterone which can lead to a relative estrogen dominance
- Exposure to light at night
- Pesticides in food, insect sprays, lawn sprays, cleaning products
- Air fresheners, fabric softeners, scented laundry soaps
- Plastics of any kind (food containers, water bottles, polyester fabric, saran wrap)
- Parabens in hair and skincare products
- New carpets

Nutrition

Foods that increase Estrogen levels	*Foods that decrease Estrogen levels*
• Non-organic animal products • Dairy products • Refined sugar • Processed foods • Caffeine (coffee, tea, chocolate) • Alcohol and drugs	• The Brassica family of vegetables: broccoli, cauliflower, brussels sprouts, cabbage, and kale • Dark leafy greens (dandelion greens, collard greens, mustard greens • Liver-supportive foods: Onions, garlic, ginger, turmeric, basil, cumin, fennel, dill, black pepper, horseradish, rosemary, beets, strawberries, peaches, cherries, turnip • Lemon juice

Fiber Content of Common Foods

Food	Gram of fiber/cup of food	Food	Grams of fiber/cup of food
Turnip greens, cooked	5.04	Lima beans, cooked	13.16
Raspberries	8.34	Kidney beans,	11.33
Mustard greens,	2.80	cooked Barley,	13.60
cooked Cauliflower,	3.35	cooked Blueberries	3.92
cooked Collard greens,	5.32	Chickpeas, cooked	12.46
cooked Broccoli,	4.68	Beets, boiled	3.40
steamed Swiss chard,	3.68	Yam, cooked	5.30
cooked Spinach,	4.32	Sweet potato, baked with	3.14
cooked	4.00	skin (1)	
Green beans, cooked	5.74	Avocado	7.30
Winter squash, baked	16.27	Oats,	3.98
Split peas, cooked	15.64	cooked	3.51
Lentils, cooked	4.06	Brown rice	5.41
Brussels sprouts, steamed	14.96	Flaxseeds (2 tbsp)	3.73
Black beans, cooked	8.80	Apple (1)	3.98

Green peas, boiled Pinto beans, cooked	14.71	Pear (1) Almonds (1/4 cup)	4.07

Source: whfoods.com

Increasing fiber intake also helps to regulate cholesterol levels, blood sugar levels, and bowel function

Extracts from

Nutritional Sex Control & Rejuvenation

Dr Raymond W. Bernard

Mokelumne Hill, CA: Health Research, n.d.

... Since time immemorial, religious devotees abstained from meat or fasted for the purpose of controlling sexual impulses, and this explains the customs of abstention from meat and fasting during certain religious holidays. The ancient Orphics, Pythagoreans, Essenes, Gnostics, neo-Platonists, and Manichaeans all practiced vegetarianism in order to succeed in the practice of continence, which they regarded as essential for achieving the highest degree of physical and spiritual regeneration.

Pythagoras, who was born a physiologist and a moral reformer, was the first to claim that protein foods augment sexual inclinations and that a low-protein, strictly vegetarian diet was essential for all who wish to live in continence and experience the beneficial effects of this practice in leading to better brain nutrition and in heightening intellectual and spiritual powers.

Pythagoras taught that there was a direct connection between the semen and the brain and that loss of semen weakens the brain, while its conservation improves the brain's nutrition, since the substances thus conserved act as brain nutrients.

We now know that this is a physiological fact which the intuition of Pythagoras foresaw centuries ago since lecithin, an organic phosphorized fat which is a chief constituent of brain and nerve tissue, is an essential component of the semen and is lost with it. This means that the greater the seminal excretion, the more lecithin is lost from the blood and consequently from the brain; whereas conservation of semen through continence leads to better lecithin (organic phosphorus) brain nutrition and increased intellectual energy. Since a low-protein diet diminishes the tendency of seminal excretion, it helps conserve lecithin for brain nutrition.

Since it is reasonable to identify spirituality with the regeneration of higher brain centers – the pituitary and pineal glands, the latter organ being richer in lecithin than any other part of the body – we can understand the reason why religious orders have always insisted on continence as a prime requisite for those who wish to live a spiritual life.

Among the Pythagoreans, who included some of the greatest mathematicians, astronomers, philosophers, and physicians of antiquity, not only meat but all foods rich in protein, including concentrated vegetable proteins, were prohibited as inimical to reaching the desired state of continence. ... While Pythagoreans married and bore children, they practiced continence as a physiological discipline of value to body and brain. ...

St. Jerome wrote: 'The forge of Vulcan and the volcanoes of Vesuvius and Mt. Olympus do not

burn more than those young men who live on succulent meats and indulge in wine.' ... 'Wine and meat blunt the soul,' wrote Plutarch in defense of Pythagorean vegetarianism. ...
Gandhi, like Tolstoy, offers a modern example of a philosopher who practiced the dual Pythagorean doctrines of vegetarianism and continence and made the latter dependent on the former. In a debate with Margaret Sanger on the subject of contraception, which practice he denounced because it led to excessive sexual indulgence, Gandhi wrote: 'The horror with which ancient literature regarded the fruitless loss of the vital fluid was not a superstition born of ignorance... Surely it is criminal for a man to allow his most precious possession to run to waste.' ...
Havelock Ellis notes the mild sexual feeling among the Irish who live chiefly on potatoes and buttermilk, as against the extreme sexuality of the French who live on a highly stimulating diet of meat, sea foods, and wine. In view of Tissot's and Deslandes' observations on the effects of an alkaline diet in reducing mucous membrane irritation in the prostatic urethra, which is the seat of sexual feeling, it is interesting to refer to Dr. Hindhede's observations which have shown that a potato diet has a marked alkalizing effect on the blood and helps it to counteract and neutralize uric acid. In view of ... the action of uric acid as an aphrodisiac, we can understand the reasons for the diminished sexuality of the potato-eating Irish as compared with the meat-and-wine-using French. ...
Speaking of the type of diet best suited to reduce sexual irritability, Dr. Napheys writes:
'From ancient times, it has been well known that a wholly or chiefly vegetable diet favors the subjugation of the passions and hence was recommended to persons of violent desires and enjoined on celibate orders of priesthood. Particularly those vegetables which contain a large percentage of vegetable fiber and water, as cabbage, turnips, beets, melons, and carrots, and those which contain acids and some soporific principle as sorrel, sour fruits, lettuce chicory, endive, and other salads are reported to have especial virtues in this direction.'
There is a definite relation between constipation, with its associated autointoxication, and sexual craving. This results from two causes: direct physical pressure of the overdistended colon on the one side and the full bladder on the other side on the seminal vesicles (or uterus in the female) which lies sandwiched in between, and the irritating action of the intestinal toxins formed through the decay of protein remnants, which act as stimulants to the sexual centers, in addition to uric acid and other foods formed through their metabolism. Since the diet recommended by Dr. Napheys will help overcome constipation and autointoxication, by introducing plenty of vegetable cellulose into the intestinal tract, it is clear that it will, for this reason, aid to counteract sexual tendencies. Intestinal cleanliness and freedom from autointoxication through protein putrefaction is the first step in sexual control. On this subject, the following quotation by Dr. John Harvey Kellogg, director of the Battle Creek Sanitarium, who for over sixty years was a strong advocate of a low protein diet and also a believer in the physiological value of continence, writes:
'Flesh, condiments, eggs, tea, coffee, chocolate, and all other stimulants have a powerful influence directly upon the blood; and through nervous sympathy with the brain, the passions are aroused. Poor blood, filled with crude, poorly digested food, is irritating to the nervous system and especially to those extremely delicate nerves which govern the reproductive function. Irritation provokes congestion; congestion excites sexual desires; excited passions increase the local disturbances; and thus each reacts upon the other, ever increasing the injury and liability of future damage.
'While children are raised upon such articles, or upon food with which they are thoroughly

mingled, what wonder that they occasionally turn out bad. How many mothers, while teaching their children the principles of virtue in the nursery, unwittingly stimulate passions at the dinner table until vice becomes almost a physical necessity? Thus these exciting causes continue their insidious work through youth and more mature years. Right under the eyes of fathers and mothers they work the ruin of children, exciting such storms of passion as may become uncontrollable. Nothing tends so powerfully to keep the passions in abeyance as a simple diet, free from condiments, especially when coupled with a generous amount of exercise.' (Kellogg, H.J.; 'Plain Facts.')

Writing on the influence of diet on the development of sexual precocity and the habit of masturbation in the young, Dr. Miller, in his *Treatise on the Cause of Exhausted Vitality*, writes: 'Feeding children upon pork, gravies, eggs, and pastry made of lard, salt, meat, with mustard and pepper, rich pies and cake and sweetmeats, vinegar, pickles, tea and coffee, and everything of this description, tends to fire the blood, derange the nerves, and bring on a precocious development of the sexual passion.' ...

Havelock Ellis considers fish, oysters, shellfish, and beefsteak as strong aphrodisiacs. He writes: 'Food and drink are powerful sexual stimulants. This is true even of the simplest and most wholesome nourishment and is more especially true of flesh meat and above all alcohol. Fish, shellfish (especially oysters) and eggs have a popular reputation as aphrodisiacs. The same applies to caviar (fish eggs). Islanders and seacoast tribes, subsisting on sea foods, are noted to be extremely lascivious. Whiteween, while working at an educational institution for abandoned young people in Eeremeloo, observed the effect of fish and cod liver oil in increasing sexual desire. Crabs and lobsters, like oysters and other shellfish, are noted for their aphrodisiacal properties, which are related to their high content of uric acid. Certain sea foods contain even more uric acid than meat, and this accounts for their being even stronger sexual stimulants. ... '... With some persons, excessive sexual desire is directly dependent upon high living. Gouty conditions of the blood incidental to the latter are especially likely to be associated with irritation of the genito-urinary tract and particularly of the nerves of sexual sensibility. If one would remain continent, he must not only abjure all mental sources of sexual excitement, but he must abstain from stimulants, tobacco, highly seasoned foods – in short, from all articles of diet that tend to induce nervous irritability. It is probable that a strictly vegetarian diet is the best one that can be advised for an individual who desires to remain continent in mind and body. ...' (Lydston, F.G.: 'Impotence and Sterility').

On the same subject, Newton, in his book, *The Better Way*, ... writes:

'They who have ever carefully noted the effects on themselves of most kinds of alcoholic stimulants, of coffee, oysters, eggs, spices, and an excess of animal food of almost any kind – and especially those who prefer these things *because* of their stimulating effects in this direction – as well as they who find pleasure in filthy conversation and practices referred to, cannot surely with justice charge upon "nature" the exuberance of their amatory desires. In so far, then, as this appetite is excessive in us beyond the requirements of nature and enlightened reason, it is unnatural and diseased. ... A careful abstinence from exciting foods, drinks, acts, and thoughts, and the use of appropriate means to allay excitement – these, persisted in, will bring victory in due time.' ...

Coffee, tea, and cocoa, as well as chocolate, contain uric acid, caffeine and other toxic alkaloids, which are sexually stimulating. Dr. McDougall of London says that several of his patients afflicted with spermatorrhea and generative debility discovered that tea and coffee always proved harmful to them by provoking such discharges. The caffeine they contain increases the heart

beat, raises the blood pressure and so exerts an aphrodisiacal effect, while their uric acid irritates and causes inflammation of the genital mucous membrane, which is the seat of sexual sensibility. Lellamand mentions the case of a man who suffered from frequent nocturnal emissions which proved quite debilitating, as a result of excessive coffee drinking; but when the coffee was discontinued, the emissions stopped, and the patient was restored to health. Cocoa, which contains the alkaloid theobromine, has long been regarded as an aphrodisiac. ...
Among irritants of the genital mucous membranes, Dr. Tissot lists pork, game, spices, alcohol, fish, eggs, pepper, and coffee as being most potent, and all are strong sexual stimulants. On this point, Dr. Elliot, in his 'Aetiology,' writes:
'The abnormal intensity of the sexual impulse is largely due to improper and too stimulating food, to liquors of all kinds, spiced meats, etc. – because such improper diet causes irritation in the mucous membrane lining the digestive tract; and as this is similar to that lining the genital organs, they also become irritated and congested. To control and subdue the sexual impulse it is necessary to avoid eating or drinking anything that may tend to increase it – as, for instance, spices, condiments, rich and highly seasoned foods, eggs and meat, tea, alcoholic liquors or tobacco, or any irritating or stimulating food or drink.'
Just as a uric-acid forming diet, by its irritating influence on the genital mucous membranes, promotes sexual desires, so an alkaline-forming diet, which counteracts the formation of uric aid, consisting of vegetables, potatoes, and fruits – has the opposite effect and tends to reduce sexual inclinations. Such a diet will be of value in the prevention and overcoming of masturbation in children, in cases of sexual perversion and excess, and in various female maladies which result from inflammation of the genital mucosa, as in the catarrhal discharges of leucorrhea, in gonorrhea, etc.
Salt, pepper, mustard, and strong spices, all of which are irritants to the mucous membranes in general and the genital mucosa in particular, are aphrodisiacs and promote seminal emissions. ...
[O]nions were regarded as aphrodisiacs by the Greeks as they still are among the yogis of India, as they also regard garlic. ... In some countries, celery is regarded as an aphrodisiac. Among the Chinese, ginseng is the most widely used sexual invigorator due to the well-known effect of this herb to vitalize the sex glands ...

[Experiments show] that sex in its ordinary manifestations among civilized human beings is not the product of natural instinct that it is generally supposed to be but is a chemotropism evoked or conditioned reflex (in Pavlov's sense) evoked in response to aphrodisiacal stimulation by foods and beverages, especially animal proteins, alcohol, coffee, and also tobacco. This tropistic reaction, in both its physical and psychical aspects, is subject to voluntary control through diet, an alkaline-forming, low-protein vegetable diet reducing it, while an acid-forming high-protein meat diet increases it.
The above evidence indicates that nocturnal emissions, in spite of their universality among the male sex, and contrary to popular and medical beliefs, are not natural physiological phenomena normal after puberty, nor do they provide a necessary release of semen when not discharged through voluntary sexual acts. For we shall see later that a definite physiological mechanism exists for the lymphatic resorption of semen from the seminal vesicles where it is stored ...
We may therefore conclude that nocturnal emissions, like other sexual orgasms, are to be regarded as a vicarious elimination of the end-products of protein metabolism and indicate that the protein intake is excessive and that the kidneys are overworked. When protein intake is reduced to bodily requirements, there will be no need for the gonads to come to the aid of the kidneys and eliminate surplus nitrogenous matter in this way. As a result, nocturnal emissions

disappear, as well as the tendency to erections and sexual orgasms in general. ...
[S]peaking of nocturnal emissions, Dr. Mowry writes:
'I am a dyed-in-the-wool believer that these are unnatural and when frequent are pathological, doing damage to the economy and causing a sensation of weakness and lassitude that is not imaginary. ... The main cause is a congestive condition of the deep urethra. ... It has been suggested that these hyperemias may be caused by some irritant in the urine due to faulty metabolism... A well defined diet must be ordered and a light supper must be eaten leisurely. The bowels must be regular. Prevent distension of the bladder. These emissions occur practically always in the early morning and are due to the distended bladder pressing the already irritated deep urethra, causing an explosion.'
The irritant in the urine to which Dr. Mowry refers is uric acid and other acid end-products of protein metabolism, which are produced in greatest quantity by animal proteins (i.e., meats of all kinds, fish, eggs, etc.). Coffee and tea also introduce uric acid into the system and irritate the deep urethra where lies the seat of sexual sensibility. The secret of sexual control is to maintain the blood and urine in as alkaline a state as possible, so as not to irritate the sexual centers in the mucous lining of the prostatic urethra. This is best achieved by a low-protein fruit and vegetable diet.
A high-protein meat diet, on the other hand, tends to produce sexual desire and nocturnal emissions by forming uric acid, which irritates the mucous lining of the prostatic urethra and also by producing intestinal putrefaction, generating poisons in the intestines which paralyze their peristaltic movements and cause constipation. Since the seminal vesicles, like the uterus, lie sandwiched in between the colon and bladder, constipation, involving a distended colon filled with hardened fecal matter, causes pressure on this organ and predisposes to emissions, just as it predisposes to uterine discharges and painful and excessive menstruation. Therefore the first step in the elimination of these conditions is to suppress intestinal putrefaction and overcome constipation and autointoxication through a low-protein vegetarian diet. ...
Dr. Arnold Ehret observed that on a low-protein fruit and vegetable diet, using no meat, eggs, or dairy products, there is a complete disappearance of nocturnal emissions in males and leucorrhea (genital mucous discharge) in women, who also experience a progressive decrease of the menstrual flow, which occurs at increasingly longer periods until it completely disappears, coincident with heightened vitality and better health due to the resulting conservation of vital fluids. ...
The chief acid-forming foods are meat, fowl, fish, eggs, cheese, nuts, animal fats, butter, wheat, and oats. The chief alkaline-forming foods are vegetables, fruits, and potatoes. The former foods increase the inflammation of the prostatic urethra which is the physiological cause of nocturnal emission, most sex desire and excessive and pathological sexual manifestations and diseases.
In the female, an acid-forming diet causes inflammation of the uterine mucous membrane and tends to cause the occurrence of leucorrhea and menstruation. By reducing such inflammation through an alkaline diet, Dr. Shroyer, a New England gynecologist, caused such female conditions to disappear and also caused uterine tumors to reduce and vanish, since these represent only a more advanced stage of the process of mucous membrane inflammation.
Fasting, which has been practiced since time immemorial by religious ascetics to overcome sexual inclinations, is a dependable method of sex control and sexual therapy because it helps free the blood of uric acid. But for the average high-protein feeder who suffers from chronic constipation and autointoxication (even if he has a daily bowel movement), it is best to first

regenerate intestinal functioning by means of a low-protein strictly vegetarian diet composed chiefly of rice, potatoes, vegetables, and fruits. ...

Freudianism is in a large sense a rationalization of modern sexual behavior, which seeks to provide scientific justification for sexual actions that are really unnatural and are products of aphrodisiacal food stimulation. Chief among the errors of this new pseudo-scientific phallic cult is the superstition that Freud picked up from the gutter and dressed in scientific garb that sexual abstinence is harmful and a cause of nervous and mental disorders as the result of 'sexual repression' that it involves and that sexual intercourse is a normal expression of the libido which is necessary for health, which belief has led many misinformed physicians to advise young men to visit prostitutes and risk venereal disease as a lesser evil than the assumed evil effects of sexual continence. [T]his belief is without scientific foundation ... Freud makes this myth, in the form of his doctrine of repression, the cornerstone of his pseudo-scientific edifice. He himself was a sick, neurasthenic man. His picture shows him smoking a cigar, a powerful aphrodisiac. His entire philosophy of sex, to a large extent, has been colored by the chemotropistic influence of his tobacco addiction, without him being aware of it, plus his diet, which failed to keep him in health.

As a matter of fact, the present post-Freudian neurotic age suffers not from sexual abstinence and repression but from the reverse, from sexual overexpression and overindulgence. Nowhere in Freud's works do we find a warning against sexual excess as a cause of nervous diseases and insanity, which it is admitted to be by eminent authorities. Instead of attributing neurasthenia to its true cause, i.e., lecithin deficiency and resulting nerve cell undernutrition, resulting from loss of lecithin through the semen, Freud wrongly traces it to sexual repression or underindulgence in sexual activity and his cure is uninhibited sexual intercourse. In forwarding this view and popularizing it, Freud has elevated the most groundless of popular superstitions and unscientific misconceptions into a scientific theory which, in the light of modern knowledge of sexual biochemistry and endocrinology, must be thrown onto the scrap heap of discarded pseudo-scientific theories and regarded as a rationalization to appease the conscience of modern neurotic sexual overindulgers and to create a large financial income by sale of his books which appealed greatly to public demand. ...

The idea that the sex glands, in addition to their external secretion, produce an internal secretion which is absorbed into the bloodstream and has an important physiological function to perform, is no new idea, since it has been suspected by physiologists, physicians, and philosophers since ancient times. The Greek philosophers of antiquity, back to Pythagoras, who originated this idea, which he acquired during his studies under Egyptian initiate-priests, speculated much concerning a possible internal physiological function of the semen when retained in the body.

Pythagoras was convinced of such a function and of the vital value of seminal conservation, or continence, which became a part of the hygienic and ethical discipline of his school at Crotona and of the Pythagorean Order he founded, basing this practice on a strictly vegetarian diet low in protein. Pythagoras advocated continence as a practice of utmost physiological value both to body and brain, for he considered the semen as 'the flower of the purest blood,' which it was important to carefully preserve. For this reason, the followers of Pythagoras, as well as of the Greek philosophers who were later influenced by his teachings, as Plato and Aristotle, lived strictly continent lives. Alemeon, a Pythagorean physician, on the basis of Pythagoras's physiological doctrines, claimed that the semen, when conserved, is transformed into brain nourishment and represents potential brain matter, an intuition which is now confirmed by modern biochemistry, which finds that the semen and the brain are remarkably similar in

chemical composition, both being very rich in lecithin (a phosphoric brain fat), more so than most other parts of the body. ...

Concerning the fact that the ancients anticipated by thousands of years some of our most recent discoveries in endocrinology concerning the important physiological role of the internal secretions of the sex glands, the eminent endocrinologist, Dr. Arnold Lorand, writes:

'The ancient Hindus recommended to men sexual abstinence of long duration, thinking that by this means the internal secretion of the sexual glands would be absorbed into the system and that they would thereby reap all the benefits inherent in such a secretion. By this it seems that thousands of years before Claude Bernard and Brown-Sequard, the Hindus already appreciated the great importance of the internal secretions. ...'

Preparing an extract made from a dog's testicle, [Brown-Sequard] injected this into his leg. Within 24 hours after the injection, a marked change took place, due to what he called the 'dynamogenic' or energizing effect of the testicular extract. Body and brain became charged with new power ...

Concerning the latter experiment, Dr. K.S. Guthrie, in his work 'Regeneration,' remarked: 'But if the human sperma is as good, if not better, why should not each man preserve his own, instead of wasting this and then procuring other by repulsive and brutal means? ... Should man inject into himself the testicular secretions of animals when he could preserve his own and keep his body continually at the highest point of vitality? In view of this it would not be too much to say that if a man were absolutely continent, he would be free from all disease and more or less so in proportion as he was not quite continent.'

This statement by Dr. Guthrie is interesting, since it is supported by the experiments of Goizet in curing a hundred different diseases by testicular extracts. Since ... the semen is very rich in lecithin, calcium, phosphorus, iron, and is reported to contain vitamin E, sex hormones, and other substances of physiological value, it is clear that a withdrawal of these vital essentials from the blood by seminal emissions could bring on weakness and disease resulting from chronic cellular malnutrition so produced. Since the sex glands are the master glands of the endocrine chain, we can understand why such long-continued withdrawals of lecithin and other hormone-building ingredients could cause the endocrines to degenerate and bring on premature senility as a result. It is known that endocrine degeneration is the physiological cause of old age. While Sokoloff claims this is caused by autointoxication, it may also be caused by lecithin deficiency resulting from seminal excretion.

Dr. Arnold Lorand repeated Brown-Sequard's experiment and noted a decided increase in muscular and mental powers after injection into himself of testicular extract from a pig. Subsequent studies along this line, however, showed that the effects of the 'Brown-Sequard Elixir,' as his testicular extract (made from the semen and other parts of the testicles) was called, were only temporary and disappeared as soon as the injected substances were utilized by the body, their effects being mainly nutritional. Loisel has moreover shown that such extracts are liable to have toxic effects and may even cause death, due to decomposition of their albumen, which causes poisoning as do other foreign proteins when injected into the blood. The use of testicular extracts has therefore been abandoned as a scientific method of rejuvenation.

In his two reports on the results of his experiment, which he delivered to the Society of Biology in Paris, Brown-Sequard dared not express the revolutionary idea, which he did in later writings, and which was an inescapable conclusion from the results of his experiment, namely, that if enrichment of the individual's blood with foreign testicular secretions and substances is beneficial and rejuvenating, so should be the conservation of the person's own. Also, indulgence,

masturbation, nocturnal emissions, etc., should be harmful to health and vitality. An identical conclusion was later reached by Professor Sajous, dean of American endocrinologists and Professor Lydston of the University of Illinois in his work 'Impotency and Sterility.' Unfortunately, the human intellect is not sufficiently free from domination of emotions and passions to be willing to accept the doctrine that continence is beneficial to health, which works against the pleasure-pain principle that seems to dominate human thought and behavior. Brown-Sequard knew that if the scientists assembled at the Society of Biology before whom he read the report of his experiment ridiculed and rejected it, certainly they would do so to an even greater extent if he presented such a conclusion based on the experiment, namely that it is beneficial to conserve one's own testicular secretions and harmful to waste them and that *such conservation constitutes a natural method of sexual regeneration and rejuvenation*. ...

Since the internal secretion of the testis has been shown to be formed by the same tissues which elaborate the external secretion, i.e., the seminiferous tubules, the question arises as to the nature of the physiological mechanism by which the semen is resorbed into the circulation when it is not expended. Steinach's experiments have shown that such a resorption occurs through the walls of the vas deferens, epididymis, etc., which are lined by absorptive lymphatics, which take up the blocked up testicular secretions and their contained sex hormones produced by the seminiferous tubules and which carry them into the bloodstream ... There is also evidence that a similar absorption of seminal secretions and hormones can take place through the walls of the seminal vesicles which are richly lined by absorptive lymphatics; and this explains how testicular secretions and other secretions of the male genital tract, when stored in the seminal vesicles and not externally discharged, either through voluntary or involuntary emissions, are disposed of. The existence of such resorption through the absorptive lymphatics which thickly surround the seminal vesicles is undisputed, just as it is known that semen can be resorbed through the mucous lining of the female tract. ...
'It (the semen) is secreted by the testicles, thence passing through a rather long canal (the epididymis and vas deferens which connects with it) into the seminal vesicles and is constantly taken up again by absorbent vessels and returned into the mass of circulating fluid. ... In a healthy man, the semen is constantly secreted in the testicles; it proceeds from them into the receptacles which are very limited and which cannot contain what is secreted in one day. There are however some very continent men who have no emission of semen for whole years. What then becomes of it if it be not returned to the circulation?
'It is probable that this absorption does not take place solely in the seminal vesicles, but also in the testicles, the epididymis, which is a kind of first receptacle adhering to them and in the vas deferens, through which the semen passes from these organs to the seminal vesicles. ... The semen is retained in the seminal vesicles until it is used, or expelled, by nocturnal emissions. During this time, the greater part is reabsorbed by the blood, and produces in entering it remarkable changes.' (Tissot: *Treatise on the Diseases Produced by Onanism*). ...
'Those persons who are seeking the highest state of vitality possible to them, and who realize that all losses whatever, through whatever causes, must be avoided, there is for them a possibility of an ever-increasing vitality. ... They will insist on preserving every drop of their precious semen, permitting it naturally to be resorbed, assuring them first of all of a perfect body, next of increased mental faculties, and finally, if they progress, and the higher nervous centers be nourished and developed, of the fullest spiritual development.' (Guthrie, K.S.: *Regeneration*). ...
Steinach has shown that the resorbed internal secretions of the sex glands, after passing into the general bloodstream, accumulate chiefly in the tissues of the central nervous system, which

seems to have a selective affinity for them which can be explained on the basis of their similarity in chemical composition, both being especially rich in lecithin and phosphates. Indeed no two different constituents of the human body are so remarkably similar in composition than the semen and the brain or the spermatozoa and cortical cells of the cerebrum, both having a central head and an elongated body – the tail in the case of the spermatozoa and the dendrites of the brain cells. They are also extremely rich in lecithin, cholesterol, and nucleoproteins.

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increase testosterone is to reduce estrogen. The most effective way to do this is maintain a low level of bodyfat.

Adopt a testosterone-enhancing diet

cruciferous vegetables such as broccoli, cauliflower, kale, swiss chard, brussels sprouts and cabbage. These vegetables contain phytochemicals, which are essential for healthy hormone production and estrogen metabolism.Celery

Limit excessive carbohydrate intake

testosterone, and all other male hormones, are actually made from cholesterol.

Eat many smaller meals: eliminate unnecessary stress hormone release. Don't wait until you are hungry to eat.
Vitamin A: 25,000 IU
Vitamin E: 400 IU daily
To reduce free radical stress on the pituitary gland take an extra 400IU prior to a work-ou
Vitamin C
Vitamin B Complex
Zinc
Boron
Selenium
1.Glycine: Glycine has been found to bind with certain toxins so they can be safely excreted. Luckily, glycine is cheap, and a gram a day would be enough for most people.

2.Vitamin C: Helps build glutathione and protects against phthalates. Take 3 grams a day. However, the best way to determine vitamin C dose is bowel tolerance.

3.Glutamine: Helps build the gut. The healthier the gut, the more it can protect you against incoming toxins. If you have leaky gut syndrome, you could take 5 to 10 grams with each meal or 60 to 80 grams a day. As for a maintenance dose, 20 to 30 grams should do the job.

4.Taurine: This is a calming amino acid but also has the ability to activate detoxification pathways. Take this either after a workout or before bed. One to three grams is best.

5.Zinc: A critical mineral for testosterone. In fact, 98% of zinc in males is stored in the prostate. Low zinc status can and will affect testosterone production. As for dosing, try 300 mgs per day. Some may benefit from more, especially if they have high copper.

6.Antioxidant supplements high in A, E, and D: My favourite way to hit this is to simply use organic butter.

7.Resveratrol: This simple polyphenol is anti-estrogenic.

Daily physical activity: Testosterone levels increase most with short intense bursts of activity. They decrease with prolonged endurance activities
forty-five minutes per session

sleep deprived, your testosterone will suffer.

sunlight: one hour of exposure

Increase your stress resistance: There is a strong relationship between mental outlook and physical well-being and it is largely controlled by hormones. While muscular stress is very beneficial to testosterone, the wrong kind can be devastating. Emotional stress is a frequent cause of decreased testosterone levels. Chronic stress not only interferes with testosterone function, muscle building and strength, it causes premature aging and contributes to the onset of cardiovascular disease.

ENVIRONMENTAL TOXINS that decrease test

Bisphenol A (BPA): the skin does a great job of absorbing it. The hormone BPA best represents is a nasty form of estrogen. Dosing with smaller amounts just doesn't work for BPA.
BPA acts as an estrogen, but with two differences:

1.It's foreign to the body.
2.It's more harmful than natural estrogens.
Xeno-estrogens do all the things that we don't want. Think of it as the complete opposite of injecting testosterone. Xeno-estrogens decrease testosterone and increase estrogens
To know if BPA is in your bottle, look for a triangle with a 3 or a 7

Phthalates
Phthalates can be used in virtually anything from your girlfriend's sex toys to your sex toys.

Seriously, phthalates are used in everything: air-fresheners, cosmetics, shampoos, children's toys, and paints. Why the heck is a plasticiser used in air-fresheners and things that smell nice?

Phthalates hold aromas. So that car-freshener you use to hide the smell of your farts is also lowering your testosterone. (Maybe you should just lower the window from now on.)

Phthalates, like BPA, suppress testosterone, increase insulin resistance, and chelate magnesium and zinc. (10, 11) Their impact on zinc and magnesium can have a very negative compounding effect.

An interesting correlation I learned from Mark Schauss, author of Achieving Victory Over a Toxic World, is that the explosion of autism occurred simultaneously with the introduction of phthalates in 1970. Dr. Schauss would be the first person to point out that it's not only the phthalates, but also the negative synergetic effect from the mass amount of environmental toxins.

Raise Testosterone Naturally!
September 2010
Revised: December 2010 and January 2011

23.Soy Products and Isoflavones
24.Liquorice, Liquorice Root and Glycyrrhizin
25.Methylxanthine Alkaloids, Theobromine, Theophylline, Caffeine, Coffee, Tea, Cocoa and Chocolate etc.
26.Other Alkaloids, Nicotine and Tobacco Smoke, and Recreational Drugs
27.Strength, Power and "Anaerobic" Training
28."Aerobic" Endurance Training
29.Stress Steroids, CNS Aromatase and Serotonin, Impulsive Aggression and Adaptive Insulin Resistance
30.Music, Films, TV, Games, Sports and Miscellaneous Entertainment
31.Tip-Top Tips to Top-Up Your Testosterone Tank

Introduction
To judge from its title, this article is about a single hormone and how to go about getting more of it. Actually, it's far more complicated than that, but a title representing its full scope would attract minimal attention. Before I set forth, here is some background information through which the contents of this article need to be considered.

Testosterone, produced via the sexual organs or the adrenal glands, is popularly regarded as being the ultimate promoter of "maleness" (whether that is depicted as something strong, muscular and courageous or as something selfish, violent and anti-social) and as the ultimate "anabolic", growth-promoting entity (whether the growth medium is skeletal muscle, internal organ, bone tissue or prostate cancer cell). It is also regarded as the ultimate marker of male sexual potency.

It can be metabolized (via the enzyme 5-alpha reductase) into dihydrotestosterone (DHT). DHT is present in the human body in much smaller quantities than testosterone, but it is much more potent than testosterone at doing some of what testosterone does, as well as being widely regarded (in some quarters) as being the most potent promotor of prostate cancer progression. Fearing the amount of extra research to be done, I initially decided to avoid any talk of the relationship between steroid hormones and prostate cancer, but I changed my mind after learning some fascinating things involving vitamin D3 (see the section dealing with vitamin D for further details).

Most research concerning "male" steroid hormones focuses solely on testosterone levels. All else being equal, a person producing more testosterone will also be producing more DHT (and other androgens, sex hormones, steroid hormones and related entities), but all else rarely is equal. Other important things include bioavailable testosterone and DHT, "female" hormones (present in similar quantities in men), stress hormones, hormone receptors, "gonadotropins" and the amount of testosterone and DHT actually present in the semen rather than just the serum.

Most of the testosterone (and DHT and estradiol) in the human body is bound by the aptly named "sex hormone binding globulin" (SHBG), a globulin which binds sex hormones. Sex hormones bound by SHBG are regarded as being "inactive", but being bound by it does not necessarily mean that they cannot be transported by it to a cell (or the CNS) and there utilized or in some way responded to by other chemical entities (i.e. made active to some extent). A high level of

total testosterone ("free" or bound) is not to be scorned, but SHBG appears to have a diminished affinity for its cellular receptors when it is already "liganded" by binding a steroid hormone, especially when DHT is the ligand. If it has already bound to a receptor in a non-liganded state, SHBG can then efficiently bind sex hormones which potentially can exert some effect in that locale. Steroid hormones are able to interact with cells via SHBG receptors in addition to their own, in a process that generates cyclic adenosine monophosphate (cAMP) as a secondary messenger. Thus, non-SHBG-bound testosterone does appear to be rightfully regarded as an important factor, but non-steroid-bound SHBG appears to have uses of its own. Instead of being bound to SHBG, some testosterone can be bound by an albumin-based "androgen-binding protein" (ABP), an androgen binder which is considered to be at least partly "bioavailable". In an experiment on adult male Sprague-Dawley rats, SHBG (not normally present in rats) delayed the transport of testosterone from the serum into the CNS cerebrospinal fluid, whereas ABP (normally present to some degree) had no such effect. Some research regarding "male" hormones combines "free" testosterone and albumin-bound testosterone in a measurement known as the "free androgen index" (FAI).

Although testosterone is regarded as a "male" hormone (an androgen) and estradiol (the main estrogen) as a "female" hormone, it's far more complex than that. Testosterone is the metabolic precursor to the estrogens via the aromatase enzyme (one of its own precursors, androstenedione, can also be metabolized directly into estrone and then estradiol via the same enzyme), and aromatized derivatives of androstenedione/testosterone make an important contribution to bone growth and preservation in men, as does DHT. Without being aromatized into estrogens or reduced into DHT, testosterone itself seems to have little effect on bone. Having robust hip bones helps women to bear children, but it can also help men (and women) to be better at squats and deadlifts (which is obviously a far more important consideration from an evolutionary point of view, since, as Jon-Pall Sigmarsson once said, there is no point in being alive if you can't do the deadlift). Estrogens may encourage aggressive/protective behaviour, bone growth or subcutaneous fat deposition depending on their location, the density of their receptors and the receptors' affinity for them.

"Free" testosterone is thought to promote "male" behaviour, and so it does, but this is achieved not only by activating central nervous system (CNS) androgen receptors (and estrogen receptors) but also by being converted into estradiol before or after crossing the blood-brain barrier and entering the CNS. Either hormone can cross the blood-brain barrier and promote certain varieties of "male" behaviour in various regions, but the particular regions affected and the way in which they are affected will depend on how the CNS has been structured in response to a surge of testosterone-derived estradiol during a phase of fetal development, and on the subsequent activation of androgen receptors throughout post-fetal life by testosterone and DHT. Minus fetal estradiol exposure and/or later androgen receptor activation, the CNS is considered to be inherently "female". DHT is not aromatized into estradiol and encourages certain very "male" physical and mental attributes, but estradiol also encourages some "male" behaviours (including some separate ones) when its impact is sufficiently moderated by the activation of androgen receptors (by testosterone or DHT) and by testosterone seemingly "co-localizing" androgen concentrations with the activation of estrogen receptors and "co-localizing" aromatase activity (and thus estradiol concentrations) with the activation of androgen receptors. Whether an influx

of estradiol promotes "male" or "female" behaviour in a certain brain region may depend on the extent of androgen receptor activation therein.

Estradiol is characterized as "de-feminizing" the CNS during fetal development; androgens (especially DHT) are characterized as "masculinizing" the CNS (a distinct concept). In rodents and other species with short gestation periods, on whom much of the research concerning the effect of sex hormones on the CNS has been conducted, estradiol has a more extensive role in promoting "masculinized" behaviour, although it certainly also promotes "feminized" behaviour in female rodents (and in male ones with non-functional androgen receptors). In humans and many other primates, however, the activation of androgen receptors is of equal or probably greater importance. DHT activates androgen receptors more potently (unit for unit) than testosterone, but the overall impact of testosterone (even unit for unit) may be of equal or greater importance, since it appears to increase the expression of androgen receptors as a result of activating estrogen receptors (something that DHT cannot do), and also to increase aromatase activity (the estradiol from which is likely to promote male-typical behaviour under the circumstances) as a result of activating androgen receptors.

Males lacking 5-alpha reductase activity due to an absence of the type 2 isoenzyme typically sport ambiguous external genitalia (pseudo-hermaphroditism) in early life, but a surge of gonadotropins and testosterone starting in puberty produces a phenotype characterized by less (if any) body hair, deep voices, muscularity and male-typical identities and sexual behaviours. Males lacking the aromatase enzyme typically (given fetal exposure to estradiol) develop male-typical physical features, identities and sexual behaviours from the off, but case studies suggest that exogenous estradiol matures bones (epiphyseal closure) and increases lumbar spine bone mineral density, and diminishes depression and anxiety while increasing aspects of sexual motivation including libido, erotic fantasies and orgasms (findings that are reinforced by experiments on aromatase knockout male mice). Both androgens and estradiol seem to be important for maximizing sexual desire in both sexes, since pre-menopausal and post-menopausal females reporting diminished libidos often prove to have very low sex-typical levels of free testosterone and/or adrenal-produced DHEA-sulfate (DHEA-S, immediate precursor to the androgens).

All sex hormones are "steroids" but not all "steroid" hormones are sex hormones. While testosterone is an "anabolic" (building up) steroid hormone, cortisol (a "corticosteroid") is regarded as being a "catabolic" (breaking down) steroid hormone. Both hormones are produced via the adrenal gland as part of the so-called "fight or flight" response (the non-steroid hormones noradrenaline, adrenaline and adrenocorticotropin/ACTH are also heavily involved), with cortisol encouraging more "flight" and testosterone more "fight". Like testosterone, cortisol can be "free" or bound, and the "free" versions of each are often estimated (seemingly with great accuracy) by "salivary" measurements.

Cortisol is often contrasted as "bad" compared to testosterone's "good", but cortisol is present in far higher quantities than testosterone and must serve some vital functions. Left to its own devices, it does inhibit (via peripheral insulin resistance) the storage of glycogen in skeletal muscles, and it inhibits bone and muscle growth, but these things depend on the ratio of cortisol to testosterone and are usually just a transient response to a physical challenge. This response

prevents runaway hypoglycemia and makes more glucose and fatty acids available for immediate use. Existing glycogen stores can fuel the muscles during physical challenges; dwindling stores can be replenished (especially during and after physical exertion) by mechanisms independent of insulin, and testosterone (the other factor) promotes peripheral insulin sensitivity and thus provides balance.

Interestingly, both cortisol and testosterone are considered to be "immunosuppressive", with high testosterone levels supposedly being a way for males of a great variety of species to show off how superb their immune systems must be for them to tolerate such high concentrations of an "immunosuppressive" substance, but it could be that both hormones actually "redistribute" the immune system to locations on the body that are more relevant to the challenges likely to be faced by those producing them, but less likely to be sampled by researchers.

Testosterone and particularly its "free" form is popularly blamed for various aggressive behavioural displays that are considered to be anti-social. It seems that it is actually CNS aromatase activity producing estradiol that promotes aggression, as well as paternal protection. Free testosterone levels have been associated with "anti-social" behaviour in some cases, but in other cases "anti-social" males have been characterized by high levels of SHBG. High levels of cortisol (the other "fight or flight" steroid hormone) can increase the binding of testosterone by SHBG (and possibly by corticosteroid-binding globulin, CBG, as well), and cortisol also has been linked (when co-elevated with testosterone as part of an adrenal stress response) with the incidence of aggressive behaviour by males (despite also being linked with "submissive" behaviour when testosterone is depleted). Consequently, almost any steroid hormone profile could be linked with "anti-social" behaviour, and the dominant impression emerging from this research is that men can sometimes be aggressive. Who would have guessed? (I have included a less flippant section on this topic near the end.)

Testosterone, aromatase, DHT, "free" or "active" versus bound androgens, liganded versus non-liganded SHBG and the ratio of androgens to cortisol are merely part of the story. Other things that need to be considered are the number of androgen receptors, their location and their affinity for various steroid hormones. Theoretically, a person could have very high levels of androgens but a lack of androgen receptors, or lots of receptors with minimal affinity.

Another very important thing to consider is sex drive and sperm function. High testosterone levels usually correlate with a high sex drive and efficient sperm function, but there are examples of substances and factors that produce higher testosterone levels (in the serum but not necessarily in vital cells) while also messing up testicular function (as mentioned in various sections). Beware!

Besides testosterone, there are some important non-steroidal "gonadotropins", particularly follicle-stimulating hormone (FSH, which stimulates the testicular Sertoli cells) and luteinizing hormone (LH, which stimulates the testicular Leydig cells). Some things that raise testosterone levels do so by increasing levels of these "helpers", but excessive secretion of them can lower testosterone via "negative feedback". High levels of FSH and/or LH are sometimes an indication that the body is trying to respond to diminished testosterone levels. There is another gonadotropin, chorionic gonadotropin, but in humans this occurs in significant amounts only in

pregnant women, Brian Cushing and people with certain tumors - including pancreatic islet cell and adrenal carcinomas, which, as irony would have it, are sometimes a feature of the condition known as Cushing's Syndrome!

Here is a list of abbreviations for various steroid hormones, their agonists and transporters:

DHEA = dehydroepiandrosterone
DHEA-S = dehydroepiandrosterone sulfate
DHT = dihydrotestosterone
SHBG = sex hormone binding globulin
CBG = corticosteroid binding globulin
LH = luteinizing hormone
FSH = follicle-stimulating hormone
hCG = human chorionic gonadotropin

Steroid hormone receptors belong to a family of nuclear receptors that also includes the vitamin D receptor, the retinoid X receptor and retinoic acid receptor (concerned with vitamin A and its by-products), and the thyroid hormone receptors.

Like vitamin D3 (cholecalciferol), but in contrast to vitamin A and the thyroid hormones (T4 and T3, derived from the mineral iodine and the amino acid tyrosine), the steroid hormones are derived metabolically from cholesterol, which is itself derived from a substance called squalene that serves as the precursor to other, similar sterols and/or hormones produced by plants and microbes. The cholesterol-to-hormones steroidogenesis pathway eventually reaches pregnenolone, which can lead to progesterone and then the stress or sex steroids, or to dehydroepiandrosterone (DHEA) and then the androgens and estrogens.

In the absence of dietary cholesterol, human beings (except for those suffering from some serious health conditions) are perfectly capable of manufacturing their own cholesterol via other substances in the diet, a process that is especially vigorous in response to palmitic acid (and many other saturated fatty acids) and fructose (and other sugars). Cholesterol is transported through the bloodstream in lipoproteins, including the famed and misunderstood low-density lipoproteins (LDLs) and high-density lipoproteins (HDLs). Both LDLs and HDLs can be a site for steroid hormone production (e.g. in the Leydig cells of live rats), but HDLs and especially HDL3s seem to be a particularly popular resort. HDL-cholesterol levels have been correlated with total and salivary testosterone (but not SHBG) levels among middle-aged men, but were negatively correlated with testosterone levels and positively correlated with SHBG levels among Mormons and vegetarian Seventh-Day Adventists.

High- and Low-Fat, High- and Low-Carbohydrate and High- and Low-Fibre Diets
Several feeding experiments (typically "semi-controlled", in which all food has been provided to subjects who then go off to do their own thing without being monitored to ensure full compliance) have recorded the effect of diets varying in total fat content, the ratio of saturated to polyunsaturated fatty acids (PUFAs) and the amount of fibre. From these it is fairly clear that very-low-fat diets typically lower various measures of androgen levels in men, but the

independent effects of the three factors mentioned above have not been thoroughgoingly gauged in live human males.

In one example, males aged 50-60 (an age by which androgen levels are typically lowering) were fed a diet containing 65-70% carbohydrate (types and foods not mentioned), under 15% fat (with unchanged ratios of fatty acid classes) and 25-30g of fiber per day (judged to be "high", although it is about the same as the "low" amount fed in another experiment cited below) for eight weeks in comparison to baseline and/or crossover diets that were deemed to be "high-fat" (more than 30% of calories ... gasp) and low-fibre (under 20g per day). As a result of the low-fat diet, their DHT, total and free testosterone, dehydroepiandrosterone sulfate (DHEA-S) and androstenedione levels all dropped very markedly, and SHBG, estradiol, FSH and luteinizing hormone all dropped to lesser degrees. It is important to distinguish between measures of SHBG itself and measures of the amount of sex hormones bound by it. Whereas hormone-binding SHBG has diminished affinity for cellular receptors, non-"liganded" SHBG has greater affinity for cellular receptors and is able to activate them (and subsequenty bind hormones) once received. In this study, the low-fat diet lowered SHBG itself. The intervention was lower in fat and higher in fibre, but it seems likely that reducing fat from over 100g to 40g had a much greater impact than increasing fibre by a measly 10g or so.

In another example, with middle-aged men whose exact ages are not given in the abstract, a lower-fat and higher-fibre diet along with an increased ratio of polyunsaturated to saturated fatty acids resulted in reduced total and free testosterone levels that returned to normal after resumption of the baseline diet.

Another experiment (with men whose ages are not specified in the abstract) tested the combined effect of reducing total fat (from 40% to 25%) and increasing the ratio of PUFAs to saturated fatty acids (from 0.15 to 1.22) while (so it seems) keeping every other aspect of the diet (including fibre) fixed. The result was that total and free testosterone dropped significantly and estradiol dropped non-significantly.

Not surprisingly, a group of men whose fat intake was reduced from over 100g per day to under 20g per day exhibited lower free testosterone levels and (in conjunction with that) higher SHBG levels.

Among men aged 19-56, 10-week "high-fat", "low-fibre" (41% fat versus 45% carbohydrate and c. 26g fibre per day) and low-fat, high-fibre (19% fat versus 67% carbohydrate and c. 61g fibre per day) diets (separated by two-week washout phases) had a minor effect on hormone levels (total testosterone was not-quite-significantly higher on the higher-fat diet, a difference explained by proportionally higher levels of the SHBG-bound fraction). Urinary excretion of testosterone was higher on the high-fat, low-fibre diet. Perhaps an important difference between this study and the first one cited above is that it also contained younger subjects who were probably better able to metabolize a high carbohydrate intake.

Athletes are also better able to metabolize a high carbohydrate intake. Among elite male ice hockey players, a 10% increase of carbohydrate intake (to 55%) at the expense of fat resulted in

increases in both non-SHBG testosterone and cortisol (a measure of anabolism versus catabolism), the ratio of which remained the same.

Among pre-menopausal women, two months of a low-fat diet (20% of calories, types unspecified in the abstract) reduced non-SHBG estradiol and testosterone compared to a crossover higher-fat diet (40%). Hormones were altered little in post-menopausal women.

A range of experiments (8-10 weeks over two menstrual cycles) in other pre-menopausal women found that, compared to "high-fat" (i.e. moderate-fat, 40%) and low-fibre (12g per day) diets, diets low in fat (20-25%) and higher in fibre (40g per day) lowered levels of estrone, estrone sulfate, testosterone and androstenedione, and not-quite-significantly lowered free estradiol. The increased fibre intake was judged to have independently lowered both total (but not free) estradiol and SHBG (which probably represents a mild diminishment of overall estrogenicity).

Pre-pubescent girls aged 8-10 were pressured via "behaviourists" and American Heart Association "educational" materials to eat loads of fibre, to restrict intake of cholesterol (precursor to the sex hormones) to 150mg per day at the absolute most, and to limit fat to 28% of calories with PUFAs providing slightly more of the fat than saturates. The end result of this wonderful intervention/abuse of 7-9 years was that total and free estradiol (and follicular phase estrone sulfate) were lower by 30% compared to the control group, while luteal phase progesterone was more than 50% lower (possibly indicative of anovulatory cycles) and luteal phase testosterone nearly 30% higher (due to presumed diminished aromatase activity).

Unusually high testosterone levels and anovulatory cycles are often a feature of polycystic ovary syndrome (PCOS) in women. When women with PCOS were fed single meals that were low in fat and high in carbohydrates and fibre (6% fat, 81% carbs and 27g of fibre) or a "high-fat western meal" (actually bearing no resemblance to typical western meals, with 62% fat, 24% carbs and 1g of fibre), testosterone levels initially dropped to the same degree after both meals but remained lower for longer after the high-fat meal. Estradiol levels were not measured. Glucose and insulin levels (another feature of PCOS) were higher after the low-fat diet. DHEA-S (initially before rising) and cortisol (throughout) were lowered after both meals.

Taking all of the above into consideration, it's clear enough that (at least in typical research subjects) low- to very-low-fat diets reduce testosterone levels whereas higher-fat diets appear to increase levels of sex hormones and SHBG across the board. Higher fibre intakes have always accompanied low or very low fat intakes and have been found guilty by association, but it is possible that they have little or no effect on the "free" concentrations of the sex hormones and that they mainly lower levels of total testosterone (or estradiol in women) and SHBG (which probably represents a mild anti-androgenic/estrogenic impact). A high ratio of PUFAs to saturated fatty acids has always accompanied reduced total fat intakes, and only a few experiments have included this factor, but it has always been associated with reduced free concentrations of testosterone or estradiol (depending on the sex of the subjects).

Since low-fat diets typically lower testosterone levels, does that mean that the best way to raise testosterone is by eating higher and higher proportions of fat? Not likely. It is important to distinguish between the secretly-quite-high-carb "high-fat western" diet used by most researchers

and diets in which the calories actually are dominated by fat. Unfortunately, research regarding truly high-fat diets and sex hormones is thin on the ground and based on very short term observations. In one example, a single high-fat meal (% and type not specified in the abstract) lowered both total and free testosterone in "normal" men, unlike a non-nutritive meal and a meal with minimal fat and mixed protein and carbohydrates. In another example, men who had followed a very-high-fat, very-low-carb diet (66% versus 4%) for four weeks showed (by comparison with when eating equal portions of fat and carbohydrate) higher cortisol concentrations and a faster appearance of cortisol and a delayed clearance of cortisol metabolites in response to a cortisol infusion. A three-day very-low-carb diet (50% fat, 45% protein, 5% carbs) did not affect testosterone responses to incremental exercise in a group of men, but it did reduce basal testosterone production. Lower levels of free testosterone were seen for up to eight hours after 86%-fat meals in males who had followed a 64%-fat diet for eight weeks, although the eight-week diet did not itself affect any hormone measure and it was speculated (among other possibilities including PUFAs diminishing the binding capacity of the luteinizing hormone receptor in the absence of high cholesterol intakes) that higher cellular uptake of testosterone was responsible for the post-prandial reductions. The 86%-fat meal contained 52g of saturated fat, 59g of MUFAs mostly from olive oil and 12g of PUFAs mostly from fish oil. I suspect, however, that a very pronounced shortage of carbohydrate (such as is inevitable on an 86%-fat diet but not for many people on a 64%-fat diet) will inevitably produce a bit of metabolic stress. It appears that both an over-abundance and an under-abundance of carbohydrate (relative to the individual's carbohydrate turnover) has the potential to adversely affect the hormonal environment.

As for specific foods, specifically meat, one observational study observed higher total but similar free testosterone levels in meat-eating males compared to lacto-ovo vegetarian ones (who presumably were not adhering to the "hormone precursor diet"), and another found higher total but similar free testosterone levels (along with lower insulin-like growth factor I levels) in vegan males (compared to meat-eaters and lacto-ovo vegetarians) whose diets tended to be low in fat with a high ratio of PUFAs to saturated fatty acids (the vegans were about 10 years younger and 10kg lighter on average). A single-meal study found lower post-prandial testosterone levels for up to six hours after a meal of lean meat (see also the protein section), and testosterone was kept at basal levels by adding animal fat to the meals (but not by adding safflower oil, rich in polyunsaturated linoleic acid).

The totality of the above research doesn't leave things crystal clear. The rest of this section is my interpretation of it in the light of my working knowledge and theories.

Since cholesterol is the precursor to the steroid and sex hormones, higher cholesterol intakes will, all else being equal, lead to greater production of these hormones than lower cholesterol intakes. However, there is very likely to be a point at which higher hormone production from higher cholesterol intakes reaches a ceiling (the thyroid gland plays a very important role in metabolizing cholesterol, and the most active thyroid hormone is able to lower testosterone production via "negative feedback"). Since dietary sources of cholesterol also contain animal fats rich in palmitic and stearic (saturated) and oleic (monounsaturated) acids, lowering intake of animal fat is likely to lower intake of cholesterol as well, meaning that the link between low-fat diets and lower testosterone levels could be partly confounded by lower cholesterol intakes.

When there is less cholesterol available, the body is quite capable of synthesizing its own, notably when there is a generous supply of saturated fatty acids with 12-16 carbon chains (lauric, myristic and palmitic acid). These saturated fatty acids tend to increase levels of both low- and high-density lipoproteins (LDLs and HDLs) compared to most other dietary components, and cholesterol from which hormones can be synthesized is transported around the body in these. HDLs seem to be particularly associated with androgens, and monounsaturated oleic acid (but not monounsaturated palmitoleic acid) also tends to increase levels of these.

When fat as well as cholesterol is in short supply, the body is quite capable of synthesizing both via carbohydrate intake, and a little known fact is that (of all dietary components) sugars such as fructose and sucrose (a mix of fructose and glucose atoms) tend to raise LDL levels the most. If the skeletal muscles are not sensitive to insulin, glucose and possibly even starch will do this too. Despite the theoretical ability of high carbohydrate intakes to increase production of cholesterol-derived hormones, sedentary populations tend to overeat and become hyperglycemic, glucose intolerant, hyperinsulinemic, insulin resistant, viscerally obese and potentially diabetic on such diets. This typically results (in type-2 diabetic women) in higher testosterone but lower estradiol levels and (in type-2 diabetic men) lower total but comparable free testosterone levels - the kind of profile that seems to be encouraged by higher fibre intakes. Males with type-1 diabetes sport higher SHBG levels in conjuction with their lack of endogenous insulin, whereas a non-significant correlation between insulin resistance and higher free testosterone has been detected among their non-diabetic siblings.

Interestingly, the process that can lead to the unbalanced accumulation of fat around the internal organs behind the abdominal wall, "de novo lipogenesis" (which can be enhanced by ethanol, soluble fibre and medium-chain fatty acids as well as by high carbohydrate intakes), may also serve to increase levels of free testosterone (if mild and acute rather than severe and chronic). This could well explain why some high-level athletes (whose carbohydrate turnover is much greater) excel at testosterone-associated endeavours on very-high-carbohydrate diets, and why the elite ice hockey players from one of the experiments cited above (in contrast to the members of the general public from other experiments) exhibited higher free testosterone concentrations when they increased carbohydrate intake by 10% at the expense of fat. For the vast majority of people in the vast majority of situations, fairly even intakes of fat and carbohydrate are very unlikely to lower sex hormone production.

"In vitro" experiments using cultured mouse livers support the notion that sugars, especially fructose, are able to diminish hepatic production of SHBG (not desirable in and of itself) through the mechanism of "de novo lipogenesis", which involves the production of cholesterol (precursor to the sex hormones) and palmitic acid via acetyl-CoA. This mechanism is also linked with satiety from feeding, and with transient, mild insulin resistance and increased insulin output, but chronic insulin resistance and hyperinsulinemia have an adverse effect on sex hormone production (hence the low SHBG and total testosterone but normal free testosterone levels reported in diabetic males).

It is not really accurate to say that sex hormone production is "increased" by a diet that is not low in animal fats nor cholesterol and neither too high nor too low in carbohydrate. Rather, such a diet enables people to produce the amount of sex hormones that they'd be producing if they

weren't being dickheads and taking advice from the American Heart Association or Robert Atkins.

"In Vitro" Experiments on Fatty Acids, Sex Hormones and Sperm Cells
Some over-hyped herbal "testosterone boosters" are also marketed as "prostate-friendly" supplements because their unusual free fatty acid contents (fatty acids in foods are usually "esterified" in triglycerides and thus not "free") will supposedly inhibit 5-alpha reductase activity and thus raise testosterone but lower DHT. See the sections on Serenoa repens and Tribulus terrestris for a summary of their lousy track record as supplements (including case studies involving pancreatitis and hepatitis). In fact, "in vitro" experiments do indicate that most free fatty acids inhibit 5-alpha reductase. The catches are that those fatty acids can be rapidly "esterified" in an "in vivo" environment (that of a living organism, e.g. a human being) and that not all free fatty acids inhibit 5-alpha reductase and DHT production even in an "in vitro" environment.

In an "in vitro" experiment using fatty acids from permixon (Serenoa repens), about 80% of which are free fatty acids, no esterified fatty acids were seen to inhibit 5-alpha reductase activity. As a free fatty acid, lauric acid (a saturated fatty acid with 12 carbon chains, found in large quantities in coconut oil) inhibited both the type 1 and the type 2 isoenzyme of 5-alpha reductase. Free myristic acid (a saturated fatty acid with 14 carbon chains, found in significant quantities in dairy fat) inhibited the type 2 isoenzyme but (for some reason) was not tested on the type 1 one. In live creatures, lauric and myristic acid are elongated into palmitic acid, although myristic acid usually makes a minor contribution to triglyceride fatty acid compositions. Free oleic acid (MUFA with 18 carbon chains, widely present in both animal and nut/seed/olive/vegetable fats) and linoleic acid (omega-6 PUFA, 18 carbon chains, ubiquitous in vegetable fats but only present in small quantities in animal fats) were both inhibitory, but mostly of the type 1 rather than type 2 isoenzyme. Free palmitic and stearic saturated fatty acids (16 and 18 carbon chains, the usual free fatty acids along with oleic acid in live creatures) were not inhibitory at all.

In cultured human benign prostatic hyperplasia stroma, lauric and myristic acids (but not palmitic or oleic acids) were observed to inhibit 5-alpha reductase activity. In cultured human prostate cancer cells (obviously malignant), unsaturated fatty acids generally were observed to inhibit 5-alpha reductase activity, with linoleic acid doing it more so than MUFAs, and arachidonic acid (omega-6 PUFA, 20 carbon chains) and alpha-linolenic acid (omega-3 PUFA, 18 carbon chains) and docosahexaenoic acid (omega-3, 22 carbon chains) doing it even more so, and gamma-linolenic acid (omega-6, 18 carbon chains, rarer than linoleic acid) doing it most of all.

Another "in vitro" experiment found that free fatty palmitic, oleic and linoleic acids all inhibited the binding of testosterone and DHT by albumin, and the binding of testosterone (but not DHT) by SHBG. In an "ex vivo" experiment, using plasma from men and pregnant women that had been heated (the plasma, not the men and women) to destroy binding by SHBG, saturated fatty acids with more than 16 carbon chains did not affect non-SHBG binding of testosterone, but oleic, linoleic and alpha-linolenic acids increased it.

Sperm cells are far more interesting than benign or malignant prostate cells. Docosahexaenoic acid (DHA) and palmitic acid are the most abundant fatty acids in spermatozoa phospholipids, and are present in approximately equal concentrations in those of normozoospermic men. In asthenozoospermic men, there is much more palmitic acid and a much higher ratio of saturated to polyunsaturated fatty acids (gasp).

More research points to a strong link between depleted concentrations of certain PUFAs in sperm and poor functioning of that sperm. Spermatozoa from asthenozoospermic men had more stearic acid, more total saturated fatty acids (gasp) and a higher ratio of omega-6 to omega-3 PUFAs (double gasp). Those from oligozoospermic men had more stearic and total saturated fatty acids and more oleic acid and total MUFAs. Those from oligoasthenozoospermic men had more oleic acid (tsk, tsk). All the abnormal spermatozoa had less DHA and fewer PUFAs, and high ratios of omega-6 to omega-3 fatty acids were negatively correlated with sperm motility, sperm morphology and sperm concentration.

Does the above mean that everyone should guzzle gallons of flax oil (rich in alpha-linolenic acid, ALA) to "improve" their fatty acid compositions? A couple of things that need to be borne in mind are that: (1) although linoleic and alpha-linolenic acid are both minimally converted into the truly essential polyunsaturated fatty acids (arachidonic and docosahexaenoic acids, ARA and DHA) in humans, high intakes of either can deplete (and totally inhibit production of) the longer-chained PUFA from the opposing class (omega-3 or omega-6) thanks to enzymatic competition; (2) the body maintains its desired balance of saturated and unsaturated fatty acids by desaturating some palmitic and stearic acid into MUFAs, but excessive amounts of "de novo lipogenesis" (DNL, induced by high-carbohydrate and low-fat diets, "healthy" medium-chain fatty acids, "healthy" soluble fibre or regular high ethanol intake) can slow down the fatty acid production line and result in higher than normal concentrations of palmitic acid. Although DHA appears to be more important for sperm, arachidonic acid appears to be more important for brain development, and infant formulas containing high quantities of "healthy" medium-chain triglycerides (primarily 8-chained octanoic acid and 10-chained decanoic acid) have led to depleted bodily concentrations of arachidonic acid (or DHA) in the unfortunate infants! When the above factors (e.g. high-carb and low-fat diets or ethanol intake) do not lead to excessive DNL, they are able to compensate by also increasing the activity of enzymes elongating linoleic and alpha-linolenic acid into ARA and EPA/DHA.

High ratios of palmitic acid to DHA in abnormal sperm could be an effect of oxidative damage depleting the DHA, not the cause of the abnormality of the sperm in the first place. Saturated fatty acids are much more resistant to oxidative damage than PUFAs. Indeed, when subjected to spontaneous lipid peroxidation, human spermatozoa that had previously taken up fatty acids lost far more DHA and ARA than saturated fatty acids.

When added to the extracted semen of normozoospermic men, fatty acids in free form (rather than contained in phospholipids) can immobilize sperm in a manner analogous to the action of autoantibodies against sperm cells, and they can do so at concentrations at or below the normal free fatty acid levels of human plasma. However, two of the most abundant free fatty acids, palmitic and stearic acid, had minimal toxicity even at concentrations massively exceeding the normal upper range! Oleic acid (also an abundant free fatty acid) was less toxic than linoleic acid

(which can be a fairly abundant free fatty acid when dietary intake is high), and the most toxic of all the fatty acids tested was alpha-linolenic acid (throw away that flax oil)!

In suspensions of human spermatozoa exposed to a vast range of arachidonic acid (ARA) doses, lipid peroxidation, generation of reactive oxygen species (ROS) and impaired sperm motility were observed, while sperm viability remained unaffected. Other fatty acids were tested for ROS generation and (surprise, surprise) palmitic and stearic acid had no effect whatsoever but linoleic acid and DHA did generate ROS and (at the highest doses, particularly of DHA) even managed to impair sperm viability!

ARA and DHA both perform some vital functions. If a diet does not provide most of its fatty acids in the form of vulnerable PUFAs, it's quite possible that adding a little more of both ARA and DHA will have a beneficial effect. However, if PUFAs (of any type and with any ratio of omega-3s to omega-6s) are dominant in the diet in a readily absorbable form, it is likely that an excess of oxidative damage will override any benefits of extra ARA and DHA. The same will be true if an individual is subjected to oxidative stress from another lifestyle or environmental factor. Hyperglycemia is a potent promoter of oxidative stress. If PUFAs dominate the fatty acid composition of a diet that is otherwise low in fat but which does not result in a chronic excess of "de novo lipogenesis" or in glucose and insulin abnormalities from the high carbohydrate intake, it is likely that oxidative damage will not be excessive and that the modest, sporadic bouts of "de novo lipogenesis" will maintain fairly normal amounts of palmitic acid in bodily cells.

High concentrations of PUFAs from extracted oils (e.g. sunflower, safflower) are likely to be far more hazardous than ones contained within the protective case of a nut or seed (or ones accompanied by saturated fatty acids, MUFAs and fat-soluble vitamins in fish and eggs). Consuming meals based on almonds (moderately high in PUFAs) or walnuts (very high in PUFAs) has reduced the susceptibility of plasma to lipid peroxidation 90 minutes later. Pistachio nuts have a similar fatty acid composition to almonds (high-MUFA with a significant minority component of polyunsaturated linoleic acid), and four weeks of generous pistachio nut consumption (63-126g per day) has reduced levels of oxidized LDL compared to a "western" diet and compared to a low-fat modification of the "western" diet (32-63g of pistachios per day only lowered oxidized LDL compared to the low-fat "improved" diet). Compared to baseline, and compared to when taking a 50g rice powder alternative, post-menopausal women taking 50g of sesame seed powder per day (25g of fat, 11g of linoleic acid, 12mg of gamma-tocopherol) had higher gamma-tocopherol levels (not surprisingly) and reduced amounts of thiobarbituric acid reactive substances (TBARS, oxidized derivatives of linoleic acid) in oxidized LDL. As a matter of interest, they also had higher levels of SHBG, lower levels of DHEA-S and higher urinary levels of 2-hydroxyestrone.

Negative Energy Balance, Fasting and Starvation
Although testosterone levels tend to lower when the diet does not contain plenty of readily available energy (e.g. fatty acids and sugars or easily absorbed starches), they also tend to lower in the period immediately after eating, when the body is busy digesting the food. All else being equal, testosterone levels tend to peak early in the morning (after an overnight fast), and large but transient spikes occur in response to physical training (when previously ingested energy is being metabolized). It seems that, if energy intake and expenditure are fairly even overall, testosterone

is produced in greater quantities when energy is being broken down (utilized) rather than stored (made available).

What about negative energy balance? It appears that a sustained modest caloric deficit of 15% has little effect on testosterone levels. Previously sedentary identical twins who performed cycle ergometer exercise (50-55% of VO2 max) for 13 weeks while losing a little under a pound per week had higher levels of testosterone (and DHEA-S) afterwards.

Obese men and women (who have lots of stored fat to fall back on) have both presented higher testosterone levels after prolonged adherence to very-low-calorie diets (we're talking half of my breakfast over an entire day here)! However, if the subjects don't have much stored fat to fall back on, caloric deficits sufficient to sacrifice lean tissue cause testosterone levels to plummet. The crucial factor for maintaining testosterone levels during negative energy balance is whether energy is provided by free fatty acids from broken down triglycerides (as in obese subjects) or by glucose from broken down skeletal muscle protein (as in lean subjects performing endurance exercise).

Testosterone was slashed by more than half when negative energy balance and "endurance training" were combined to an extent that produced a loss of fat-free mass. Combining significant caloric restriction with deadlifts, front squats and negative 1-armed pull-ups would doubtless have done the same thing. Severely restricting caloric intake or fasting altogether prior to a wrestling match (or prior to any other sport for which a weight limit has to be met) causes a decline of that which may help to win the contest. Doug Young managed to win the 1977 World Powerlifting Championships after fasting for an entire week, although he did suffer some cracked ribs in the process:

Two weeks of starvation by subjects deemed to be healthy resulted in lowered testosterone and elevated levels of cortisol and catecholamines (noradrenaline/norepinephrine and adrenaline/epinephrine). The testosterone and catecholamine alterations remained after two weeks of recovery.

In young men, three weeks of exposure to high altitude while maintaining caloric balance has led to elevated free testosterone and cortisol. High altitude forces the body to utilize oxygen more efficiently through the stress of hypoxia, a stress comparable to that induced acutely by vigorous exercise, which also co-elevates free testosterone and cortisol. Free testosterone rose after a few days in a group exposed to high altitude while consuming only 40% of their caloric requirements, but this soon dipped along with a cortisol spike. A group given 40% of caloric requirements without exposure to high altitude displayed lower free testosterone levels.

When 34 US Marine Corps officer candidates aged in their mid-20s were fed just under 40% of the calories that they expended during eight days of military exercises, the IGF-1 and testosterone reductions (around 60% for the free versions) were much the same in those fed a low-protein diet (0.9g per kg, actually higher than the level found in many military ready-to-eat meals) as in those fed an ultra-low-protein diet (0.5g per kg, a measly 38g). Soy contributed 42%

of the protein given to both groups. Other androgenic hormones plummetted too, including DHEA, but the sulfate version of DHEA (DHEA-S) increased a little in the first four days.

Negative energy balance, vigorous exercise and hypoxia are stresses. The body can produce testosterone to compensate for stress, and this helps to maintain lean tissue for the duration of the stress, but excessive exposure to stresses (especially combined ones) breaks resistance, induces outright catabolism and causes testosterone to plummet and cortisol to soar.

Dietary Protein and Supplemental Amino Acids, BCAAs, Creatine etc.
As mentioned above, testosterone secretion is a means by which the body can protect itself against the catabolism of skeletal muscle amino acids induced by vigorous exercise, negative energy balance and other stresses. It is not surprising to learn, therefore, that training-related supplementation with protein, amino acids, carbohydrates (which discourage the body from catabolizing amino acids for gluconeogenesis) and creatine (which provides a source of anaerobic energy for the skeletal muscles) has reduced or prevented the catabolism of skeletal muscle amino acids and its associated stress response.

The effect that the above has on testosterone levels depends on whether the stress being guarded against is moderate and/or singular or intense and/or a synergism of many stresses. Since testosterone production is part of the adrenal stress response that normally lasts for just a short time following challenging endeavours, supplementation around training sessions often results in a small diminishment of testosterone levels despite also enhancing some measures of performance. If an intervention improves performance at an endeavour for which testosterone is helpful, an accompanying mild drop in testosterone should not be a concern. On the other hand, more extreme stresses deplete testosterone levels (probably due to inhibiting reproductive functions), and supplementation under these circumstances is liable to return testosterone levels closer to normal.

Pre- or post-workout protein or amino acid intake has blunted transient free testosterone (and cortisol) elevations but has often resulted in long-term improvements in measures of performance. The same is true for post-workout carbohydrate consumption. Both carbs and low-fat chocolate milk reduced testosterone responses to training in this example, but both (especially the milk) were linked with increases in "fat-free soft tissue".

The branched-chain amino acids (BCAAs, valine, leucine and isoleucine, which together contribute a large portion of skeletal muscle amino acids) spare skeletal muscle tissue from oxidation during vigorous exercise, and supplementation with 50mg per kg of bodyweight per day of leucine (the BCAA that most spares skeletal muscle) had no effect on testosterone levels (which were significantly elevated in the fasting state in male track and field power athletes and sprinters training with sprint intervals who were consuming a mere 1.26g of protein per kg of bodyweight).

Creatine, another substance that often leads to improvements in measures of performance, has elevated resting testosterone (from the free fraction, since neither SHBG nor cortisol were altered) in collegiate American football players over 10 weeks of resistance training. On another occasion, creatine failed to prevent testosterone reductions in response to four weeks of designed

"overreaching" but was linked with maintained explosive power and maintained squat and bench press strength during the four weeks, and with increased explosive power in the bench press after the two-week tapering period. By contrast, extra amino acids successfully maintained testosterone levels in another group of resistance-trained men undergoing two two-week phases of designed "overreaching", but in this case their improvements in strength were matched by the testosterone-depleted placebo group.

As for testosterone responses to general high dietary intakes of protein, the problem with research on this matter is that it consists either of vague recollections of eating habits or of controlled research that uses ridiculously high or ridiculously low amounts of protein. No one seems to have thought fit to gauge the effect of, say, 20-25% protein in the diet.

A diet providing 44% of calories from protein has lowered testosterone and (to a comparable degree) SHBG, and raised cortisol and CBG in addition to reducing the 5-alpha reduction of testosterone (i.e. lowering concentrations of DHT). Interestingly, very high protein intakes appear, like fibre, to specifically reduce SHBG (which tends to be lowered by things associated with insulin production and/or gluconeogenesis).

Strength athletes reporting a high protein intake had lower basal testosterone levels and lower free testosterone responses to heavy resistance exercise; the opposite association was found for intake of fat. Another food-recollection study among weight trainers found a similar thing, with the PUFAs:saturates ratio and the protein:carbs ratio being negatively linked with testosterone levels. However, protein intakes ranged from 14-33% of calories, fat from 10-32% and carbs from 48-69%, which doesn't tell us much about truly high fat intakes or about the cut-off point for testosterone reductions from a high protein intake, or about the effect of eating, say, about a third of calories from each of the macronutrients.

Taking all of the above into account, I suspect that (1) pre-/peri-/post-training protein/BCAAs/creatine/milk/carbohydrate etc. intakes diminish acute testosterone responses to manageable challenges because they "spare" testosterone from having to fulfil an anti-stress/catabolism function, but that (2) they minimize testosterone depletions in response to overwhelming challenges; that (3) particularly high basal testosterone levels and/or unusually high or prolonged post-training testosterone spikes "spare" the trainer from needing to ingest supplements immediately afterwards to see comparable improvements in performance; that (4) there is a certain high level of basal dietary protein intake at which testosterone production is mildly reduced due to a "sparing" effect; that (5) there is a higher level of basal dietary protein intake at which testosterone production dips significantly as a result of fatigue from the lack of readily available energy (i.e. fatty acids and sugars), as seen on diets high in "complex carbohydrates".

Alcohol (Ethanol), Testosterone Levels and Testicular Functions

Infants and fetuses do not possess the enzymes necessary for processing ethanol, and maternal intake passes through the placenta and hinders the baby's ability to produce testosterone and estradiol. Ethanol in any appreciable quantity is definitely terrible news for fetuses, and other drug-like items of habitual consumption may not be particularly great news for fetuses either (see the section on methylxanthines). Goodness knows what happened in medieval times, when water

was taken in the form of weak ale. Actually, we know what happened: they developed the theological concept that some sort of physiological suffering prior to death (such as the dysfunctioning of the liver, heart and other internal organs as encouraged by ethanol overload) was necessary to cleanse a sin-stained soul and reconcile it with God prior to material extinction.

It is actually contested whether any amount of alcohol is harmful during pregnancy (read the Wikipedia entry on "Fetal Alcohol Syndrome" if you're curious), and it is reported that drinking as much as one drink per day (i.e. the amount beloved by red-wine-sipping yuppies) has not been associated with an increased risk of fetal alcohol syndrome. This may be so, but a more important thing to note is that consuming more than 4.5 drinks per week (which translates in Danish terms into more than 54g or 6.75 "units" per week) has been associated (compared to an intake of less than one drink per week) with lower sperm concentrations in male offspring. On the other hand, while the abstract states that "sperm concentration decreased with increasing alcohol exposure", the figures actually show that those exposed to 1-1.5 drinks per week (i.e. 12-18g or c. 2 "units" per week, or c. 2g or 0.25 "units" per day) had non-significantly higher sperm concentrations than those exposed to less than one drink per week, and significantly higher semen volumes and sperm counts than all the other groups.

As for adults, there are "in vitro", animal and epidemiological studies with some very worrying implications for the sexual organs, and others that give a more ambivalent perspective, but the experimental research with adult humans provides a reasonably clean split (so far as hormone levels are concerned) between testosterone-raising just-enough-to-get-pleasantly-drunk quantities and testicle-intoxicating mass binges.

Ethanol, commonly known as "alcohol", is just one of many alcohols that occur in nature; in fact, anything ending in "-ol" (and much else besides) can be considered an alcohol, including cholesterol, ergosterol, vitamins D2 and D3, retinol (the alcohol form of vitamin A), tocopherols and tocotrienols (forms of vitamin E), polyphenols, and sex hormones including androstenediol and estradiol. Ethanol is produced in overripe fruits via fermentation of their sugars, and very small quantities (i.e. similar to the estimated average daily fetal exposure associated with higher semen volumes and sperm counts mentioned above) are produced naturally by the human gut.

Ethanol can be used as a substrate for "de novo lipogenesis" (DNL) in the liver, but most of it is metabolized therein (and in other parts of the body) into acetaldehyde (the substance to which most of the adverse effects of ethanol consumption are attributed) via an enzyme class (alcohol dehydrogenases, ADHs) whose members (particularly ADH1) are also primarily responsible for metabolizing retinol (the storage and transport form of vitamin A) into retinal (also known as retinaldehyde, the aldehyde form of vitamin A). There are also similar, shorter-chained enzymes known by the name "retinol dehydrogenases" (RDHs), and these also play a role in producing retinal(dehyde) from retinol, but (interestingly) they have as much or more to do with metabolizing steroids. Thus, ethanol and retinol are so similar that they share some of the same enzymes, but the amounts of naturally produced ethanol, while small, are actually much larger than the amounts of retinol found in polar bear's liver (which are believed to be toxic). Retinol is stored in the liver in the form of "retinyl esters", a process that is upregulated by cellular retinol-binding protein 1 (CRBP1), which preserves retinol stores under conditions of vitamin A deficiency or over-expression of ADH1 (as is likely to occur when ethanol is ingested).

Ethanol-derived acetaldehyde, regarded as a carcinogen, is subsequently converted into non-carcinogenic acetic acid via aldehyde dehydrogenases (ALDHs), and the same or similar enzymes (particularly ALDH1A1, also known as retinaldehyde dehydrogenase 1, RALDH1) are also responsible for metabolizing retinal(dehyde) into retinoic acid. ADH3 has a role in metabolizing retinal(dehyde) into retinoic acid, and a smaller role in metabolizing retinol into retinal(dehyde), and is abundantly expressed throughout the body. It is important for survival under conditions of vitamin A deficiency, as is ADH4. Retinal, the aldehyde form of retinol, is regarded as non-toxic whereas retinol can exert a toxicity (at a level that can vary greatly depending on interactions other nutrients, especially other fat-soluble vitamins and zinc) that can be enhanced by retinoic acid and "polar retinoid metabolites" (not named after polar bears), both of which are increased (via the liver enzyme P450 CYP2E1) by ethanol intake. Retinoic acid is the oxidized form of vitamin A, is active and is additionally vital as a hormonal ligand for the retinoid X receptor and the retinoic acid receptor (nuclear receptors which are closely related to steroid receptors and which are over-expressed in the brains of ethanol-overfed animals), but cannot be retro-converted to retinol or retinal (which are interconvertible with each other) and cannot promote eyesight or spermatogenesis as does retinal. Ethanol intake increases production (in various locations) of retinoic acid, polar retinoid metabolites and (in mouse embryos) cellular retinoic acid binding protein 1 (CRABP1). Acetic acid, the end product of ethanol metabolism, is found in vinegar and is produced in a process that also involves the production of free fatty acids (and ketone bodies) via the lipolysis of peripheral triglycerides.

In "in vitro" mouse spermatozoa, ethanol concentrations comparable to those in human drinkers have inhibited capacitation and reduced fertilizing capacity - an effect that was attributed to ethanol itself and not acetaldehyde. Rat studies have led to the suggestion that ethanol's testicular toxicity is attributable to the metabolism of ketone bodies rather than to acetaldehyde formation. By contrast, experiments carried out on cultured canine testes (dog's bollocks) have implicated acetaldehyde as an inhibitor of testicular testosterone production. Human chorionic gonadotropin (hCG) was able to stimulate testosterone production in the experimental bollock (which was given both a higher and a lower amount of ethanol) and in the control bollock, whereas acetaldehyde in a dose equal to the lower amount of ethanol inhibited testosterone production in the experimental bollock.

A single-subject case study reports that ethanol metabolism speeds up in response to declining free testosterone levels, and other research indicates that both testosterone and DHT can inhibit the hepatic (liver) conversion of ethanol into acetaldehyde. High testosterone levels have been associated with a liking for ethanol and other exotic substances, and some liver-intact chronic alcoholics enrolled on a 40-day abstinence programme had free testosterone levels equal to control subjects at the start and higher by the end (they were higher at the start and end in those who were dependent on both alcohol and tobacco). In spite of this, the testicles cannot hold out for ever (high serum testosterone levels sometimes disguise low semen testosterone levels, as mentioned in the section including tobacco smoke) and chronic alcoholics typically present abnormalities including specific deficiencies of free testosterone in the testicles (sub-clinical hypogonadism), reduced sperm counts and motilities and volumes, comparable testosterone levels but reduced sexual activity, or outright lower testosterone levels (which can to some extent recover during withdrawal among those free from signs of severe liver disease). Testosterone

levels can recover during withdrawal, given an intact liver, but chronic alcoholism is excellent for damaging the liver beyond repair.

Consumption of carbohydrates in excess of the body's demands can also damage the liver, as reflected in higher levels of various liver enzymes. Whereas high carbohydrate intakes usually result in higher triglyceride levels (linked with the liver enzymes and "de novo lipogenesis" that can also follow ethanol intake) and lower HDL levels, steady ethanol intake often increases levels of both and alcoholism massively elevates SHBG, the latter of which is normally depleted along with elevated triglycerides in "metabolic syndrome" conditions such as diabetes. As a matter of interest, squirrel monkeys fed ethanol at 24% of calories in isocaloric replacement of carbohydrates had higher HDL-3 levels and showed no changes in liver enzymes that were considered to be adverse (although I wouldn't recommend doing the same).

What about regular consumption of very small amounts of ethanol, or intermittent consumption of "moderate" amounts of it, or even regular consumption of large amounts in conjunction with generous quantities of nutrients that will protect against its testicular, liver and other toxicity? As mentioned in the vitamin A section that follows, rats maintained testicular functions when being supplemented with vitamin A in addition to an amount of ethanol that damaged the testicles when given alone. Under the right (or wrong) circumstances, it is possible for vitamin A and ethanol to be synergistically toxic, as seen in the livers of abstinent alcoholics who had previously averaged about 200g of ethanol per day (also mentioned in the vitamin A section). On the other hand, co-supplementation with vitamin A and zinc (an important component of dehydrogenase enzymes) did reverse the hypogonadism of another set of abstinent alcoholics. While ethanol is regarded as a toxin and vitamin A as an essential nutrient, it is worth remembering that ethanol intake is measured in grams and vitamin A intake in micrograms (millionths of a gram), and that an amount of vitamin A equalling the amount of ethanol produced endogenously each day in the gut (c. 3,000,000mcg) would be extremely toxic.

The things discussed above, below and in the vitamin A section illustrate how complicated the effect of ethanol is. Some patterns of usage are very unlikely to negatively affect the liver and testicles (despite transiently inhibiting the hypothalamic-pituitary-gonadal axis) and have the potential (certainly over the short-term but not necessarily the long-term) to modestly elevate testosterone concentrations, but other patterns have the potential to do irreversible damage to the liver and testicles while also promoting various cancers.

Experimental research on live humans has found that an acute dose of 0.5g of ethanol per kg of bodyweight (approximately equivalent to a 70kg person drinking a 500ml bottle of Weston's Vintage Special Reserve Cider providing 4.1 units, eight grams equalling one "unit") produces a moderate transient increase in testosterone and its ratio to androstenedione in men (attributed to an alteration of the liver's redox state, with more NADH and less NAD). It has also found that a fractionally smaller dose does the same thing in women (the effect in both sexes lasted until ethanol had been eliminated but was abolished when ethanol elimination was artificially prolonged). 0.7g or 0.8g of ethanol per kg of bodyweight for women and men increases DHEA and pregnenolone (associated with liking of alcohol in men) and decreases progesterone and allopregnanolone (dropping levels of the last associated with liking alcohol and wanting more in both sexes) and raises testosterone in women (but not in men). It should be remembered that

things that raise testosterone in women often lower estradiol, and that regular high ethanol intake is sometimes associated with disproportionately higher levels of SHBG, which could diminish the potency of any mild testosterone elevations.

Consuming ethanol (0.83g per kg of bodyweight) after circuit-style resistance exercise had little effect on testosterone or stress hormones except for a small rise in cortisol after one to two hours.

Acute doses of 2g of ethanol per kg of bodyweight taken over five hours in the evening have increased the urinary ratio of testosterone to epitestosterone in men and women (and testosterone levels in women, which weren't measured in men), though not enough to produce a false positive test for exogenous anabolic steroids. Normally, doses higher than a gram per kg of bodyweight lower testosterone levels in men (as outlined below), especially when taken day after day. Although the just-enough-to-get-pleasantly-drunk doses used in the experiments cited in the paragraph above raised testosterone (and/or DHEA) levels, a person typically needs to gradually drink more to achieve the same pleasant effect when drinking day after day, a conundrum that could lead to boredom and disillusionment (if the same dose is maintained) or to consistently drinking larger amounts that will lower testosterone levels and negatively affect the sexual organs.

On one occasion, however, healthy subjects given about 10g of ethanol per hour for 26 consecutive hours (256g in total, higher even than the intake of many chronic alcoholics) had higher testosterone levels (with no effect on cortisol) throughout the experiment. I fear, however, that, had the experiment continued over the long term, the subjects' livers would've been damaged beyond repair, with their sexual organs following not far behind.

Now for experiments showing a negative impact of high ethanol intake on testosterone production. A little more than 1g of ethanol per kg of bodyweight (from 43%-ethanol whiskey) slightly lowered testosterone acutely and lowered it more comprehensively when taken every day for a week. Male beer and wine drinkers consuming from just under 1g to just over 2g of ethanol per kg of bodyweight (from their favoured beverage and in their habitual amounts) have exhibited diminished synthesis of DHT (along with enhanced synthesis of estradiol). Acute doses of 1.5g of ethanol per kg of bodyweight taken over three hours lowered testosterone and elevated cortisol in healthy young males; the same one-off dose given to males in another experiment (and assumed to have a hangover period of 14 hours) had no effect on testosterone but left cortisol elevated throughout the 20-hour period of observation. A dose of 1.75g of ethanol per kg of bodyweight, ingested by eight healthy males within three hours and resulting in maximum blood alcohol concentrations of 1.51g per litre at the four-hour mark, elevated cortisol for at least 24 hours and depleted testosterone over the same time period, despite elevated levels of the gonadotropins (luteinizing hormone and follicle-stimulating hormone) during the second half of the period of testosterone depletion.

Ethanol intake has some caveat-laden potential to raise testosterone levels. The only down sides are that: (a) it and/or its metabolic by-products are testicular and liver toxins (or a carcinogen in the case of acetaldehyde); that (b) their effects are addictive and that more is usually needed to repeat the effect; that (c) alcoholism typically depletes testicular free testosterone while massively elevating SHBG; that (d) ethanol and/or the process of eliminating it increases the

turnover (or decreases the absorption) of most essential nutrients, including vitamin A, ascorbic acid and the B vitamins, and most minerals. The sulfites that are usually added to alcoholic beverages actively destroy thiamin (vitamin B1) in the gut, and ethanol itself (along with the sugars that are often added to alcoholic beverages) speeds up the metabolism of thiamin. Drinking alcoholic beverages can also waste time that could be better spent on other things. On the other hand, it can also help to bring on sleep or encourage profound reflective insights or the adoption of an irreverent stance towards stupid things that don't deserve to be taken seriously, and, if most other things are in good order, regularly drinking enough to induce sleepiness and/or sporadically drinking enough to induce a pleasant state of euphoria is very unlikely to damage the internal organs and may even microscopically elevate testosterone levels.

Vitamin A (Retinol/Retinal, Retinoic Acid and Carotenoids)
As mentioned at the end of the introductory paragraph, two receptors associated with vitamin A (the retinoid X receptor, RXR, and the retinoic acid receptor, RAR) are closely linked genetically with the vitamin D receptor, the thyroid hormones receptor and the steroid hormones receptors. Retinoids (in the form of retinal) play a vital role in spermatogenesis and other testicular functions, and are bound by Sertoli and germinal cells. T3, the most active thyroid hormone, is able to stimulate spermatogenesis independently of testosterone (and maybe independently of FSH as well). The thyroid hormones regulate the metabolic rate, and hypothyroidism impairs testicular function, but hyperthyroidism can do the same via negative feedback.

As mentioned in the alcohol section above, many of the enzymes responsible for metabolizing retinol into retinal(dehyde) and/or retinoic acid are also responsible for metabolizing ethanol into acetaldehyde and/or acetic acid. Interestingly, various short-chain dehydrogenase and reductase enzymes, including retinol dehydrogenases (of which there are more than one, as well as a cis-retinol/androgen dehydrogenase), are closely related and are able to interact and share substrates.

Testicular production of testosterone is dependent on the presence of retinal, which is the aldehyde form of the alcohol retinol, just as acetaldehyde is the aldehyde form of the alcohol ethanol. Since ethanol and retinol compete for metabolism by many of the same enzymes, excessive ethanol usage can starve the testicles of retinal and thereby inhibit testosterone production. Judging by experiments on rats, ethanol consumption (36% of calories for 50 days in replacement of dextrimaltose) induces "gross testicular atrophy" and depletes the testicles of retinal and glutathione (an endogenously produced anti-oxidant), but co-administration of vitamin A in the form of retinyl acetate (in a dose ten times higher than the amount given on the corresponding diet low in vitamin A, which was considered to provide the minimum amount to cover the rats' normal, non-ethanol-intoxicated needs) prevents all of these adverse changes and reduces testicular production of malonaldehyde (a promotor of lipoperoxidation) even by comparison to a group of rats given just as much vitamin A without ethanol! (Both ethanol-fed groups were compared to a control group receiving the same vitamin A intake with dextrimaltose rather than ethanol.) However, testosterone levels among the rats given high-dose vitamin A with ethanol were three times lower than those among the rats given the same dose without ethanol, this being due to ethanol's inhibition of the hypothalamic-pituitary-testicular axis (it prevents the enzymes cyclo-oxygenase and lipoxygenase from using arachidonic acid as a substrate for production of prostaglandin E2 and leukotrienes, which prevents the latter two from activating release of LHRH). LHRH stands for "luteinizing-hormone-releasing hormone" (let us hope that

they never discover a hormone that releases LHRH). Testosterone levels in the high-retinyl ethanol-fed rats were the same as those in the low-retinyl ethanol-free rats, which were higher than those in the low-retinyl ethanol-fed rats.

A second, larger caveat is that the ethanol dose in this experiment (36% of calories) was the same as that which was found to synergistically induce giant mitochondria and other lesions when given to rats alongside high amounts of vitamin A in other experiments (see the review cited in the next paragraph). 36% ethanol increased liver retinol-binding protein yet greatly reduced liver retinol levels and increased levels in the blood, the kidneys and the testes. Similar giant mitochondria and liver cirrhosis were seen among ostensibly abstinent alcoholic human males receiving modestly high vitamin A supplementation (also see next paragraph), along with depressed levels of luteinizing hormone.

Interestingly, disease-free regular moderate drinkers typically have higher than normal serum and adipose tissue levels of retinol (and lower levels of beta-carotene). A danger with regular moderate ethanol consumption is that a low intake of retinol/retinal and/or convertible carotenoids (alpha- and beta-carotene and beta-cryptoxanthin) could deplete the liver of retinol and eventually deplete the rest of the body of retinal and retinoic acid (retinoic acid is the oxidized form of vitamin A, active and a ligand for retinoid-related nuclear receptors, but unable to induce spermatogenesis). By contrast, intermittent doses of ethanol could leave behind higher than normal quantities of dehydrogenase enzymes, which could increase the amount of retinal available for the testicles without being nearly vigorous enough to deplete the liver of retinol. Constant high ethanol concentrations, however, make it mightily awkward to maintain liver retinol stores. Chronic alcoholics with liver disease have whole-body vitamin A deficiency but, unfortunately, high doses of vitamin A from retinoids or carotenoids can actually increase damage to livers that are already being battered by ethanol. Note that all of the experiments cited in this review in support of the co-toxicity of vitamin A and ethanol were conducted on former alcoholics or on baboons and rats concurrently being fed 50% and 36% of calories from ethanol - although a mere 3000mcg of retinol per day, given to otherwise free-living abstinent alcoholics with sexual dysfunction (who'd formerly averaged 200g of ethanol per day), was sufficient to produce giant mitochondria and liver cirrhosis or fibrosis in some of them (contrary to a reversal of alcoholism-induced hypogonadism with combined vitamin A and zinc supplementation in another trial cited in this one).

It is too simplistic to expect problems caused by ethanol to be solved by massive doses of isolated vitamin A, such as have typically resulted in toxic symptoms in alcoholics with impaired gonads/livers or chronically inebriated baboons or rats. Zinc, which interacts with vitamin A in many ways, also tends to be malabsorbed (along with protein) by those with damaged livers. Zinc deficiency results in reduced synthesis of retinol-binding protein (RBP), meaning that retinol has an enhanced capacity for liver toxicity, and in reduced synthesis of alcohol dehydrogenase enzymes (ADHs, of which zinc is a component), meaning that less retinol (already potentially more toxic to the liver) is converted into retinal. By contrast, zinc deficiency is also accompanied by greater expression of enzymes converting retinal (irreversibly) into retinoic acid, meaning that a specific deficiency of retinal (the form of vitamin A vital for eyesight and testicular functions) is liable to ensue even if vitamin A intake is reasonable.

High intakes of vitamin A have been accused of promoting osteoporosis and fractures, but some superb research indicates (in a nutshell) that (1) vitamin A and vitamin D3 (which stimulates bone growth and increases the absorption of the calcium and phosphorus required for bone mineralization, but which has also been accused of causing soft-tissue calcification) work more synergistically than antagonistically; that (2) each increases the need for the other and protects against the toxic effects attributed to the other; that (3) higher rather than lower amounts of both are better (scuppering lung cancer and calcification in mice when combined), and that vitamin K2 (production of which from vitamin K1 increases in response to vitamins A and D3) is a crucial go-between in their interactions and is responsible for activating proteins relevant to their interactions and for directing calcium into teeth and bones rather than soft tissues. Although these fat-soluble vitamins increase the amount of one another that can safely and beneficially be ingested, that does not mean that their intake can safely expand indefinitely. Weight for weight, they're much more toxic than ethanol!

In the absence of an adequate intake of vitamins D3 and K2, and in the presence of increased retinoic acid levels caused by regular ethanol intake, it is possible that people could have fracture-susceptible bones. Some research indicates that chronic alcoholics averaging nearly 180g per day have lower blood levels of calcidiol (precursor to the activated hormone calcitriol) despite similar estimated intakes, and female rats to whom ethanol was administered intragastrically displayed higher quantities of one of the CYP24 enzymes that de-activates calcitriol. Other research indicates that male chronic alcoholics free of liver cirrhosis and with normal free testosterone levels (selected on the basis of consuming over 40g of ethanol per day, but actually averaging almost 100g per day) have reduced bone mineral density at the lumbar spine, whereas physically active male soldiers averaging more than 24g of ethanol per week (24g in one go may not be enough to induce a state of pleasant drunkenness, or so I'm informed ...) have greater bone mineral density at the femur (upper thigh) compared to abstainers (they also had lower total and free testosterone but higher total and free estradiol levels, which is interesting considering that the aromatization of testosterone is significantly responsible for bone growth around the hips and thighs).

An adequate supply of retinal is clearly crucial for testicular function, but that doesn't tell us much about the potential of high retinoid and/or carotenoid doses to increase and/or decrease levels of various androgens. To the best of my knowledge, beta-carotene has been tested just once, at a massive dose of 300,000 mcg (300mg) per day for 30 days, and had no effect on various androgens or even on retinol levels. Among 102 male young teenagers with delayed puberty, a combination of 6000 IU of retinol per week (c. 220mcg per day, a bit less than can expected to be present in 100g of cheese) and 12mg of iron per day promoted growth as effectively (and increased testicular volume very nearly as quickly) as exogenous testosterone.

Three months of supplementation by males with severe acne with a massive daily dose of 13-cis-retinoic acid (700mcg per kg of bodyweight, or 49,000mcg or 49mg for a 70kg person) reduced conversion of testosterone into DHT in skin cells and promoted a hepatic shift from 5-alpha to 5-beta reduction of steroids. Note that retinoic acid, as given here, is not active for testicular functions.

A similarly large daily dose of retinoic acid (all-trans-retinoic acid, 35,000mcg or 35mg per day), given to male psoriatic patients for three months, reduced levels of free/bioactive triiodothyronine (T3), the most active thyroid hormone. Hypothyroidism can be induced by a low intake or low availability of calcium, and, as mentioned earlier, hypothyroidism slows down the metabolism and impairs testicular function. Vitamin A by itself reduces blood calcium levels whereas vitamin D increases them, meaning that an imbalance between the two in favour of vitamin A could reduce blood calcium levels and induce hypothyroidism. Note that an "International Unit" of vitamin A represents twelve times more micrograms than an "International Unit" of vitamin D, and that a good balance between the two would still entail a much higher amount of vitamin A than vitamin D, microgram for microgram.

Psoriasis is characterized by conspicuous marks on the outer layers of skin cells, most of which are keratinocytes. In "in vitro" human keratinocytes, T3 had no effect on proliferation and differentiation, but vitamin D3 opposed proliferation and promoted differentiation whereas retinoids had a mild but dose-dependent effect to the contrary. Compared to control subjects with similar vitamin D3 status but normal thyroid status, hypothyroid patients with mild vitamin D3 deficiency responded poorly to a single, massive 100,000 IU (2.5mg) dose of vitamin D3, and only administration of the thyroid hormones themselves was able to correct vitamin D3 status (it also increased concentrations of DHEA and DHEA-S). The thyroid hormones (T4 and T3) are derived from the amino acid tyrosine and the mineral iodine.

The above research illustrates the importance of synergistic interactions between different essential nutrients that are vital for general health and for sexual function, and the folly of banking on massive doses of one without having any regard for the others. As we shall see in the next section, retinoids are not the only members of this group of essential nutrients that interact with steroid hormones in fascinating ways.

Vitamin D

Androgens and estrogens are widely regarded as being nefarious promotors of cancer growth, especially in prostate and breast cells, largely on the basis of "in vitro" experiments involving cultured cells. Since one of the main functions of sex hormones is to promote growth, it is perhaps not surprising that they should also promote the growth of cancer cells when the two are examined in isolation outside of a living organism. Does this mean that sex hormones will promote cancer in a healthy body that has a robust immune system and is not deficient in any vital nutrients? Cell culture experiments using steroid hormones and fat-soluble vitamins suggest that this notion may be total and utter twaddle.

Metabolites of vitamin D3 (calcidiol or calcitriol) have an anti-proliferative effect on cultured human prostate cancer LNCaP cells, but this effect can be diminished by an enzyme (24-hydroxylase, CYP24) that converts these metabolites into a form that is not active in these cells. Luckily, however, this enzyme can be downregulated by another biochemical entity, which thereby sustains the anti-proliferative effect of vitamin D3 metabolites. What is the name of this entity? It is none other than the villainous end-baddie itself, 5-alpha dihydrotestosterone (DHT)!

Calcitriol and a non-steroidal anti-inflammatory drug (ibuprofen) synergistically inhibited LNCaP cell growth in a DHT-free medium in another set of experiments, but the anti-

proliferative effect was enhanced by adding DHT to the culture medium! Ibuprofen was added due to concerns about the potential hypercalcemic effect of calcitriol. One suspects that vitamin K2 (covered in the next section) would have been more appropriate.

Calcitriol also has an anti-proliferative effect in another human prostate cancer cell line (MDA). The effect is blocked by a pure anti-androgen, though only partly at low doses, indicating the effect of calcitriol to be somewhat independent. The MDA line has very-low-affinity androgen receptors, but calcitriol increased androgen receptor messenger RNA (ribonucleic acid)!

The synergism between vitamins A and D3 also appears to be crucial to the relationship between sex hormones and cancer cells, again judging from cell culture experiments. Calcitriol and retinoids (cis-9 and all-trans retinoic acid) both promoted the differentiation of LNCaP cells with or without androgens, but the retinoids (and even calcitriol under certain conditions) promoted the growth of the cells without androgens, whereas both vitamins (especially calcitriol) inhibited the growth of the cells with androgens! In addition to this, calcitriol approximately doubled the number of androgen receptors!

Interestingly, another biochemical entity which enhances the effect of vitamin D3 in prostate cancer cells is "alpha-tocopheryl succinate", a "redox-silent" form of vitamin E that has neither anti-oxidant nor pro-oxidant activity.

Given that DHT downregulates the enzyme (CYP24) responsible for inactivating vitamin D3 metabolites that are able to antagonize cancer progression under "in vitro" conditions, and given that estradiol is blamed for contributing to breast cancer just as DHT is blamed for contributing to prostate cancer, is it possible that a similar relationship exists between vitamin D3 and estradiol? Indeed it is. In human breast cancer cells, 17-beta-estradiol downregulated the activity of CYP24 and also upregulated the activity of an enzyme (CYP27B1, 25-hydroxyvitamin D3 1-alpha-hydroxylase) that produces the most bioactive form of vitamin D (calcitriol)!

Vitamin K

Since vitamin K interacts with vitamins A and D, and since vitamins A and D and their receptors and enzymes interact in complex ways with steroid hormones and their receptors and enzymes, a question that quickly arises is whether there is any indication that vitamin K could interact in some way with the steroid hormones. The answer is yes: both androgen-binding protein (ABP) and SHBG are closely related to the "globular domain" of "S family" proteins, the latter of which are dependent on vitamin K. Specifically, the COOH-terminal domain of Protein S is homologous to ABP and SHBG. What this means is not clear (to me), but it is interesting.

Although vitamin K is typically characterized as being coagulatory, the S family of proteins (one of many families activated by vitamin K) are actually anti-coagulatory, and they are present in the testicular Leydig cells, although they do not bind androgens. Protein C, another protein with an anti-coagulatory effect (it degrades coagulatory factors Va and VIIIa), is also dependent on vitamin K (and on Protein S possessing a single beta-chain, heterozygous deficiency of which promotes thrombo-embolic events).

Interestingly, deficiency of Protein S appears to go hand in hand with testosterone deficiency and venous thromboses. Administration of synthetic ethinyl estradiol (but not natural 17-beta estradiol) to male-to-female transsexuals has been linked with venous thrombosis via depleted total and free plasma Protein S - the opposite of what is seen in female-to-male transsexuals given testosterone.

Vitamin K2 acts as a ligand and, in bone cells, is able to activate the "steroid and xenobiotic receptor" (SXR), a nuclear receptor belonging to the NR1I sub-family along with the vitamin D receptor and the "constitutive androstane receptor" (CAR). The vitamin D receptor (closely related to the pregnane X receptor) is thought to be the original NR1I gene.

The drug warfarin, which is enthusiastically administered to people with excessively coagulatory blood, inhibits the enzyme (vitamin K epoxide reductase) responsible for recycling vitamin K after it has "carboxylated" (activated) proteins. As mentioned above, anti-coagulatory as well as coagulatory proteins are dependent on vitamin K (they cannot be activated without it). Osteocalcin, a protein hormone vital for bone growth and dental health, is also carboxylated by vitamin K, as is the protein matrix Gla, under-carboxylation of which contributes to arterial calcification. Both osteocalcin and matrix Gla appear to be carboxylated much more effectively in response to vitamin K2 rather than vitamin K1.

Since vitamin K2 is more important for carboxylation than vitamin K1, and since warfarin inhibits the enzyme responsible for recycling vitamin K following carboxylation, this implies that the more crucial K2 form will be by far the biggest casualty of warfarin use. This may help to explain why use of warfarin has led to increased plasma levels of vitamin K1, an increase that was accompanied by decreased quantities of folate (vitamin B9) in red blood cells (erythrocytes). Four weeks after discontinuing warfarin use, one group of patients exhibited venous thrombosis along with reduced erythrocyte folate and hyperhomocysteinemia (which the authors politically attributed to a lack of leafy green vegetables rich in vitamin K1 and not to use of warfarin). High homocysteine and low folate plasma levels have been correlated with the calcification of arterial plaque, and high homocysteine and low vitamin B12 levels have been correlated with reduced bone mineral density! Hmmm. Estimated high intakes of vitamin K2 (menaquinone), but not those of vitamin K1 (phylloquinone), have been correlated with reduced coronary heart disease (and reduced all-cause) mortality among nearly 5000 subjects of both sexes, and with reduced incidence of CHD (mortality isn't mentioned in the abstract) among more than 16,000 women! Are you starting to connect the dots? Low intake of leafy green vegetables, my arse!

Vitamin K is vital for healthy bones, primarily in the form of vitamin K2. Under "in vitro" conditions in human primary osteoblast cells, vitamin K2 managed to promote mineralization even when hindered by the presence of warfarin. It also encouraged the conversion of osteoblasts into mature bone cells (osteocytes) and diminished the cells' ability to produce osteoclasts (breakers-down of bone), again with little or no sensitivity to warfarin. All of these things may have been due to gamma-carboxylation and/or activation of the steroid and xenobiotic receptor (SXR).

Vitamin K2 supplementation in live humans has resulted in reduced production and reduced proliferation of liver cell (hepatocellular) carcinomas (HCCs). In "in vitro" experiments, HCC

cells overexpressing the steroid and xenobiotic receptor (SXR) were less motile and proliferated less rapidly. Adding vitamin K2 to the medium (and thereby increasing activation of the already overexpressed SXR) made the HCCs even more impotent!

Thus vitamin K2, like vitamin D3 (with which it interacts synergistically), is crucial for bone health and antagonizes the proliferation of certain cancer cells via mechanisms that involve steroid hormones and/or their receptors!

Vitamin E (Tocopherols and Tocotrienols)
Besides vitamins A, D and K, the other fat-soluble vitamin is vitamin E, which occurs in the form of four tocopherols and four tocotrienols (alpha-, beta-, gamma- and delta-), the best studied of which are alpha-tocopherol (the form most often found in supplements) and gamma-tocopherol (the most abundant form in dietary sources). As mentioned at the end of the vitamin D section, a synthetic form of vitamin E, alpha-tocopheryl succinate, which has little or no anti-oxidant (nor pro-oxidant) activity (which does not prevent it from being promoted for its "anti-oxidant" capacity on websites selling nutritional supplements), has synergistically enhanced the effect of vitamin D3 in antagonizing prostate cancer cell proliferation (in cultured prostate cancer cells and in unfortunate mice to whom such cells were xenografted).

Vitamin E and specifically alpha-tocopherol are believed to be essential for sexual function on the basis of experiments from the 1920s which observed infertility (most sterile in the first generation, the rest in the second) among rats that otherwise grew and developed perfectly well on a diet of casein (protein), cornstarch, yeast, lard and butterfat. The sterility was prevented by adding lettuce to the diet or by increasing the proportion of butterfat to 24% of the diet.

In my opinion, the above experiments are not sufficient to show that alpha-tocopherol is essential for sexual functions. According to the USDA nutrient database, various forms of lettuce all contain only small amounts of alpha-tocopherol but massive amounts of vitamin K1. Butterfat (which also corrected the deficiency when fed in large enough amounts) also contains small amounts of alpha-tocopherol as well as small amounts of vitamins K1 and K2. Dietary fat increases the conversion of beta-carotene into vitamin A and could also do the same for vitamin K1 into K2, and vitamins A and D3 have increased the conversion of vitamin K1 into K2 in experiments on mice. Butter is also rich in vitamin A and, as mentioned in the vitamin A section, testicular retinal serves an anti-oxidant function by preserving levels of endogenously produced glutathione. In theory, then, these rat experiments could be interpreted as proving the essentiality of vitamin K and/or of preserving glutathione and anti-oxidant capacity in the sexual organs via larger doses of vitamin A.

In spite of the skeptical view given in the paragraph above, the essentiality of alpha-tocopherol for fertility is said to have been established in experiments spanning from the 1920s to the 1950s, the vast majority of which I have not looked into. Alpha-tocopherol may well be absolutely essential for fertility, and it and other forms of vitamin E are all very useful in amounts that can be obtained from dietary sources. However, mass-dose supplementation with 10,000 international units reduced fertility in female rats.

In other rats, who were deficient in selenium, massive doses of alpha-tocopherol failed to normalize testicular function. Selenium too is an "anti-oxidant", and it is clear that a robust anti-oxidant capacity is essential for healthy sexual functioning. Like most anti-oxidants, selenium is also able to promote oxidative damage, but it is able to recycle the endogenous anti-oxidant glutathione back from oxidized into "reduced" form.

There is one report of an unspecified dose of supplemental vitamin E (form not specified) increasing plasma testosterone in "normal male subjects".

The problem with alpha-tocopherol is that massive-dose supplementation with it has been linked with marginally increased mortality in many human trials, which may well have something to do with it depleting the body of gamma-tocopherol and delta-tocopherol. Controlled feeding experiments on healthy pigs, in contrast to pigs with pre-existing endogenous oxidative stress, have observed impaired endothelial function in those given dl-alpha-tocopherol, despite accompanying reductions (or non-alterations) in traditional markers of lipoperoxidation. Oxidative damage occurs not only to lipids but also to proteins (nitrosation), and there was clear evidence of increased nitrosation in these pigs.

Under "in vitro" conditions, and under "ex vivo" conditions in blood extracted from live humans (including ones with homozygous hereditary deficiency of alpha-tocopherol), alpha-tocopherol acetate antagonized lipoperoxidation under conditions of high oxidative stress, but did so under conditions of low oxidative stress only when accompanied by large amounts of vitamin C (ascorbate). It had a pro-oxidant effect under conditions of low oxidative stress when vitamin C was absent. Alpha-tocopherol can itself be oxidized into a pro-oxidant form, and other anti-oxidants, especially vitamin C, are able to regenerate it into anti-oxidative form. Protein oxidation was not examined.

The processes of lipid and protein oxidation overlap. A mutagenic nitrogen and oxygen reaction product, peroxynitrate, is formed via the activation of phagocytes, a process that strongly encourages their accumulation with oxidized LDL on arterial walls. When alpha- and gamma-tocopherol were compared, gamma-tocopherol was not more effective at inhibiting lipoperoxidation in isolated LDL but was more effective at inhibiting lipoperoxidation in liposomes.

Other research shows that alpha-tocopherol reacts with nitrogen dioxide to form a nitrosating product called tocopheroxide. By contrast, gamma-tocopherol reacts with nitrogen dioxide to form nitric oxide, a gas which promotes endothelial vasodilation and thus widening and relaxation of the arteries and reduced blood pressure. Gamma-tocopherol was also a more potent inhibitor of neoplasia.

Interestingly, both gamma-tocopherol and the anti-oxidant epicatechin have been shown to promote endothelial nitric oxide production, and both are abundantly present in dark chocolate. Nitric oxide has a close relationship with testosterone in the testicular process leading to penile erection, and testosterone itself promotes vasodilation. Dark chocolate and cocoa also contain an abundance of the methylxanthine theobromine. Methylxanthines (as discussed in their own section) can improve sexual function, but massive doses in purified form (higher than can be

realistically obtained from natural dietary sources) can have the reverse effect and it is possible that even smaller doses (as obtained from dietary sources) are able to have an adverse effect on fetuses. It is likely that excesses of methylxanthines and exogenous, non-essential "anti-oxidants" are both capable of reversing the beneficial effects of more modest doses.

The things considered above suggest that large supplemental doses of alpha-tocopherol are best avoided, that any of the much more modest amounts of alpha-tocopherol obtained from dietary sources are good, and that any gamma-tocopherol from dietary sources is possibly even better.

Vitamin C (Ascorbic Acid), Glutathione and Uric Acid
I have found very little research directly linking vitamin C (ascorbic acid) and sex hormones. However, it is clear from the things discussed in the sections on vitamins A and E that oxidative damage is a mortal foe of sexual function. Vitamin C is both an essential nutrient and a potent anti-oxidant, and most animals apart from "higher" primates, guinea pigs, some bats and birds and at least one nematode parasite (creatures which have access to high amounts from food) take care to produce massive amounts of vitamin C (ascorbic acid) from glucose (the lucky bastards). Creatures who don't produce their own lack the final enzyme (L-gulono-gamma-lactone oxidase) in the metabolic process leading from glucose to ascorbic acid.

Many creatures, including those that don't produce their own ascorbic acid, are also able to produce the anti-oxidants uric acid and glutathione. Uric acid is derived from purines (including those derived from methylxanthine alkaloids), and blood levels increase in response to a large intake of protein (which provides exogenous purine) or an excessive intake of fructose or other sugars (metabolism of which encourages the endogenous production of purines and the scavenging of phosphate from ATP, which then needs to be regenerated by the release of phosphate from bone). Excess uric acid concentrations are linked with conditions such as gout (which mainstream nutritionists eagerly blame on dietary protein, despite the obvious objection that protein-rich foods provide an exogenous source of purine, not to mention phosphorus, which relaxes the ATP-diminishing effect of fructose). An intake of 500mg per day of vitamin C reduces levels of uric acid, more so in each higher quartile of initial uric acid.

Glutathione is derived from the amino acids glycine, glutamic acid and cysteine. Cysteine, along with another "sulfuric" amino acid (methionine), is also crucial for the health of tendons and other connective tissues. Methionine and cysteine are most abundant in animal sources of protein, are known as sulphur-containing amino acids (SAAs) and increase the urinary excretion of calcium. Fortunately, animal sources of protein also increase the absorption of calcium, and minerals such as phosphorus and potassium (also abundantly present in non-purified sources of animal protein) discourage the urinary excretion of calcium, meaning that the net effect of natural sources of animal protein on calcium balance is either neutral or (if they are rich in calcium itself) positive - again despite the idiotic insistence of mainstream nutritionists to the contrary.

Fertile males (smokers or non-smokers) have higher ascorbic acid levels in seminal plasma than infertile ones, and ascorbic acid levels also correlate with a higher percentage of sperm with normal morphology. Oligozoospermic males have reduced spermatozoa levels of glutathione

compared to normozoospermic ones, and higher intracellular glutathione levels correlate with the capacity to penetrate bovine cervical mucus!

Not surprisingly, low levels of vitamin C and glutathione have been linked with low testosterone levels and elevated levels of TBARS indicating oxidative stress and testicular toxicity among male alcohol abusers aged 20-40.

B Vitamins
I have found very little concerning the direct effect of various B vitamins on sex hormone levels and related matters. A few interesting things to note are that (1) male mice lacking a certain thiamin(e) (vitamin B1) transporter are infertile; that (2) immunization against the riboflavin (vitamin B2) carrier protein (RCP) promotes infertility in various species; that (3) niacin (vitamin B3, which can be produced from the amino acid tryptophan) is the source of the NAD+ and NADH which are necessary for the metabolism of substances including steroids; that (4) pantothenate (vitamin B5) supplementation has reversed health defects including immature sperm in male mice fed a B5-deficient diet; that (5) megadoses of pyridoxine (precursor to the active form of vitamin B6, given at doses from 125mg to 1000mg per kg) hypotrophy the testicles and reduce sperm counts in male rats (which doesn't necessarily mean that more normal high doses would do the same) and that pyridoxine increases 5-alpha reductase in cultured rat hypothalamus and pituitary regions whereas pyridoxal (its active derivative) inhibits it, and that vitamin B6 deficiency increases the uptake of steroid hormones into cultured rat uterus slices (possibly via increased receptors or enzymes) but repletion increases it even more; that (6) three months of massive 15mg (15,000mcg) per day supplementation with folinic acid (a synthetic form of folate, vitamin B9) increased sperm counts and motility in male partners of infertile couples (especially in those 17 of 65 whose partner subsequently conceived), and that (7) large doses of synthetic vitamin B12 (methylcobalamin, 1500mcg per day for anything from four to 24 weeks) were judged to have improved the sperm parameters of 11 out of 26 non-azoospermic infertile males (but to have impaired them further in four of the others).

B vitamins are water-soluble (like vitamin C) and can therefore offer some protection against the strong diuretic (water-excreting) effect of certain interesting drug-like items of diet (methylxanthines, ethanol) that have an ambivalent relationship with sex hormones and sexual function.

Macro-Minerals (Sodium, Potassium, Phosphorus, Calcium, Magnesium) and Boron
The two most abundant minerals in the human body are sodium and potassium. I have found no research looking directly at the effect of these on sex hormone levels, but it is important to note that production of the "mineralocorticoid" stress hormone aldosterone (a steroid hormone derived from cholesterol like cortisol and the sex hormones) increases in response to low sodium levels and high potassium levels. Potassium is a component of the glycogen stored as fuel for vigorous muscular exercise, and a high intake along with vigorous exercise is therefore less likely to lead to high blood levels (hyperkalemia) and excess production of aldosterone (more of the potassium being directed into skeletal muscles).

Although sodium and its densest source (salt) are popularly stigmatized as promoting hypertension (raised blood pressure), the balance between sodium and potassium is more

important than the absolute amount of sodium ingested, and the body is able to tightly regulate the balance between the two by excreting excesses via the kidneys (something that is easier to do when there are more than adequate amounts of both, since two wrongs do not make a right). Of the two, it is sodium that is the most abundant mineral in the human body. (The things discussed briefly in this paragraph would make a good topic for a future article.)

There are two main pathways to sodium-potassium imbalance. Since salt is very useful for preserving foods, relying primarily on conveniently preserved foods rather than fresh ones (as is liable to happen in "western" societies) can lead to an imbalance on the side of sodium (which can be exacerbated further by the use of table salt consisting of almost pure sodium). Because of the greater familiarity of sodium-slanted imbalance in "western" societies, resultant hypertension is much more stigmatized as a serious health concern than is hypotension resulting from the opposite imbalance.

On the other hand, the over-reliance on fresh foods of a terrestrial/inland origin (rather than a marine/coastal one) can lead to an imbalance on the side of potassium (sodium is most prevalent in the sea). Elephants relying mainly on inland vegetation for food go to the trouble of manoeuvring their vast bodies through tight underground caves at night just to get a lick of a supposedly toxic substance. Despite the negative stigma attached to purified table salt, natural sea salt contains fairly decent quantities of other minerals besides sodium, especially magnesium and iodine (the precursor to the thyroid hormones, as related above and below).

So, although there is little or no direct research concerning the effect of sodium and potassium on sex hormone levels, it is clear enough that an imbalance either way leads to health concerns that are very unlikely to be conductive to optimal physical performance or sexual function, and that a sodium-starved body gravitates towards producing more stress hormones (and thus probably less sex hormones) while potassium is a necessary component of the glycogen that is required for optimal physical performance. As well as utilizing potassium-containing glycogen, exercise (especially of the endurance variety) also results in the loss of bodily sodium (hyponatremia).

Likewise, I have found very little regarding any direct relationship between phosphorus and sex hormone production, but it too has a crucial role in optimal physical performance, one that is taken for granted due to its ubiquity in the food supply. Phosphorus is a component of adenoside tri-phosphate (ATP), adenosine di-phosphate (ADP), adenosine mono-phosphate (AMP) and creatine phosphate or phosphocreatine (CP/PC), all of which are vital for energy production, and it is a component of teeth and bones along with calcium (the latter of which is more emphasized due to the narrower range of foods from which it can be obtained in high, well-absorbed quantities). In other words, it is vital for all the things for which people desire to have an elevated production of sex hormones.

Among post-menopausal women being fed in a metabolic unit, a boron-supplemented diet (3mg per day plus 0.25mg from the diet) reduced urinary excretion of calcium and magnesium and resulted in elevated levels of both testosterone and estradiol - patterns that were more pronounced when the diet was very marginal in magnesium (116mg per 2000 calories versus an additional 200mg from a supplement). On another occasion when it was given (3mg per day) to post-menopausal women in a metabolic unit for three weeks as part of an otherwise identical

(and truly awful) diet, those women had consistently positive calcium balances, progressively more positive (or at least less negative) potassium balances, and progressively more negative magnesium balances, along with no interesting alterations to any hormone level. Does the above mean that magnesium restriction is a desirable thing? I doubt it (see the next-but-one paragraph). However, it is possible that boron is an essential nutrient in its own right.

Boron given to healthy males for four weeks (10mg per day) resulted in an ambiguous trend for higher testosterone levels and an unambiguous elevation of estradiol levels. Males in their 20s who took 2.5mg of boron per day while training on four days per week for seven weeks had higher testosterone levels and increased squat 1-rep maxes at the end of the trial, but the same outcomes were seen in the placebo group, indicating that "structured resistance training" is far more important than trendy supplements.

Since marginal magnesium status seems to be linked with marginally more sex hormone production and more positive calcium balance in post-menopausal women following appalling research unit diets, it must be a bad idea to ingest large amounts of magnesium, eh? Think again! Taking 10mg of magnesium per kg of bodyweight per day (i.e. 700mg per day for a 70kg person) resulted in elevated total and free testosterone levels in sportsmen practising taekwondo for 90-120 minutes per day. A similar effect was seen in a similar study using 35mg of calcium per kg of bodyweight. It is possible that magnesium interferes with the binding of testosterone by SHBG.

Trace Minerals (e.g. Iodine), Goitrogens and Toxic Metals and Ions (e.g. Fluoride)
As mentioned at the end of the introductory section and in the section on vitamin A, the thyroid hormones (especially triiodothyronine, T3) are strong promotors of spermatogenesis and their receptors belong to a family of nuclear receptors including those for fat-soluble vitamins and steroid hormones. The thyroid hormones are derived from the amino acid tyrosine and the essential mineral iodine (abundant in sea water, with increasingly diminished amounts in soil further inland). The best dietary source of iodine is natural sea salt, which should also be a good source of magnesium and possibly other minerals in addition to the abundant sodium. Table salt is almost purified sodium and contains no other minerals, although iodine is sometimes added back in.

Cruciferous vegetables (Brassicaceae or Cruciferae) and various others contain entities known as goitrogens (or glucosinolates or isothiocyanates), which prevent the body from utilizing iodine, resulting in hypothyroidism and other symptoms of deficiency. Levels of the very same properties in the urine of a multi-ethnic cohort have been linked with a reduced incidence of colorectal cancer, but a high intake of them by mildly iodine-deficient females has been linked with an exceptionally high rate of thyroid cancer. Excess iodine and hyperthyroidism can cause similar problems, which may explain why intakes of iodine and seafood were positively associated, and those of cruciferous and other goitrogenic vegetables negatively associated, with the incidence of thyroid cancer in Hawaii (a group of small islands on which all locally produced food is bound to be abundant in iodine). These things provide an excellent example of how complicated are the interactions between all the different chemicals encountered in the diet and the environment.

Iron does not appear to have any prominent role related to sex hormone production and the functioning of the sexual organs, but deficiency of it (anemia) is customarily accompanied by impairments of both, as is only to be expected, and higher levels of hemoglobin (the oxygen-transport protein of which iron is a critical component along with folate and vitamin B12) have been correlated with total and free testosterone levels in a group of nearly 500 men aged 30-95. As mentioned in the vitamin A section, a daily 12mg iron supplement along with around 220mcg per day of retinol was very nearly as effective as exogenous testosterone at increasing the testicular volume of young men with delayed puberty. Any amount of testosterone would be pretty useless in the complete absence of an essential nutrient.

As mentioned in the vitamin E section, selenium is very important for testicular anti-oxidant capacity (and thus proper sexual functioning). Selenium is highly effective at recycling endogenous glutathione from oxidized (pro-oxidant) back into "reduced" (anti-oxidant) form. Taking 200mcg per day of selenium (along with 600mg of N-acetyl-cysteine) for half a year increased testosterone levels and improved the semem parameters of infertile men. Eating just two Brazil nuts is sufficient to significantly improve selenium status.

Copper is thought to be crucial for reproductive functions, even if I haven't managed to find much relevant research on live humans. If you do manage to raise testosterone naturally, it is worth bearing in mind that testosterone may intensify copper deficiency. As a matter of interest, fructose seems to increase copper absorption but may also hinder its utilization once in the body. Dark chocolate is rich in copper, iron, zinc and magnesium (and manganese), although it's likely that their absorbability is very limited.

Manganese is thought to be toxic to the testicles, though I've found no relevant research on live humans. In cultured rat Leydig cells, testosterone production stimulated by human chorionic gonadotropin (hCG) was dose- and time-dependently decreased (along with "steroidogenic acute regulatory protein", or StAR, and related enzymatic processes) by manganese. However, very small amounts of manganese appear to protect sperm extracted from human males by increasing levels of reduced and lowering levels of oxidized glutathione.

Among Croatian males aged 20-43, high blood levels of the toxic metal cadmium were associated with higher levels of testosterone (and estradiol) but also with decreased sperm motility. 2.5mg of cadmium per kg of bodyweight per day reduced the testicular mass of some unfortunate rats, although the effect was reversed by both zinc and diallyl sulfide from garlic (also found in other members of the Allium genus, which includes onion, shallots, chives and leeks). Among Croation males aged 19-52, a similar pattern (elevated testosterone and estradiol but abnormal sperm and depleted seminal plasma zinc) was seen in conjunction with high blood lead levels.

Diallyl sulfide from Allium plants (which can increase testosterone production via luteinizing hormone, as discussed in the relevant section) is (as the name suggests) a sulfurous entity, and zinc (vital for healthy sperm) often occurs in sulfurous form, but exposure to sulfur mustard produces sperm abnormalities without necessarily causing testosterone levels to drop. If testosterone levels do initially drop, the sperm abnormalities remain long after testosterone has returned to normal. Sulfites/sulphites used to preserve certain foods and alcoholic beverages are

able to destroy thiamin (thiamine, vitamin B1), and ethanol itself antagonizes its intestinal absorption (but may reduce its urinary excretion despite being a diuretic and despite the vitamin's water-solubility).

One of the most controversial minerals-cum-toxins is fluoride, which is touted as being good for dental health and which is consequently added to most toothpastes and (in some parts of the world) to the water supply. I have not examined in any detail the relationship between dental health and different forms of fluoride (like all minerals, it occurs in many different complexes, some of which may have different effects from others), but of what consequence are the teeth when the testicles themselves are in mortal peril? It is quite clear that fluoride is a testicular toxin.

Men who had lived for more than five years in a district with nearly 4mg per litre of fluoride in the drinking water had (in comparison to those inhabiting a region with less than 1mg per litre) higher luteinizing hormone levels but lower testosterone levels. The women had higher testosterone but lower estradiol levels. Men drinking the same water as skeletal fluorosis patients, without exhibiting skeletal fluorosis themselves, had testosterone levels intermediate between the patients and control subjects whose drinking water contained less than 1mg per litre. Men exposed to 3-27mg of fluoride per day had, compared to those exposed to 2-13mg per day, higher follicle-stimulating hormone (FSH) and lower free testosterone levels.

There is one report that fluoride exposure up to 250 parts per million in drinking water fails to effect reproductive functions in male and female rats or their offspring (given the same treatment), but another experiment found decreased spermatogenesis and steroidogenesis in neonatal male rats whose mothers had been given fluoride at a measly 4.5 or 9 parts per million in the drinking water.

Lipid peroxidation in the testicles, livers and kidneys was seen in male rats who had been given 20mg of fluoride per kg of bodyweight per day. An identical dose of vitamin E protected against the effect, as did a much smaller alternate-day intraperitoneal injection of testosterone. More male rats, given the same dose, had lower testosterone levels, diminished activity of steroidogenic enzymes, smaller testicles, reduced sperm counts and less mature sperm in conjunction with elevated markers of oxidative stress.

What this indicates for the potential hazard of brushing one's teeth with fluoridated toothpaste (most of which gets spat out) is not clear.

Zinc

Zinc is crucial for steroidogenesis and spermatogenesis. Low serum and seminal plasma zinc levels correlate with low testosterone levels in oligospermic and azoospermic infertile males. Experimental human zinc deficiency results in lowered testosterone levels, poor sperm function, weakening of the immune system and a reduction of lean body mass. Concentrations within cells are depleted before concentrations in plasma, meaning that deficiency could go undetected. Zinc supplementation typically increases testosterone levels in infertile, ill, healthy and vigorously exercising male subjects of all ages.

It increased the previously depleted testosterone levels of males with sickle cell amaemia. In addition to testosterone and DHT levels, it increased sperm counts in some males with idiopathic infertility, and some of the wives were subsequently fertilized, although there was no fertility among those who had presented not-so-low testosterone levels to begin with. Since serious zinc deficiency causing infertility typically causes testosterone levels to plummet, it is likely that the infertility of the males with not-so-low testosterone levels was due to something other than dietary zinc deficiency.

Cellular zinc concentrations correlated with serum testosterone concentrations among a sample of 80 American men aged 20-80. Dietary zinc restriction reduced testosterone levels in four young men, and zinc supplementation increased testosterone levels in nine elderly men who were initially somewhat deficient in zinc.

11 men with an average age in their late 20s were monitored on low-zinc diets (1.44mg per day) from a mixture of regular and semi-synthetic foods under metabolic ward conditions. The diets were given in five five-week phases (separated by four-week washout phases) and differed in the amount of (probably very bioavailable) supplemental zinc that was added to them, which was a low amount (1.4-4.4mg) except for in the final, non-random phase (10.4mg, the same amount as fed in the washout phases). Compared to the 10.4mg dose, testosterone levels and semen volumes were reduced on the lowest dose, and seminal zinc levels remained intact only because of reduced levels of zinc per ejaculate on the 1.4mg, 2.5mg and 3.4mg doses.

A zinc supplement called ZMA did not increase urinary testosterone concentrations when given to regularly exercising men who were judged to be consuming a little more or a little less than the so-called "recommended daily amount" of zinc (usually 10-15mg). On the other hand, four weeks of a massive daily oral zinc dose of 3mg per kg of bodyweight (210mg for a 70kg person) increased total and free testosterone levels in male wrestlers aged about 18, and these increases were present both at rest and following exhaustive exercise.

Drink up thy zinc!

Garlic, Onion and Allium Plants Containing Diallyl Sulfide
Both zinc and diallyl sulfide prevented the reductions of testosterone levels and testicular weights seen in adult male rats given 2.5mg of cadmium per kg of bodyweight. Diallyl sulfide is found in plants of the Allium genus, which includes garlic, onions, shallots, leeks and chives.

In another experiment on rats, adding garlic (Allium sativa) powder at 0.8% to a diet with a high protein intake (25% or 40% casein) increased testosterone and lowered levels of corticosterone (the main corticosteroid hormone in most vertebrates other than humans, in whom it is an intermediate between pregnenolone and aldosterone). Adding it to a low-protein diet (10% casein) had no effect. In a follow-on experiment, diallyl disulfide was observed to dose-dependently increase levels of luteinizing hormone.

Juice extracted from the onion (Allium cepa) and fed to male Wistar rats for 20 days (in concentrations equivalent to 0.5g or 1g per day of fresh onion) raised testosterone levels and enhanced sperm motility. Luteinizing hormone and sperm concentration increased at the higher

dose, whereas sperm morphology and testis weight didn't alter at either dose. Diallyl sulfide appears (based on these rat experiments) to dose-responsively elevate levels of luteinizing hormone, but too high a level of luteinizing hormone can reduce testosterone levels via negative feedback.

More experiments on rats indicate that doses of crude garlic higher than 5% reduce testosterone in conjunction with raising luteinizing hormone. Yet more rat experiments found that a dose of 5% crude garlic induced apoptosis in testicular germ cells, which was more pronounced at doses of 10% and 15%.

Thus, a little bit of garlic (or any other Allium extract) is good, but too much is bad. Theoretically, it is difficult to determine the ideal dose from these studies on rats, but it is much simpler in practice, since a small amount sprinkled on food is tasty and pleasurable, whereas larger amounts are increasingly unbearable.

Fenugreek
Fenugreek contains steroid-like alkaloids and saponins (or "steroidal glycosides"). These include diosgenin, smilagenin, sarsasapogenin, furostanol-type steroids and gitogenin. Oral ingestion of fenugreek steroids by diabetic rats not only reduced blood glucose levels but also upregulated testicular steroidogenic enzymes and elevated plasma testosterone (and estradiol).

Mucuna pruriens (Velvet Bean)
Three months of supplementing with 5g per day of powder derived from the plant Mucuna pruriens (velvet bean), by infertile men striken by psychological stress, increased sperm counts and motilities and increased seminal plasma levels of ascorbic acid and glutathione. On another occasion, also with infertile men, it did a similar thing and also raised levels of testosterone, luteinizing hormone and the catecholamines (dopamine, noradrenaline and adrenaline). The changes in catecholamines are hardly surprising, since the velvet bean contains their immediate precursor L-dopa, which (unlike the catecholamines themselves) is able to cross the blood-brain barrier and enter the central nervous system.

Serenoa repens (Saw Palmetto or Permixon)
An assortment of plant extracts and herbal products are promoted as inducing hormonal effects that are (or are erroneously believed to be) favourable for various populations. Claimed effects typically involve increasing total and free testosterone and/or lowering DHT and/or estradiol.

Serenoa repens (also known as permixon or saw palmetto) contains fatty acids in free form, primarily lauric (saturated, 12 carbon chains) and oleic acid (monounsaturated, 18 carbon chains). Under "in vitro" conditions, lauric acid inhibits the type 1 and type 2 isoenzyme of 5-alpha reductase (responsible for converting testosterone into DHT), and oleic acid inhibts the type 1 isoenzyme. Because of this, Serenoa repens is predicted to reduce DHT levels, even though its fatty acids are likely to be esterified (bound inside phospholipids or triglycerides) in an "in vivo" environment, thereby preventing the effect. Lauric acid can be quickly converted to palmitic acid (the most abundant free fatty acid along with oleic acid) "in vivo", and palmitic acid (along with stearic acid, also an abundant free fatty acid) inhibits neither isoenzyme.

Use of Serenoa repens (saw palmetto) supplements has been linked with acute pancreatitis in a case study of a 65-year-old diabetic using it to "treat" benign prostatic hyperplasia, and with pancreatitis and hepatitis in a case study of a 55-year-old reformed alcoholic using it with the same end in view.

Tribulus terrestris

Another plant extract, Tribulus terrestris, is heavily promoted for increasing testosterone levels, although 500mg three times per day for two days fails to increase the urinary ratio of testosterone to epitestosterone over the limit defined as legal by WADA, much to the disappointment of two female athletes who had attributed use of Tribulus terrestris to their positive drug tests.

On several occasions, Tribulus terrestris has been included along with Serenoa repens as part of experimental supplement complexes also including DHEA (the precursor to the sex hormones) and androstenedione (a direct precursor to both testosterone and estrone) and chrysin, indole-3-carbinol and, in one instance, gamma-linoleic acid (GLA). These supplements were intended to raise total and free testosterone levels while reducing (or at least not affecting) DHT and estradiol levels. The actual effect was not quite as planned!

One such supplement did raise free testosterone levels when given to middle-aged men for four weeks, and it also raised DHT and estradiol (both contrary to predictions). On another occasion, again on middle-aged men, it had no effect on total testosterone and raised free testosterone only marginally, but elevated DHT by 71% and estradiol by 103%! A very similar product also containing GLA did much the same thing.

When given to young males who were also performing resistance training three times per week, an identical or near-identical product (named "ANDRO-6") had no effect on total and free testosterone levels but elevated androstenedione, estrone and estradiol (perhaps it should have been named "ESTRO-6")! Muscle strength was increased equally in both the supplement and the placebo group, indicating that the hormonal effects of the product had no additive benefit in the context of their training regimen.

It is very likely that the effect of the above supplements on sex hormone levels was attributable to the presence of DHEA and especially androstenedione rather than some useless, overhyped plant extracts. By itself, 10mg or 20mg per kg of bodyweight per day of Tribulus terrestris (700-1400mg per day for a 70kg person), given to healthy males aged 20-36 for four weeks, had no effect on levels of androstenedione, testosterone or luteinizing hormone. Elite male rugby players increased strength and fat-free mass while taking 450mg per day for five weeks, but the placebo group fared equally well, indicating that "structured resistance training" and not the plant extract was responsible for the effects.

Stinging Nettle

The root of the stinging nettle (Urtica dioica) contains various lignans (e.g. 3,4-divanillyltetrahydrofuran) which (along with their metabolites as produced in human intestines) are able to bind to SHBG and (under "in vitro" conditions) dose-responsively inhibit the binding of SHBG to its receptor on human prostatic membranes. Of course, SHBG is more able to bind to cellular receptors (and subsequently bind sex hormones) when unliganded, and (contrary to

the impression gained from "in vitro" experiments concerning DHT and cancerous prostate tissue) it is by no means undesirable to have androgens transported to cells under optimal physiological conditions.

A combination of Urtica root and Serenoa repens (saw palmetto) extract reduced symptoms of benign prostatic hyperplasia (BPH, not actually a disease) as effectively as finasteride (a medication which inhibits DHT production via the type 2 isoenzyme), and the subjects were less able to tolerate finasteride. Whether this is worth caring about is very much open to debate, and the case studies cited above concerning Serenoa repens, pancreatitis and hepatitis also need to be considered.

Mint (Mentha) and Other Lamiaceae Plants (e.g. Basil, Thyme, Sage, Marjoram)
A "spermicide" concoction including Mentha citrata oil in addition to other ingredients prevented (in most cases) the migration of sperm into the cervical mucous of women who had been selected for having high mid-estrus cervical mucous scores. It also prevented pregnancy in female rabbits. The multi-component nature of this concoction makes it impossible to assess the independent impact of mint extracts, but other experiments have looked at Mentha properties in isolation.

A mere 10mg or 20mg per day of Mentha arvensis leaf "petroleum ether extract" reduced the ability of male albino mice to fertilize normal females, despite maintained libidos and no other evidence of toxicity. Sexual organs were reduced in mass and certain sperm parameters were abnormal.

An orally administered 10mg per day aqueous extract from the leaves of Mentha arvensis had no effect on the sexual behaviour of male albino mice of proven fertility, but it impaired their fertility, reduced the mass of their sexual organs and resulted in abnormal sperm and reduced sperm concentrations, motilities and viabilities. The alterations seen after 60 days returned to normal after 30 days of discontinuation.

An aqueous extract of Mentha spicata Labiatae, or spearmint, promoted oxidative stress in the hypothalamus (indicated by reduced levels of enzymes involved in endogenous anti-oxidant defence) and reduced androgen receptors and the expression of steroidogenic enzymes and steroidogenic acute regulatory protein (STAR), and reduced sperm densities. It was suggested that the dose of spearmint (not mentioned in the abstract) impaired hypothalamic production of luteinizing hormone (LH) and follicle-stimulating hormone (FSH). So, what is the likely effect of ingesting small quantities of mint along with roast lamb, garden peas, Guernsey butter, sea salt and LH-stimulating crude garlic? Goodness knows ...

Herbal teas containing extracts from Mentha spicata (spearmint, 20g or 40g per litre) and Mentha piperata (peppermint, 20g per litre) elevated luteinizing hormone and follicle-stimulating hormone levels in male albino rats, but reduced testosterone levels and did some peculiar things to the testicles.

In 21 hirsute women (many with polycystic ovarian syndrome, PCOS), drinking two spearmint-infused teas per day for five days lowered free testosterone levels and increased those of LH,

FSH and estradiol. What this indicates for the rest of the human population is far from clear, since hirsute women and those with PCOS are characterized by unusually high androgen levels.

Other members of the mint family (Lamiaceae, to which the stinging nettle is very closely related) have been observed to exert an effect similar to that of Mentha plants. A benzene extract from the leaves of basil (Ocimum sanctum), given at a dose of 250mg per kg per day for 48 days, did peculiar things to the sperm of albino rats. The same dose of the same extract given to the same or similar rats resulted in a complete failure to fertilize female rats. By contrast, an aqueous extract of Ocimum suave had no effect (including in high doses) on the fertility or other health parameters of Swiss mice.

An 800mg per kg aqueous extract or a 400mg per kg ethanolic extract of Salvia fruticosa (a type of sage), given to rats for 30 days, had no effect on the ability of males to impregnate females, but reduced the number of viable fetuses.

On the other hand, a volatile oil extracted from Origanum majorana (marjoram) minimized the testicular toxicity and diminished steroidogenesis that resulted from ethanol-induced oxidative damage (10ml per kg per day for 10 weeks) in male rats!

Soy Products and Isoflavones

Soy products contain isoflavones which lower testosterone levels. Four weeks of replacing meat protein with soy protein (tofu) lowered the free androgen indexes of a group of men aged 35-62. Three months of daily supplementation with 60mg of soy isoflavones by males aged 30-59 resulted in unchanged total testosterone levels but elevated SHBG and reduced free testosterone and DHT.

Consuming 40g of isoflavone-rich soy protein isolate per day for six months resulted (in males aged 50-85 and deemed to be at high risk for prostate cancer) in elevated estradiol levels and (in biopsied prostate tissue) reduced amounts of androgen receptors. As discussed in the vitamin D3 section, vitamin D3 antagonizes cancer in cultured prostate cells through a mechanism that is actually dependent on (or at least greatly enhanced by) DHT, and it increases the amount of androgen receptors while doing so.

Among the male partners of couples examined at an infertility clinic, estimated consumption of soy foods over the previous three months was negatively correlated sperm concentration (but had no relationship to sperm motility, sperm morphology or ejaculate volume).

Liquorice, Liquorice Root and Glycyrrhizin

Liquorice and its glycyrrhizin content have been reported to lower testosterone levels. 100g per day of liquorice (with 150mg of glycyrrhetinic acid) for nine weeks had a minimal effect on sex hormones in a small trial with members of both sexes. On the other hand, another small trial, this one with type-2 diabetic males (also afflicted by chronic hepatitis) given liquorice root containing 240-525mg of glycyrrhizic acid once per week for more than a year, found lower total and free testosterone concentrations and increased evidence of atherosclerosis.

Methylxanthine Alkaloids, Theobromine, Theophylline, Caffeine, Coffee, Tea, Cocoa and Chocolate etc.
As mentioned in the section on vitamin E, the vasodilator nitric oxide (which works synergistically with testosterone to induce erections) can be produced in response to both gamma-tocopherol and the polyphenol "anti-oxidant" epicatechin, both of which are present in large amounts in dark chocolate. Dark chocolate (and especially cocoa butter) is also high in palmitic and stearic saturated fatty acids, higher dietary intakes of which (as mentioned in the section on fats and carbohydrates) are usually associated with higher testosterone levels. Palmitic and stearic acid are the two fatty acids which, in the form of free fatty acids under "in vitro" conditions, do not inhibit the isoenzymes of 5-alpha reductase (responsible for converting testosterone into DHT). Palmitic and stearic free fatty acids are also the ones which, again under "in vitro" conditions, do not promote oxidative stress within sperm cells. Some of the other fatty acids from the cacao plant occur in the form of peculiar lipids (e.g. anandamide) that have been characterized as "cannabinoid" due to their similarity to those found in the cannabis plant, although they do not produce false positive tests for cannabis, also known as marijuana (the potential effect of which on things such as steroidogenesis and spermatogenesis seems to be rather different, as summarised further down). Another thing prevalent in dark chocolate (and especially in cocoa powder) is the methylxanthine theobromine, a purine "alkaloid" that is a metabolite (along with theophylline) of the caffeine found in coffee (and in dark chocolate and cocoa in smaller amounts). Methylxanthines have been implicated in enhancing sexual function, and dark chocolate thus has massive theoretical potential to raise both testosterone and penile levels!

In contrast to coffee with its high caffeine content, which tends to have a very slight vasoconstricting, blood pressure raising effect, cocoa and dark chocolate with their high theobromine content tend to be vasodilative (including in the coronary arteries of heart transplant recipients) and to lower blood pressure (if it's high to begin with). Whereas coffee with its caffeine ramps up catecholamine production and has the potential to raise cortisol levels, a 40g daily dose of dark chocolate for two weeks has lowered urinary cortisol and catecholamine concentrations (evidence of a less stress-governed energy metabolism) in a small-scale study on humans.

The blood-flow effect of cocoa and chocolate has traditionally been attributed to theobromine, but three weeks of daily intake of flavanol-rich cocoa with added theobromine modestly raised ambulatory and lowered central systolic blood pressure, whereas the same without added theobromine had no effect. Judging by this evidence, it seems that higher doses of regular cocoa would slightly lower both ambulatory (due to the flavanols or perhaps just due to reduced intake or absorption of other foods) and central systolic blood pressure (due to the theobromine). Coffee also contains numerous other interesting properties that relax the effects mentioned above, which are mostly attributable to caffeine.

Although chronically elevated levels of stress hormones is normally a bad sign, their acute effect is to enable a person to respond to stressful situations and to make a person feel more energetic - a feeling that, if acted on, is unlikely to lead to chronic elevations of the said hormones. When taken prior to resistance exercise by high-level rugby players, 800mg of caffeine had no effect on performance and was linked with elevated concentrations of both testosterone and (more so)

cortisol during and shortly after the workout. These transient rises were similar to but somewhat sharper than what is often seen after resistance exercise without caffeine.

Under "in vitro" conditions in rat Leydig cells, green tea extract and one of its isolated components (epigallocatechin-3-gallate, EGCG) both reduced testosterone production, but another of its isolated components (epicatechin, one of the flavanols found in cocoa and dark chocolate) did not reduce it. It is not clear what effect these entities would have in real life, but the effect of the methylxanthines on sexual functions is reasonably well-studied, even if not in live humans.

Caffeine, theophylline and related xanthine compounds have successfully stimulated sperm motility in semen samples taken from healthy young men, but they have failed to achieve the same thing in samples from men at a fertility evaluation clinic (those who actually need it most). On another occasion, however, theophylline did enhance the capacity of semen from infertile men (and from fertile men) to penetrate zona-free eggs, albeit ones belonging to hamsters rather than humans! In isolated testicular interstitial cells, theophylline increased basal cyclic adenosine monophosphate (cAMP) production and that stimulated by human chorionic gonadotropin (hCG), and it increased basal testosterone levels and (at a low dose) had no effect on testosterone production stimulated by hCG, but it reduced hCG-stimulated testosterone production at a high dose.

Although they certainly have their uses, methylxanthines are foreign substances that have the potential to harm the body in high and purified doses. Consuming caffeine or theobromine at 0.5% of diet for 14-75 weeks resulted, in almost all of the rats tested (aged 4-6 months), in testicular atrophy and impaired spermatogenesis despite (especially in the theobromine group) elevated testosterone concentrations. The effect of theophylline was similar but somewhat less potent. Here we have another example of foreign substances elevating testosterone levels while also messing up some of the most crucial things for which testosterone is needed.

Consuming purified methylxanthines has more potential for harm than consuming them within dietary items such as chocolate or coffee. Over the course of a week, 500mg per kg of bodyweight of purified theobromine per day (equivalent to me eating 4500g per day of very dark chocolate, compared to my personal best of a measly 600g) impaired the functioning of rats' Sertoli cells, but the same quantity given within cocoa extract failed to have any observable toxic effect. Bring on the chocolate! (Let me add, however, that personal experience leads me to believe that you'd become very ill if you ate as much as 600g of dark chocolate every day, mainly due to the effect of its indigestible and anti-nutritive properties, including fibre, phytic acid, oxalic acid, polyphenols/tannins etc.)

Although methylxanthines within dietary items (especially chocolate) are generally perfectly safe for adult humans, it is possible that they have the potential to be harmful to fetuses and infants (the same as ethanol, but not so severely when comparing amounts typically ingested, although doses of methylxanthines matching typical ethanol intakes could well cause instant death). This is because fetuses and infants lack the enzymes necessary for eliminating them. In tentative support of this possibility, an ecological correlation has been found between the incidence of

testicular cancer and hypospadias in various countries and higher estimated consumption of cocoa in those same countries during the fetal and infant life of the cases.

Other Alkaloids, Nicotine and Tobacco Smoke, and Recreational Drugs
Methylxanthines are purine alkaloids or alkaloid-like substances which can be addictive and which can be toxic in sufficiently large (especially isolated) doses. In this respect they are similar to both legal and illegal drug-like substances, including cigarette smoke (the alkaloid nicotine plus other, more addictive substances) and both stimulant and opioid drugs. An important difference is that methylxanthines are less addictive and need to be ingested in much higher doses before having a toxic effect on the body (gonads included).

Like ethanol, methylxanthines and other exotic substances, nicotine and other components of cigarette/tobacco smoke have the potential to harm fetuses short on enzymes. Exposure to maternal tobacco smoke was not found to effect the hormone levels and semen characteristics of young adult male offspring, but current smokers among them had a higher percentage of abnormal sperm.

Tobacco smoke can be added to the list of substances that can do peculiar things to the sexual organs while potentially elevating testosterone levels. Male current smokers had higher luteinizing hormone and testosterone levels, and more voluminous right testicles, but also had impaired penile velocities.

As with ethanol, the potential testosterone-raising effect of tobacco is more pronounced in women than in men. A correlation has been found between maternal smoking and testosterone levels and the smoking habits and testosterone levels (higher) of adult daughters. Higher androgen levels in females, if stemming from lower estrogen production, are often an indication of reduced fertility. Among young adult females, testosterone levels were correlated with cigarette usage and later onset of puberty.

Salivary cotinine (a metabolite of nicotine) was correlated with salivary (free) androstenedione and testosterone at baseline among a set of male smokers. Quitting smoking was associated with reduced salivary androstenedione (but not testosterone) one year later. In some cases, higher levels of testosterone in the serum could be merely an effect of lower levels where needed most. Levels of cotinine and one of its metabolites in the semen of infertile smokers were correlated negatively with sperm motility.

Cigarette smokers were found to have lower serum prolactin levels, and male smokers had higher serum testosterone but lower semen testosterone levels. High-nicotine cigarette smoking, like intravenous cocaine, acutely increased luteinizing hormone without affecting testosterone. It also elevated prolactin, contrary to the prolonged effect reported above and also contrary to the acute (but not chronic) effect of cocaine.

In concentrations estimated to reflect levels in the testes of male human smokers, nicotine dose-responsively inhibited the penetration of zona-free hamster eggs.

The above research on tobacco smoke speaks for itself. What about marijuana?

Oxidative damage is partly responsible for the adverse effect of cigarette smoke on sexual functions (despite sometimes superficially favourable effects on hormone measures). Smoke and burnt food of any kind are capable of promoting oxidative damage and carcinogenesis. Smoking of marijuana (also known as cannabis, weed, hashish etc.) was more frequently reported by men with organic erectile dysfunction, in whom insulin resistance and diminished endothelium-dependent vasodilation (quite contrary to the effects of cocoa and dark chocolate with "cannabinoid" fatty acids) were linked. It is difficult to assess the worth of trends from small-scale observational reports, especially regarding not-very-legal entities that are often obtained in adulterated form. The property in marijuana that is thought to be psychoactive is delta-9-tetrahydrocannabinol, a non-alkaloid.

Studies have found both diminished and normal sex hormone levels in regular cannabis users and in response to acute experimental intakes. It is reported that one marijuana cigarette or an intravenous infusion of delta-9-tetrahydrocannabinol is sufficient to depress testosterone levels (an effect predicted to last for 24 hours). Experimental smoking of one or two marijuana cigarettes significantly lowered luteinizing hormone (and non-significantly lowered follicle-stimulating hormone and total and free testosterone) and significantly elevated cortisol in a very small study of four males. By contrast, no alterations in various sex- or stress-related hormones (or lymphocyte function) were found among six males who inhaled 18mg of delta-9-tetrahydrocannabinol from a marijuana cigarette.

Ephedrine, the alkaloid from Ephedra plants from which semi-synthetic drugs are derived, on one occasion normalized the sperm count of a single azoospermic male. Other relevant research concerns only semi-synthetic derivatives of this alkaloid.

Human chorionic gonadotropin increases cyclic adenosine monophosphate (cAMP) in addition to testosterone in cultured rat testes, but the semi-synthetic ephedrine-derived alkaloid amphetamine (which also increases cAMP) inhibits testosterone production (except when a cAMP-reducing "adenylyl cyclase inhibitor" is added to the mix). It is also thought that amphetamine (also known as "speed") reduces testosterone production via reducing calcium channel activity and the activity of various steroid metabolizing enzymes. Mammalian spermatozoa have both beta-adrenergic (which stimulate cAMP production by adenylyl cyclases) and alpha2-adrenergic receptors (which inhibit it), a pattern which has been suggested to facilitate a potential positive effect of amphetamine on fertility, and which may or may not be connected to the fact that a significant minority of amphetamine mono-users report enhanced rather than diminished sexual desire - although the average score of this minority on something called the "International Index of Erectile Function" was still lower than that of control subjects.

One can only speculate on whether the sexual conquests of Lemmy from Motorhead, who modestly claims to have slept with a mere 1000 women despite reports of double that figure, stem from the confounding effect of administering Jack Daniels, Coca-Cola and nicotine alongside amphetamine.

Methamphetamine, also a derivative of ephedrine, impaired the ability of male mice to impregnate females at a dose of 15mg per kg of bodyweight, and had no effect at lower doses.

In adult male rats, doses of methylenedioxymethamphetamine (MDMA, ecstasy), chosen to represent typical human raver intakes of an acute nature (3mg per kg, such as have been observed to increase serotonin and dopamine concentrations in the nucleus accumbens) and a chronic nature (0.5mg per kg or 1mg per kg doses to an average daily total of 4mg per kg), decreased testosterone production via a decrease of hypothalamic gonadotropin-releasing hormone. By contrast, 12 weeks of three-consecutive-days-per-week MDMA/ecstasy intake (up to 10mg per kg) designed to simulate human weekend clubbing usage failed to affect measures of sperm morphology or motility or mating viability in more male rats, but did result in some DNA damage to sperm. As for hormone concentrations during the course of an actual session of clubbing, the self-administered MDMA/ecstasy intakes of healthy volunteers resulted (compared to a control session without drug use) in a 75% increase in testosterone but an 800% increase in cortisol!

Another stimulant alkaloid is cocaine, which is extracted from leaves of a plant (Erythroxylum coca) that has been used in whole (and safer) form by South American populations for aeons. Like ethanol and methylxanthine alkaloids, cocaine can pass through the placenta, and this results in lower testosterone levels in the amniotic fluid of male babies born to cocaine users. Male cocaine users have exhibited hyperprolactinemia, which is thought to suppress immune function and increase susceptibility to infectious diseases. By contrast, the acute administration of 2mg of cocaine per kg of bodyweight to healthy males has lowered prolactin and elevated luteinizing hormone and FSH without affecting testosterone. Cocaine has had a somewhat ambivalent, dose-related effect (mildly adverse at high concentrations) on cultured human semen samples attempting to penetrate zona-free hamster eggs or bovine mucus. 30mg of cocaine per kg of bodyweight injected subcutaneously into male rats produced testicular vasoconstriction from 15 to 60 minutes after administration. 15mg per kg of bodyweight given twice weekly to more male rats did not affect the pregnancy rates of fertile females to whom they were mated but did reduce the diameter of the seminiferous tubules and the germinal epitheliums (also suggestive of testicular vasoconstriction). The same dose (representing the typical single dose of a heavy human user), given daily to yet more male rats for 90 days, reduced testicular levels of reduced glutathione and increased testicular levels of the lipid peroxide malonaldehyde. Long-term cocaine use by humans has been associated with reduced sperm concentrations, reduced sperm motility and other abnormalities.

The effect of opioid (analgesic, narcotic) alkaloids on sex hormone production and sexual functions is entirely negative.

Male users of methadone (a synthetic opioid drug that is used to treat addiction to others) had reduced testosterone concentrations and marked impairments in testicular function, including increased sperm counts as a consequence of reduced "secondary-sex-organ secretions". Users of heroin (a semi-synthetic derivative of morphine) fell somewhere between methadone users and control subjects on most measurements. On another occasion, heroin and combined heroin and methadone users all had (despite normal testosterone and gonadotropin concentrations) abnormal semen (including asthenospermia in every case), compared to just under half of the methadone users (who appear to have been using it as part of some sort of semi-effective treatment).

The effect of these drugs on steroidogenesis and sexual functions comes about quickly and severely as a result of the concentration of the opioid in the bloodstream. In heroin addicts (mostly males with a few females) being monitored under controlled circumstances, there was a distinct inverse relationship between plasma heroin concentrations and those of testosterone and DHT.

The adverse effect of opioids on sexual organs (contrary to the likening of their effect to orgasm) is attributed to acute diminishment of luteinizing hormone secretion. Luteinizing hormone and total testosterone are not always severely affected, but sexual functions are and free testosterone is typically depleted. Follicle-stimulating hormone can also be depleted (the addicts in this study had testosterone levels barely one-third of those in the control subjects). Yet more addicts had reduced levels of the most active thyroid hormone (triiodothyronine, T3) along with reduced cortisol and testosterone levels. Chronic heroin users with severely depleted testosterone and luteinizing hormone levels also had reduced vertebral bone mineral densities compared to control subjects, whereas former users who had abstained for at least four (and up to 24) months gave measurements similar to those of the controls.

Use of opioids under medical supervision for pain relief can be just as hazardous to the sexual organs. Males and females who received (into their spinal chords in treatment for pain) an average of nearly 5mg of morphine per day for an average of over two years had (in most cases) reduced levels of various sex hormones and gonadotropins in addition to reduced cortisol measures (including diminished cortisol and growth hormone responses to hypoglycaemia in around 15% of the subjects). Still more alarmingly, all but one of the males had decreased libido or outright impotence, and all but one of the pre-menopausal females failed to ovulate!

We now turn from that which reduces vertebral bone mineral density to that which enhances it.

Strength, Power and "Anaerobic" Training
There is usually a moderate elevation of testosterone after a reasonably challenging training session. When the training is of a nature (i.e. a fairly high volume of work with fairly heavy loads, or an excessive amount of volume with any load or none) that induces significant damage to the muscles and connective tissues, this rise is accompanied by a rise in cortisol. Normally these rises return to baseline very quickly, but there have been examples of both highly trained and relatively untrained subjects showing an increase in basal testosterone concentrations after periods of training. In the section on protein and amino acids, I mentioned that sprinters (training with sprint intervals) and track and field power athletes both had higher fasting testosterone levels at the end of a training phase (in which they'd been taking in a mere 1.26g of protein per kg of bodyweight). I also mentioned that collegiate American football players (who were using creatine) had sported higher resting free testosterone concentrations after a ten-week phase of resistance training.

Resting free testosterone also increased in men aged about 30 (previously active by way of jogging and recreational sports) who undertook 10 weeks of three-days-per-week weight training using typical exercises. An examination of overnight hormone concentrations in trained weightlifters following evening training sessions found that they secreted more testosterone in the last phase of sleep than on nights following no training.

Although extended sessions of vigorous training have the potential to do lots of damage to the muscles and connective tissues, vigorous intermittent training of a short duration can faintly lower cortisol levels. Performing 5 15-second Wingate anaerobic power tests separated by 30-second rest intervals, in hot or "thermoneutral" (great word) conditions, has no discernable effect on testosterone or its ratio to cortisol, but lowers cortisol itself in the immediate post-exercise phase. By contrast, a single minute of non-stop vertical jumps is sufficient to elevate levels of total and free testosterone, SHBG, both thyroid hormones and their stimulator, and adrenocorticotropin hormone (ACTH) and cortisol! The testosterone elevations were more pronounced among those who could jump higher.

Another factor to consider, besides hormone responses, is the quantity and location of androgen receptors, and these have become more numerous on the thigh musculature in response to short-term quadricep-centric training (along with higher free testosterone). On the other hand, six sets of 10 squats has reduced androgen receptor content along with acutely raising free testosterone. This is not necessarily a cause for alarm. Damage to muscles and connective tissues during resistance training is one way of forcing the body to adapt to greater challenges, and it could be that reductions in androgen receptor content challenge the body to adapt by gradually accumulating more (and/or by secreting more testosterone and/or by increasing the affinity of the receptors).

4 sets of 10 squats with 90-second rest intervals using 75% of the subjects' 1-rep maxes raised both testosterone and cortisol for a short while; 11 sets of 3 reps with 5-minute rest intervals using 90% of their 1-rep maxes raised neither. Squat-induced testosterone elevations (with higher or lower reps using relatively lighter or heavier loads) can last as little as 10 minutes. I suppose, however, that such paltry and transient elevations could still be of some physiological significance, since the post-training environment could result in a heightened uptake of testosterone and other steroid hormones into muscles and bones.

In theory, adrenal testosterone surges during and after vigorous, challenging endeavours could be body's means of sparing lean tissue from oxidation and giving itself time in which to be fed under natural conditions in which creatine, BCAAs and other potentially beneficial supplements are not growing on trees. It would be interesting to see a training-with/without-supplementation trial that tests whether those with higher basal and training-stimulated testosterone levels in the unsupplemented group are at any disadvantage compared to those in the supplemented group.

National-standard weightlifters training after sleep loss have shown decreased post-training cortisol responses and no dips in performance. Training twice per day rather than once tends to raise both testosterone and cortisol levels (and the ratio of the latter to the former) a little. Cortisol increases in response to Olympic-style weightlifting may be beneficial. International rather than national level weightlifters, and those performing better on the day, were found to produce more cortisol during proper competition than during simulated competition. Their testosterone responses did not differ, and the testosterone levels of these lifters were no higher than those of sedentary subjects previously measured at the same laboratory.

Doing forced reps (only completed with help from others) of various leg extension exercises, rather than maximum reps with the given load, does not additionally increase the transient rise in free testosterone, but does heighten the cortisol response.

Performing a combined 50 sets of leg presses, squats, bench presses and lat pulldowns diminishes overnight production of luteinizing hormone and free testosterone, and elevates cortisol.

Hypohydration during resistance exercise (6 sets of back squats using 80% of 1-rep max, using any extra sets necessary to equal the total number of session repetitions performed during baseline testing) by seven healthy young resistance-trained males (each serving as his own control) increased cortisol and catecholamine levels (consistent with prior research using hypohydrated endurance exercise) and at 5% hypohydration (the more extreme degree) non-significantly lowered testosterone levels (inconsistent with prior research using hypohydrated endurance exercise). Post-exercise elevated glucose and free fatty acid levels suggested insulin resistance (which wasn't tested) via hypohydration-aggravated muscle damage from intense resistance exercise. Squatting performance tended to be diminished during the middle sets, but not on the first or last set (which I can readily believe).

Over 11 weeks of twice-per-week resistance training (in addition to sport-specific training sessions) using 10-rep or 6-rep maximum loads (or 80% of those loads for the parallel squat) for about eight exercises, those members of the Spanish national Basque ball team who performed 6 sets of 5 reps (with 10-rep-max loads) or 6 sets of 3 reps (with 6-rep-max loads) showed elevated total testosterone levels and lowered cortisol levels, whereas those who performed 3 sets to failure using the same relative loads (including additional reps with reduced loads after failing to complete a rep or pausing for more than a second) had a borderline-significant rise in cortisol. During an additional five weeks, both groups performed 3 sets of 2-4 reps using 85-90% of their 1-rep maxes, and by week 16 the trainers-to-failure had a significantly greater increase in the number of repetitions with 75% of their bench press 1-rep maxes (as they had after weeks six and 11), whereas the trainers-far-from-failure (whose elevated resting total testosterone levels returned to normal during this phase) exhibited more power (speed of movement) during squats using 60% of their 1-rep maxes (unlike at the earlier time points). Here we have another example of a training phase (moderate volumes of far-from-failure resistance exercise with fairly heavy loads in addition to sport-specific training) elevating basal testosterone levels. Note that the training-to-failure group actually trained beyond failure, doing additional "drop sets" with reduced loads immediately upon reaching failure with the previous load. Whether simply doing as many reps as possible with a given load and then resting would elevate cortisol is another matter. I'd guess not, since the protocol above only resulted in a rise of borderline significance.

"Aerobic" Endurance Training
Two hours of running at a moderate set level (65% of maximum oxygen consumption, VO2 max) transiently raises testosterone (and growth hormone and the catecholamines) and lowers cortisol. The "stress response" to exercise of increasing vigour begins with growth hormone and the catecholamines and proceeds to adrenocorticotropin hormone (ACTH), followed by testosterone and/or cortisol and then maybe beta-endorphin. Beta-endorphin is an endogenous opioid that causes people to feel good. Given the effect of exogenous opioids on the sexual

organs, could it be that addiction to exercise resulting in persistent performance of excessive volumes has a similarly catastrophic effect?

An hour of "aerobic" exercise at 65% of VO2-max increased testosterone and cortisol; an hour of intermittent training with two-minute "anaerobic" bursts above 100% of the intensity of VO2-max raised testosterone and also raised cortisol in a more pronounced fashion than the "aerobic" trial, but all of the alterations lasted only 1-2 hours (which is actually longer than those usually seen after single weight training sessions).

As mentioned in the section above, five "anaerobic" bursts lasting only 15 seconds each showed a tendency to lower cortisol. Acute testosterone responses to intermittent running correlate with lactate responses after a max test, and cortisol responses to steady-state 80%-VO2-max training correlate with VO2-max. Middle-distance runners have higher testosterone responses to the former; marathoners have lower cortisol responses to the latter.

Trained males running at c. 70% of VO2-max show a testosterone raise after half an hour but a return to normal by two hours. Trained women doing the same show no testosterone raise until about the two-hour mark.

Working at 60%, 70% and 80% of VO2-max in consecutive 15-minute phases on a cycle ergometer or a treadmill raised free testosterone levels (immediately after exercise) in trained or untrained women in their follicular or luteal phases.

Rowing 6000m for time on an ergometer results in raised testosterone and cortisol levels at the end, but the testosterone levels return to normal within the first half an hour, whereas the cortisol levels remain elevated at that time point.

No evidence of reduced sperm counts or depleted sex and reproductive hormones was found among male marathoners in a comparison to lean, age-matched control subjects, and no spermic abnormalities were found in another examination of male endurance athletes - except for lower sperm motility among professional cyclists during competition, which was attributed to mechanical testicular trauma!

Other examinations have painted a darker picture, however. Despite testosterone elevations in response to injected human chorionic gonadotropin and to two hours of running at 72% of VO2 max, six highly trained marathon runners had a lower amplitude and frequency of luteinizing hormone pulses, and lower LH responses to exogenous gonadotropin-releasing hormone, possibly due to too much negative feedback from transient testosterone rises during daily prolonged exercise.

Two hours of running at 80% of max heart rate actually raised testosterone in marathon runners (after shorter and/or less intense sessions on the previous three days), but they had lower testosterone and luteinizing hormone levels to begin with, compared to untrained controls (who had higher testosterone responses to the same session).

Males undergoing training for a marathon in 6-, 5- and 7-month phases terminated by road races of 15km, 25km and 42km, with their training distances never equalling that of the race being prepared for, showed a distance-dependent decrease in testosterone during the races but actually increased testosterone concentrations during the training periods (the volume of which is not given in the abstract).

Marathon running by women lowered sex hormone levels, but apparently for under two hours after finishing, and DHEA-S actually increased towards the end and remained elevated for some time.

Testosterone increased immediately post-event in marathon runners who averaged 2 hours and 33 minutes (very good but not elite), and in middle-distance runners training for an hour and in competitive walkers racing over 20km. Ultra-marathoners covering 107km in one go had lowered testosterone levels.

Middle-aged non-elite but well-trained males exhibited a rise in cortisol and a drop in free testosterone after running a marathon "under the conditions of the classic Athens marathon", which both returned to normal sometime within a week (presumably without running any more marathons).

Male participants in the Cardiff Marathon, whose hormone levels were monitored at 4-mile intervals, had increasing testosterone levels that began to drop after 21 miles, and cortisol levels which peaked half an hour after the finish and which were suggested to impair testosterone secretion.

A marathon run by males of unspecified (in the abstract) training status reduced testosterone over the first and second post-race day, despite elevated LH on the first three post-race days, along with (some of the time) elevated noradrenaline and adrenaline (which catecholamines were suggested to mediate stress-impaired testosterone biosynthesis, cortisol being elevated only immediately post-race).

Among male athletes aged 25-40, the post-marathon slashing of testosterone (by more than half) and spiking of cortisol (by more than half) had returned to baseline by the following morning (20 hours after the race). However, most of the muscle-wastage enzymes that were monitored rose even higher in the recovery period once hormone levels had returned to normal.

19km and 42km races by elite male kayakers elevated cortisol (more so at the longer distance than expected from data on marathons of the same distance, perhaps due to the repetitive use of the elbow joint) and lowered testosterone, but the latter changed much less between distances and both hormones returned to normal within 18 hours.

At 4000m altitude, running a marathon additively raised cortisol above altitude-induced levels and lowered free testosterone levels that had resisted altitude, and the cortisol rise returned to normal within 24 hours whereas free testosterone only partially recovered.

Endurance-trained runners showed alterations in cortisol and beta-endorphins only during the first 33km of a 110km run, but testosterone dropped throughout the race and was accompanied by dropped luteinizing hormone by the end.

A 15-day 400km road race resulted in testosterone reductions of only 31% and increased the cortisol-to-testosterone ratio by 83% in male marathoners on the day after the race.

It is clear from the above that the length of a regular marathon is close to (and in most cases a little beyond) the point at which the adrenals are able to continue secreting testosterone, and that the after-effect of such challenges (sometimes measured in hormone concentrations and sometimes measured in muscle damage enzymes) can linger for many days. So, what about the long-term effect of repeated sessions of this nature?

60 weeks of treadmill running for two hours at 80% of VO2 max on five days per week reduced free testosterone, LH and FSH (and their response to gonadotropin-releasing hormone), and sperm density, motility and morphology among habitually aerobically exercising males aged 20-40. The hormonal (but not spermic) patterns were the same in a group doing the same at 60% of VO2 max, and all the adverse changes recovered in both groups during 36 weeks of low-intensity exercise.

Runners averaging 108km per week had lower free testosterone levels compared to those averaging half as many and compared to sedentary control subjects. Their total motile sperm counts and densities (and their sperms' capacity for penetrating bovine cervical mucus) were significantly lower compared to those of the sedentary controls (but presumably not compared to the 54km-per-weekers), and they showed lesser sperm motility and a greater quantity of immature sperm cells compared to both other groups. All groups had an average age in their late 20s.

A week of hiking c. 50km per day by men and women who ate nothing (except "natural products", perhaps meaning wild foods) resulted in elevated cortisol and catecholamine levels in both sexes and lowered testosterone in the men (indicative of reduced testicular but not necessarily adrenal production).

Reading through the above makes it very clear that excess endurance exercise is an enemy of the sexual organs. Marathons seem to take at least half a week to recover from, and longer distances (or near-daily sessions of lengthy and moderately intense endurance exercise) seem to put one in a perpetual state of recovery. Covering the same distances in a non-competitive fashion (not trying to challenge one's best time) would probably have a less severe effect. Covering shorter distances less frequently without always working at a very high intensity has the potential (as indicated by the research summarized in the earlier part of this section) to moderately raise testosterone levels. Note that, although single sessions of running for an hour or two at 60-80% of VO2 max or max heart rate have elevated testosterone compared to at the start, running at 60% or 80% of VO2 max for two hours on five days per week lowered testosterone levels and (at the higher intensity) impaired sexual functions. Since testosterone protects lean tissues from oxidation during stress, it is probably a bad idea to persist with any mode of exercise beyond the point at which testosterone concentrations peak.

Stress Steroids, CNS Aromatase and Serotonin, Impulsive Aggression and Adaptive Insulin Resistance
Research concerning the relationship between hormone levels and "aggressive" behaviour is confusing and (especially on the surface) apparently contradictory.

An association has been found, among 89 prison inmates, between higher levels of SHBG and what were defined as "aggressiveness" and "anti-social personality disorder". It was suggested that this link existed due to the link between these things and use of various intoxicants which happen to increase SHBG levels.

Among 30 healthy males, total testosterone and free androgen index (FAI) correlated with sensation seeking, boredom susceptibility and disinhibition, but SHBG and total testosterone correlated with assault, indirect aggression and verbal aggression.

In response to experimental harassment, men who displayed more reactive hostility also had higher levels of both testosterone and cortisol.

Men and women displaying more aggression had lower SHBG levels and higher binding potentials (in various brain regions) of the serotonin 5-HT(1A) receptors. (As a matter of interest, SSRI drugs, designed to prevent the re-uptake of serotonin from the central nervous system and thus to maintain higher levels of serotonin in the CNS, can produce sexual dysfunction that persists after discontinuation in some subjects.)

Co-elevations of salivary testosterone and cortisol following administration of an SSRI are linked with serotonin depletion and aggression; co-depletions of salivary testosterone and cortisol following the same are linked with serotonin elevation but likewise with aggression.

It is the aromatization of testosterone in certain CNS regions (the posterior hypothalamus, for example) that is linked with aggression (and its intensity) in conjunction with dropping CNS serotonin. In "western" (and perhaps just about all modern) societies, high-testosterone males are often (but not always) delinquent, aggressive, substance-abusing, sexually promiscuous and not mindlessly obedient to authority (*gasp*), and are more likely to be imprisoned for violent or sexual crimes rather than other crimes. High-testosterone females in prisons exhibit "aggressive dominant behaviour" but low-testosterone ones are "sneaky" and "treacherous". To take a broader view, however, the aromatization of testosterone into estradiol can also promote paternal behaviour in mammals, which in many species involves a strong element of protection (defensive aggression). Low-testosterone, high-cortisol individuals are aggressive, but they resort to sneaky, underhand, indirect aggression rather than open confrontation.

Serotonin depletion in the CNS (or low cerebrospinal fluid 5-hydroxyindole acetic acid, 5-HIAA, a CSF metabolite of CNS serotonin) is linked with depression, impulsive aggression (high-testosterone equals aggression and low-serotonin equals impulse) and suicidality in individuals with high CSF levels of free testosterone (who also tend to have depleted cholesterol levels, probably reflecting elevated metabolization). Such a depletion can occur as a result of failed attempts to achieve dominance ("hyper-responsiveness to aversive stimuli"), or perhaps (to view

it in a more complex light) due to the impossibility of achieving dominance (or enforcing one's will) through means (i.e. direct, open, non-deceitful) that such individuals perceive as being honourable. The hypothalamus and amygdala are particularly linked with both testosterone and serotonin activity. Exogenous testosterone (but not DHT) has increased the density of 5-HT2A receptors in higher centres of rat brains, and estradiol (but scarcely testosterone) has done the same in regions with minimal aromatase activity (a very strong indication that it is testosterone-derived estradiol and not testosterone itself that is responsible for the effect). The 5-HT2A serotonin receptor is linked, at least in rat skeletal muscle, with insulin-independent glucose transport, which suggests the possibility that the use of serotonin in skeletal muscle could encourage the depletion of CNS levels - hence the "adaptiveness" (under population-dense conditions) of the insulin resistance referred to in the next paragraph.

The notion of a so-called Soldier-to-Diplomat transition within more recent human societies has been incorporated into a more complicated and complete alternative hypothesis to the formerly popular notion of "thrifty genes" as an explanation of the propensity of modern societies towards visceral obesity. "Soldier" types from the animal kingdom are characterized by a triumvirate of "autistic" traits: high testosterone, low cholesterol and low CNS serotonin (plus other features including peripheral insulin sensitivity and secretion of epidermal growth factor to regenerate beta cells in anticipation of fights and wounds). "Diplomat" types, by contrast, are said to be characterized by features of diabetes and/or the "metabolic syndrome": low testosterone, high cortisol and cholesterol, elevated serotonin signalling, peripheral insulin resistance (via chronically elevated hypothalamic serotonin signalling), systemic inflammation and delayed wound healing. Dominant creatures among other animal species apparently possess precisely those biochemical features that characterize aggressive, frustrated males in human societies.

The Stronger-to-"Smarter" behavioural switch hypothesis is the name given to the newer alternative to the "thrifty genes" hypothesis. So-called "r" strategists are characterized as producing many offspring in whom little care is invested (like looting soldiers of old); so-called "K" strategists invest a lot of care in few offspring and come to the fore when it becomes expedient for large portions of a society to switch from a muscle-dependent to a brain-dependent lifestyle (although such as switch need not necessarily make people "smarter", since intelligence is required to discern how best to strengthen the body, and how best to tactically and strategically crush one's foes in battle and war). Relatively insulin-independent tissues including the brain (and placenta and erythrocytes) get more nutrients during peripheral insulin resistance or hypoinsulinemia, which also diverts more nutrients through the placenta of pregnant women to feed their offspring. More maternal weight gain normally equals bigger babies, but diabetic mothers don't even need to gain weight to give birth to bigger babies. Potential post-reproductive-age degenerative diseases in consequence of chronic insulin resistance are deemed to be of no concern for the forces of sexual selection (which operate only during reproductive age), and the fact that whole-body insulin resistance reduces ovulation does not matter during transient bouts of insulin resistance around pregnancy. Hyperinsulinemia (especially in the brain/CNS, which has insulin receptors despite being relative insulin independent) has been linked with certain identified cognitive enhancements. Among mammals, greater body sizes and slower reproductive rates correlate well with longevity and (in many cases) also with a kind of partial insulin resistance through some mechanism or other. Correlations are reported between childhood growth rate and insulin resistance, insulin resistance being "adaptive" among "K"

strategists under both over-nutritive circumstances (facilitating sneaky social manipulations aimed at hoarding abundant resources) and under-nutritive circumstances (sparing nutrients for the brain rather than wasting them on muscles that are too frail to have a fighting chance).

Music, Films, TV, Games, Sports and Miscellaneous Entertainment
Musically gifted females tend to have higher testosterone levels than other females, whereas musically gifted males tend to have very low testosterone levels. Listening to music (of an unspecified type) has lowered salivary testosterone in men but raised it in women, although listening to music does also typically lower salivary and/or plasma cortisol levels in subjects of both sexes, including after general anaesthesia. Listening to "new age" music around surgery has lowered cortisol levels; listening to music of one's own choice (AC/DC?) has lowered them even more. Playing stressful video games with built-in music, or watching violent films, raises salivary cortisol. The effect of violent films on testosterone was not recorded, but aggressive film scenes had no effect on testosterone in one study cited further down.

Although I found no research on the matter, I suspect that "violent" scenes of a heroic/rescuing nature would elevate testosterone levels, as would music that causes one to envisage such scenes. I would also predict that watching soap operas causes cortisol to soar. Exposure to polycyclic aromatic hydrocarbons in a PC games room, but not use of the PC games room by itself, has lowered testosterone levels in males, more so in teenaged ones than in those in their 20s.

Watching erotic or sexual films (but not violent ones) raises salivary testosterone; watching dental surgery being performed lowers it. Watching Mr Bean (or another humorous film) raises salivary testosterone (in elderly patients with atopic dermatitis); watching the weather forecast fails to do so.

But will violent films that are also humorous raise testosterone without elevating cortisol?

Close-fought games of Shogi ("Japanese chess") elevate both salivary testosterone and cortisol in both the winner and the loser.

Vanquishing one's foes at ice hockey in front of a home crowd elevates salivary testosterone more than doing the same away from home. Watching one's favourite sports team win has sometimes been reported in the media to elevate testosterone; watching them lose probably elevates cortisol. Just as giving too much of a shit about the fortunes of a bunch of strangers kicking a ball around can elevate cortisol, so giving too much of a shit about the fortunes of a bunch of strangers contesting a presidential election (against a near-identical bunch of other strangers) can do the same. This effect is called "socio-political subordination".

Tip-Top Tips to Top-Up Your Testosterone Tank

?Cholesterol is the precursor (via a long and complicated pathway eventually reaching pregnenolone, progesterone and dehydroepiandrosterone/DHEA) to the sex hormones

?Testosterone (an androgen) is metabolized into the androgen dihydrotestosterone/DHT (via the enzyme 5-alpha reductase) and into the estrogen estradiol (via the enzyme aromatase), and estradiol is interconvertible with estrone
?DHT promotes male-typical physical features and estradiol female-typical ones, but both (and estrone) promote bone density and strength in both sexes
?During fetal life, subsequent mental and physical development as a male is promoted in the central nervous system (CNS) by a surge of testosterone that is aromatized into estradiol, which "de-feminizes" the CNS
?In post-fetal life, the activation of androgen receptors by testosterone and/or DHT is primarily responsible for "masculinizing" behaviour, but estradiol can also promote certain male-typical behaviours (when its abundance occurs alongside the activation of androgen receptors thanks to the "co-localizing" effect of testosterone) as well as promoting "feminizing" ones (when the "co-localizing" effect of testosterone is relatively slight)
?Minus fetal exposure to estradiol and the subsequent activation of androgen receptors by DHT and testosterone (the latter of which also activates estrogen receptors and "co-localizes" the impact of androgens and estrogens and their receptors), the CNS is regarded as inherently "female"
?Both androgens and estradiol are important for maximizing aspects of sexual desire in both sexes, since males lacking the aromatase enzyme show an increase in libido (and bone mineral density) in response to exogenous estradiol, and females reporting a lack of libido often prove to have very low levels of free testosterone
?Sex hormones are less able to enter the CNS when bound by sex hormone binding globulin (SHBG), but being bound by androgen-binding protein (ABP) does not appear to have any effect on the passage of testosterone across the blood-brain barrier
?SHBG is able to bind as a ligand to its own cellular receptors, as well as binding sex hormones as ligands, and it is better able to bind to its receptors when not already binding a sex hormone, but is perfectly able to bind a sex hormone after binding to a receptor (thus it is possible that "free SHBG" has an importance of its own)
?Cortisol (a stress-related cholesterol-derived steroid hormone that is particularly responsive to lowering blood sugar levels) occurs in much larger quantities than testosterone (which is also secreted from the adrenal glands in response to stress) and must serve some vital functions; it often increases along with testosterone in response to challenging situations, but excessively stressful situations result in a massive spike of cortisol and a depletion of testosterone
?Aldosterone is a stress-related cholesterol-derived steroid hormone that is particularly responsive to lowering blood salt/sodium levels or especially high blood potassium levels
?Low-fat diets typically lower total and free testosterone levels and SHBG in middle-aged males, but the same is not necessarily so in younger males or in athletes who are better able to metabolize the inevitable high carbohydrate intake on a low-fat diet
?High fibre intakes typically lower total testosterone and SHBG but have little effect on free testosterone
?High-carbohydrate diets result in more "de novo lipogenesis" (the synthesis of new palmitic acid and cholesterol via acetyl-CoA in the liver); this can result (in diabetics and other people with chronic insulin resistance and glucose intolerance) in lowered levels of total testosterone and SHBG (but not free testosterone) probably stemming from hyperglycemia and oxidative stress, or (in athletes and other people who are mostly glucose tolerant and insulin sensitive) in extra free testosterone stemming from acute rather than chronic lipogenesis

?Diets which provide too little carbohydrate to replenish the amount of glycogen used by the glycolytic muscle fibres and the amount of glucose consumed by the brain, and which force the body to increase gluconeogenesis to prevent hypoglycemia, probably increase cortisol production at the expense of testosterone
?Replacing saturated fatty acids with polyunsaturated fatty acids (PUFAs) typically lowers sex hormone production; this is because PUFAs are vulnerable to oxidative damage (an enemy of sexual functions), especially in the form of isolated oils and when exposed to heat and air, and because PUFAs as free fatty acids (judging by "in vitro" experiments on cultured cells) inhibit the production of DHT from testosterone and are toxic to sperm cells
?Docosahexaenoic acid, the very-long-chained omega-3 PUFA found in fish oil, is probably vital to healthy sperm but is also the fatty acid which (in free form in cultured cells) promotes the most oxidative damage
?The saturated fatty acids most commonly found as free fatty acids in live creatures, palmitic and stearic acid, both promote the conversion of testosterone into DHT in cultured cells and have minimal toxicity to cultured sperm cells even in concentrations massively exceeding the normal range
?Despite the oxidative damage caused by PUFAs in cultured cells and by isolated polyunsaturated oils in live humans, eating intact nuts and seeds (which have a significant PUFA content alongside protective nutrients) often reduces markers of oxidative damage in live humans
?Testosterone production increases when previously stored energy is being utilized (as during exercise) but decreases in response to excessive volumes of exercise and in response to caloric deficits that are great enough to stimulate the catabolism of skeletal muscle amino acids for gluconeogenesis
?Testosterone production increases in response to stress but decreases in response to excessive or combined stresses (e.g. high volumes of exercise with pronounced caloric restriction, or either of these with hypoxia or hypohydration)
?Extra dietary protein or supplemental amino acids can protect against the catabolism of skeletal muscle for gluconeogenesis and can preserve testosterone concentrations during severe or combined stresses, but protein intakes of (to hazard a rough guess) 30% of calories or higher reduce testosterone production as a result of forcing the body to produce energy inefficiently
?Elevations of testosterone (and cortisol) following bouts of resistance exercise can last as little as 10 minutes and are not a cause for pant-wetting, but there are a few recorded examples of training phases increasing testosterone concentrations in both relative beginners and high-level athletes
?Testosterone levels typically increase for a short while following one to two hours of fairly intense endurance exercise, and they have also risen during not-so-long-distance training periods leading up to participation in some competitive very long distance events, but marathons and even longer-distance events typically cause a temporary dip in testosterone production (and potentially less temporary evidence of muscle damage), and long-term near-daily covering of long distances has impaired sexual functions as well as testosterone production
?Depleted concentrations of the anti-oxidants ascorbic acid (vitamin C) and endogenously produced glutathione go hand in hand with impaired sexual function
?Vitamin E and the trace mineral selenium both serve as anti-oxidants and both are probably essential for fertility, although high supplemental doses of either have the potential for toxicity, and there are other potentially very useful forms of vitamin E besides the form (alpha-tocopherol) normally found in supplements

?Deficiency of zinc leads to hypogonadism; consuming extra quantities of it has increased testosterone production in hard-training athletes as well as restoring sexual functions to formerly hypogonadic subjects
?Consuming extra quantities of calcium and magnesium has increased testosterone production in hard-training athletes
?The mineral iodine is essential for production of the thyroid hormones, which metabolize cholesterol (precursor to the sex hormones), activate receptors which belong to a family including those for the steroid hormones and fat-soluble vitamins, and promote spermatogenesis independently (but also inhibit it via negative feedback when over-expressed)
?Vitamin A in the form of retinal is essential for sexual functions, and supplementation with vitamin A has repaired sexual functions, but high-dose supplementation (especially with retinoic acid) in the absence of synergistic nutrients (e.g. zinc, iodine and vitamins D3 and K2) can reduce DHT production, induce hypothyroidism and potentially have other adverse effects
?In cultured prostate and breast cancer cells, DHT and estradiol are capable of promoting growth in isolation, but vitamin D3 or its metabolites have a potent inhibititory effect that is enhanced by the presence of DHT or estradiol (they decrease expression of the enzyme that deactivates the vitamin), and vitamin D3 increases the expression of the hormone receptors
?Vitamin K2 activates proteins that are crucial for bone health and for preventing soft-tissue calcification, and it serves as a ligand for the steroid and xenobiotic receptor (SXR), with which it appears to interact to antagonize the proliferation of cancer in liver cells
?Herbs, spices and plant extracts to take a moderate interest in include garlic/onion, fenugreek and Mucuna pruriens
?Herbs, spices and plant extracts to be wary of include mint, soy and liquorice
?A mineral ion to be wary of is fluoride (as found in most toothpastes)
?Useless herbal supplements to avoid wasting money on include Serenoa repens and Tribulus terrestris

?Avoid being musically gifted - unless you're Misha Koklyaev:

Anti-Estrogenic Diet

Many diseases are affected by high levels of estrogen including fibrocystic breast disease, ovarian cysts and premenstrual syndrome or PMS. The liver is important in breaking estrogen down into an almost totally impotent form. It also converts estrogen into compounds that can be excreted from the body through urine and bile. The purpose of this diet is to support the liver, to reduce sources of estrogen found in foods, and to support other glands such as the adrenal glands and the thyroid gland that influences estrogen.
•Avoid storing & drinking water from plastic containers. The softer the plastic, the more estrogenic
•Avoid heating food stored in plastic containers in the microwave
•Avoid hormone fed animal products (including non-organic milk and dairy products)- replace with free- range animal products and organic dairy products

•Replace saturated animal fats with cold pressed unsaturated vegetable oils
•Replace white flour with whole grain flour
•Replace white sugar with honey, molasses, brown rice syrup
•Increase intake of cruciferous & root vegetables: broccoli, kale, cauliflower, brussel sprouts, carrots, turnip, rutabaga, onions, garlic
•Increase intake of glutathione-rich foods: asparagus, avocado, walnuts
•Increase intake of limonene-rich herbs: dill seeds, caraway seeds
•Increase intake of sulfur containing amino acids: eggs, garlic, onions, beans
•Increase antioxidant intake important in the detoxification process (Vitamin C, E, selenium)
•Increase intake of decaffeinated green tea (minimum 3 cups daily)
•Increase use of tumeric in cooking
•Avoid all methylxanthines: caffeine, theophyline, theobromine (coffee, tea, chocolate, cola)
•Try an anti-estrogenic smoothie: kelp (½- 1 tsp), lecithin (1-2 tbsp), yeast (1-2 tbsp), fruit, organic yogurt

THE DESPOTISM OF MATRIARCHY

Matriarchy is the politicization of female psychobiology. It is extrapolation of the female ego into macropolitical or state form. In order to understand matriarchy you must understand the female nature which orients around the lower egoic tendencies of consciousness. A desire for the accumulation of material comfort and needs; the desire for recognition or status within the collective group and the desire to sate the insatiable desire that burns within woman. This last is a result perhaps of her inability to attain sexual exhaustion in any definite climactic process such as in the case of the ejaculation of the male. Whatever the reason female psychopoltics is matriarchy and matriarchy means despotism.

The figure of Lady Macbeth serves best as a reference point towards which ones attention must be focused in order to understand the psychology of the female and thus serves as an archetype of insatiable female desire. As in Shakespeare's play "Macbeth", Lady Macbeth is forever pressing Macbeth to ascend in the hierarchy of nobility. This so that she might, as the moon in relation to the sun, be able to reflect his brilliance and be looked upon by all as a significant figure in the social firmament. Like the moon, the female is mutable, forever changing her trajectory and incapable of any constancy. Though she is impelled from without by the opinions and phenomena of existence her innate motor principle always follows her own broad and winding path. Her lunar light orbits the mundane realm of daily trends and cares, exerting her magnetic influence upon the earth to absorb into herself vampirically all of the energy and attention that she can accrue to herself. This so that she may increase the probability of fulfilling her biological imperative of being impregnated with the best genes to optimally ensure the survival of the species. Her path represents her psychological tendency of mutability:

This is 'the consistency of inconsistency' which Hitler referred to in "Mein Kampf" as the psychology of the female, which is borne of her emotional mind and undeveloped rational faculties. Her will trends in the direction most advantageous to her immediate needs having no regard for principles of truth or justice as that would entail self-sacrifice, placing others before the self. The principle of woman is that of egotism, her virtue that of selfishness as Ayn Rand encapsulated in her book “The Virtue of Selfishness”. The perfect phrase reflective of the lunar light's magnetic influence.

Her altruism extends to the limit of her ability to maximize pleasure and minimize pain which is the only other principle she could be said to possess, namely the minimax or maximin principle also referred to as the pleasure principle in her libidinal economy. The principle is subsumed, or in typically feminine form 'invaginated' by that of the ego as her libidinal economy is hers and hers alone. From this general principle of feminine psychology emanates her mendacity. Her falsehood is typically though not always a result of deliberate self-blindness, a cognitively dissonant, willfully ignorant mentality she turns away or shuns all of that which is a source of greater pain than pleasure according to the reckoning of her libidinal economy. Unless there is a greater overall pleasure to be derived if such is considered sufficiently worthy of sacrificing for and investing in. This typically isn’t the case given the lack of her long term planning ability and concomitant myopic vision which in most cases reveals her in her true light grabbing for immediate gain and self- gratification if need be at the expense of others. As such she is typically heedless and recklessly negligent in upholding the duties she has acquired as a functionary of the state. Even within the confines of the family unit, when no overarching authority exists to enforce societal standards, to hold her to account with the threat of punishment, she pursues the path of least resistance according to the calculation of her libido and biological imperative. The consequences on a societal scale are clearly seen in today's 'gynaecocracy' as Julius Evola called it. When women rule chaos is the rule.

Her egoic desire for personal power and recognition has her work together with her fellow females in shunning and politically castrating male opposition who exist as a threat to her power. Females conspire with one another and obtain and maintain power through a subterranean collectivist despotism. Thus the matriarchy is formed on the principle of sympathy, and a hen house bureaucratic control freakish police state is formed on the basis of this feminine oligarchy. The ego of the female must be sated at all times and the mechanism by which to do that is to impose an infinitely complex spider’s web of bureaucratic red tape which can ultimately be enforced only through the barrel of a gun.

The maternal instinct of woman also tends towards this totalitarian state form given that her inherent over-protectiveness seeks an outlet in the form of various kinds of legislation. An example of this lies in State intervention into the home under the guise of 'safety and security' in the form of child or women protective services; favoritism in divorce proceedings and bias in hiring and academic admission as well as censorship and the enforcement of political correctness which is simply a veiled form of censorship. Ms.Manners the bureaucratic apparatchnick of the

nanny state shaking her finger in the face of any self-assertive male as a means of psychically castrating him and enforcing the matriarchal operation of the nanny state. This finger wagging not only embodies itself in the form of red tape generation but enforces itself through the spread of culture in the controlled media. In the behavioral forms of shunning and a spy society of rats the control freakism extends itself panoptically in the form of the nanny state. The matriarchy veils its despotism under the guise of being a 'community' (communitarianism) thereby blurring the lines of private and public, both in the minds of the citizens as well as the bureaucrats all of whom embody whatever public role they have acquired and base their identity upon. Thus 'the state is everything and everything in the state" as Mussolini said, only the form is not the phallus but the vagina, is not explicit, open and honest but covert and cunning in its operations-a voiceless despotism which standardizes the hive mind of the collective mass.

Given that there are no standards of truth in the nanny state as all public discourse is a perpetual flux or babel of opinions and relativistic standards. Truth is concealed behind the veil of falsehoods. These perpetually shade into one another as a shifting prism reflects the rays of the sun from pure and clear to an endlessly changing variety of wave lengths. A rainbow veil of illusion, a technicolor technotronic dreamcloak. Thus given that there are no fixed or determinate standards upon which to rely, a climate of uncertainty, fear and terror exists. Anyone can be accused of anything at anytime and everyone is a suspect simply on the basis of the display of the slightest abnormality or deviation from the paradoxically standardized 'rainbow reality'. Anything not heterosexual, white and male; anything which does not assert any universal truths in opposition to the empty dogma of universalism, ie.egalitarian secular humanism is permitted. Conversely, hetero-white normality is by default the cardinal sin to be preemptively attacked with extreme prejudice.

This general cultural chaos gathered together under the umbrella of 'love, peace, tolerance, equality, etc.' manifests itself in the equally vacillatory standards of the jewdicial system which are indecipherable to the average person. They are based upon completely general abstractions and could be and are interpreted by the powers that be in a way which is always anti-white and especially anti-heterosexual white male. This ambiguity not only amounts to psychic terror but the terrorism of the police state which exerts capricious sways over the broad masses themselves cowed into silence.

This lack of standards enables the diminution of the educational standards, which enables the dumbing down of the populace. This enforces the tyranny through subjugation of opposition disabling potential or actual opponents from thinking and finding out what is being done to them by the matriarchal nanny state. For indeed those at higher levels do have nefarious plans and these are outlined in 'The Protocols of the Elders of Zion' and in the Babylonian Talmud as well as in the Communist Manifesto.

Though a matriarchy the state is of course controlled from above by the 'elders of zion' who merely use the psychopolitics of feminine duplicity to enforce their hidden tyranny. The

white males are placed into harness as wage slave drones and used for the self-serving ends of the matriarchy who assist the cabal of jews in their freemasonic beehive society. The queenbees in the societal hive have partaken of the forbidden fruit of feminism and communism(their natural inclinations trending towards this end and perceive the demotion of the white males into the levels of a helot class as advantageous to their self-empowerment.[?...>] Perhaps they sense intuitively the weakness of the males through the latter's overly accommodative nature and wish to either challenge the white man and or subjugate him; challenging him to demonstrate that he the object of their natural desires is ‘man enough’ to conquer them. Or perhaps they sense that he as competitor requires castration in order for them to usurp his place while in reality they are merely serving the interests as their overlords the jews.

Binding themselves to the collective out of their instinctive communistic and pacifistic inclination they enforce a rigorous unwritten and unspoken moral code of conformism to the aleatory and ambiguous principles that the nanny state upholds: equality, love, unity, etc. These are merely emotionally charged buzzwords which neither have nor could have any concrete basis in reality as 'The Protocol of the Elders of Zion' themselves say. As a consequence of matriarchy there exists the greater power still held in check by the remnant of heterosexual white males , namely that of jewish supremacism. The jewish cabal conceals itself behind this saccharine rainbow reality as a means of destroying white civilization and keeping its hands to all appearances clean, using liberalism as a foil of its agenda.

The endless influx of refugees is yet another assault against white society and is enabled through the female matriarchy serving for the females as an outlet for their maternal instincts. These are directed towards the nurturing of apparent ‘victims’ or weak and defenseless beings, which the non-white criminal invaders are portrayed as by the media nd education. The matriarchy facilitate the invasion of non-white terrorists and economic colonialists who have come for a spoil and a plunder at the expense of the white man. Insofar as the white females are enabled to continue their macro political homewrecking through deriving exorbitant paychecks at the expense of the white male they will continue to allow society to slide into the primordial ooze of barbarism.

Ultimately, Matriarchy can only be subjugated by the phallus; the blade, the Fasces, by Patriarchy. Failing this what would result would be a civilizational collapse and a reversion to stone age savagery. Thus it is matriarchy which functions to destroy and destabilize society at any level beyond the primitive savage and is the psychobiology of females which is exploited by the jew for his ends. Patriarchy, which is the builder of the pyramid and the cathedral, the phallic act of creative drive, the generative principle, enables the development of civilization from savagery. It behooves the white man to become who he is in potentia-to manifest his destiny as a 'white man' properly so-called and, like Frodo's sword Sting, conquer Shelob the spider in her bureaucratic web.

Xenoestrogens

How to avoid Xenoestrogens

Xenoestrogens are found in everyday synthetic materials. These materials were previously thought to be inert. Cut out the xenoestrogens from your life.

by Elizabeth Smith, M.D.

Xeno literally means foreign. So xenoestrogens means foreign estrogens. Some of the 100,000 registered chemicals for use in the world have hormonal effects in addition to toxic and carcinogenic effects. Also the synergistic effects are known to occur but also are largely exactly unknown. The field of xenohormones is new, and only been in existence since about 1991.

Critics have proclaimed that these chemicals are for the most part "weak". The body's hormones are at levels of parts per trillion. However, many of the chemicals that affect the hormone systems are routinely found in the serum after sauna at parts per billion. In other words, these chemicals that affect the hormone systems of the human body occur at 100 to 1000 times greater concentration than that of the normal human hormones. One researcher demonstrated that two "weak" estrogens may act synergistically to give a strong estrogen response. Some of these Xenoestrogens like DDE (a metabolite of DDT) may persist in the body fat for decades. Many of these mimicking hormones were previously thought to occur in pesticides. However, many of the newly discovered xenoestrogens are found in every day previously thought to be inert materials.

Some of the following is information taken from Our Stolen Future by Theo Colborn:

DDT

A study published in the Proceedings of the Society of Experimental Biology and Medicine in 1950 by two Syracuse University Zoologists Lindeman and Burlington described how doses of

DDT prevented young roosters from developing normally. They injected DDT into roosters by injecting the pesticide into forty young roosters for a period of 2 to 3 months. The daily doses of DDT did not kill the roosters or even made them sick. It made them look weird; they looked like hens. The birds testicles were only 18% of normal size. Their combs and wattles remained stunted and pale. The roosters were chemically castrated. Micheal Fry, a wild life toxicologist, at the University of California at Davis injected eggs from western and California gull colonies with DDT and a breakdown product of DDT, DDE, and methoxychlor (another synthetic pesticide known to bind to estrogen receptors). He found the feminization of the male's reproductive tracts. Typical female cells were found in the testicles, and in cases of higher doses, the presence of an oviduct, the egg-laying canal normally found only in females. Despite all this internal disruption, the chick looked completely normal.

"The roosters were chemically castrated by DDT."

DDT was found to bind to the estrogen receptor sites. It is now considered one of the classic xenoestrogens.

DDT was banned in the United States. However, world wide production of DDT has never been higher. In fact, DDT is manufactured in the United States and shipped to third world countries. DDT is metabolized to DDE in the human body within a few months. DDE then may last in the human body for several decades. However, some medical doctors occasionally find DDT in the serum routinely following intensive sauna. So where is this new exposure to DDT coming from? The United States ships DDT to third world countries that spray it on vegetables and fruits. This agricultural produce is shipped to United States supermarkets where Americans consume it. In 1991, the United States exported 96 tons of DDT.

Another source may come from your living area. If your house is near or built upon old agricultural land, DDT will persist in the soil for several centuries.

Plastics, Spermicide, Detergent, and Personal Care Products

At Tufts Medical School in Boston in 1987, Soto and Sonnenschein serendipitously discovered that plastic test tubes thought to be inert contained a chemical that stimulated breast cancer cells

to grow and proliferate wildly. They were experimenting with malignant breast cancer cells that were sensitive to estrogen. When exposed to estrogen the cells would grow and multiply, and when isolated from estrogen, the cells would stop multiplying. During the course of their experiments, they found that the test tube manufacturer changed the formulation of the plastic test tubes that they were using. The manufacturer had used p-nonylphenol one of the family of synthetic chemicals called alkylphenols to make these plastics more stable and less breakable. Manufacturers routinely add nonlyphenols to polystyrene and polyvinyl chloride (PVC). These new plastic test tubes caused their estrogen sensitive breast cancer cells to proliferate, multiply and grow. Thus, they concluded that p-nonylphenol acted like an estrogen.

These new plastic test tubes caused their estrogen sensitive breast cancer cells to proliferate, multiply and grow"

One study showed that the food processing industry and packaging industry used PVC's that contained nonlyphenols. Another reported contamination of water that had passed through PVC tubing. Even a compound found in contraceptive creams nonoxynol-9 breaks down inside the animal's body to produce nonylphenol. Breakdown of chemicals such as those found in industrial detergents, pesticides, and personal care products give rise to nonylphenol. Global production of alkylphenols polyethoxylate was 600 million pounds in 1990. Although the products purchased by the consumer are not themselves estrogenic; studies have found that bacteria in the animal's bodies, in the environment, or in sewage treatment plants degrade these alkylphenol polyethoxylates, creating nonylphenol and other xenoestrogens.

Plastic Drinking Bottles and Plastics used with food

In 1993, at Stanford University School of Medicine, Dave Feldman, professor of medicine was experimenting with a yeast estrogen protein that binds to estrogen. They found that the polycarbonate bottles used to hold drinking water contained bisphenol-A. They used the polycarbonate lab flasks to sterilize the water used in their experiments. Bisphenol-A nicely bound to the estrogen protein found in the yeast. This polycarbonate plastic is routinely used for the giant jugs used in shipping water. The manufacturer was aware that the bottles would leach particularly if exposed to high temperatures and caustic cleaners and so developed a washing

regimen that they thought would solve the problem. However, the researchers discovered that the manufacturer could not detect samples sent from their lab, samples that were causing proliferation of estrogen responsive breast cancer cells. This proved to be a detection limit in the manufacturer's lab equipment. The Stanford team found that 2-5 parts per billion of bisphenol-A was enough to cause the breast cancer cells to proliferate. Professor Feldman noted that though bisphenol-A is 2000X less potent than estrogen, "it still has activity in the parts per billion range."

One Dartmouth University Study showed that plastic wrap heated in a microwave oven with vegetable oil had 500,000 times the minimum amount of xenoestrogens needed to stimulate breast cancer cells to grow in the test tube.

Detergent Breakdown Products

John Sumpter a biologist from Brunel University in Uxbridge began to study sexually confused fish reported from anglers fishing in English rivers. Many fish caught in the lagoons and pools just below the discharge from sewage plants looked quite bizarre. Even experienced fisherman could not tell if a fish was male or female. The fish showed male and female characteristics at the same time. They were perfect examples of intersex where an individual is stranded between both sexes. Sumpter used a marker that helped identify female fish. Normally in females a special egg protein is made called vitellogenin, in response to estrogen from the ovaries. On the estrogen signal from the ovaries, the liver produces vitellogenin and the protein is incorporated into the eggs. Since the response is dependent on estrogen, vitellogenin levels found in male fish would be a good indication of estrogen exposure. Caged fish raised in captivity and then kept in the contaminated pools made 1000X to 100,000X more vitellogenin than control trout kept in clean water. 15 sites were sampled with soaring vitellogenin levels. It was a national problem. Alkylphenol levels from detergent breakdown products are high on the suspect list. However, Sumpter suspects that it is the synergistic qualities of several xenoestrogens acting together.

Canned Foods

Two Spanish Scientists at the University of Granada decided to investigate the plastic coatings that manufacturers use to line the metal cans. The coating is added to avoid the metallic taste of

metal in the food from the cans. These linings are present in about 85% of the cans. Fatima Olea and Nicolas Olea, an M.D., specializing in endocrine cancers worked with Soto and Sonnenschein. In a study analyzing twenty brands of canned foods purchased in the United States and in Spain, they discovered bisphenol-A, the same chemical that the Stanford researchers discovered, in about half of the canned food up to levels of 80 parts per billion. This is 27 times greater concentration of bisphenol-A needed to cause the breast cancer cells to proliferate in the Stanford Study.

Commercially raised Beef, Chicken and Pork

Commercially raised livestock are routinely given xenoestrogens to fatten them up, grow quickly, and cause them to retain water. This results in greater profits for the farmer. It is an effective, cheap, quick way to fatten them up. In the 1970's and 1980's there was an epidemic in Puerto Rico of early puberty in girls as young as a year old and even young boys who developed breasts caused by meat and dairy products containing high levels of estrogen. In the United States, the use of estrogen compounds is now slightly better regulated, but it is still very much used and abused.

"Young boys developed breasts."

John Lee, M.D.

DES (diethylstilbestrol), a type of synthetic estrogen, was the first hormone to be used by the meat industry to fatten up livestock until it was discovered that it causes cancer even in extremely minute amounts.

Birth Control Pills

Birth Control Pills contain a synthetic estrogen and a synthetic progestin to force the body to cycle in a normal manner even though conception may have occurred and different hormones levels are supposed to occur. Is it really nice to fool mother nature? Many times what we see clinically is that it takes one year or more for a woman's period to become normal after stopping birth control pills. This is because the synthetic estrogens and progestins in the birth control pills are oil soluble and difficult for the body to get rid of.

Why not use a simpler method of birth control such as condoms? Use one that does not use a spermicide such as nonoxynol-9. Researchers found that once nonoxynol-9 gets into a rats body it breaks down into nonylphenol - a known xenoestrogen.

Preservative Methyl Paraben in Skin Lotions and Gels

For many years, parabens were considered among those preservatives with low systemic toxicity, primarily causing allergic reactions. However, as we have become aware that some synthetic chemicals mimic the female hormone estrogen, our understanding of the toxic effects of both synthetic and natural substances has changed. Now, John Sumpter from the Department of Biology & Biochemistry, Brunel University, Uxbridge, Middlesex, have found that alkyl hydroxy benzoate preservatives (namely methyl-, ethyl-, propyl-, and butylparaben) are weakly estrogenic. In an estrogen receptor-binding assay, butylparaben was able to compete with the female hormone estradiol for binding to estrogen receptors with an affinity approximately 5 orders of magnitude lower than that of diethylstilbestrol (a highly carcinogenic synthetic estrogen), and between 1 and 2 orders of magnitude less than nonylphenol (an estrogenic synthetic industrial chemical).

Although it is reassuring to note that when administered orally, the parabens were inactive, subcutaneous administration of butylparaben produced a positive estrogenic response on uterine tissues. Although approximately 100,000 times less potent than17 beta-estradiol, greater exposure to the parabens may compensate for their lower potency. The researchers conclude that, "Given their use in a wide range of commercially available topical preparations, it is suggested that the safety in use of these chemicals should be reassessed . . ."

The European Union has asked the European Cosmetics and Toiletry industry about these new findings and the implication for breast cancer. These preservatives are found in the vast majority

of skin an body lotions, even in natural progesterone creams. Generally, for the sterol hormones, taken orally the hormones are 90% first pass metabolized by the liver. Thus, taken orally only 10% reaches the body. In contrast, anything absorbed by the skin is directly absorbed. In other words, anything absorbed through the skin may be as high as 10 times the concentration of an oral dose.

Unfortunately, some natural progesterone creams were found to contain methyl and propyl parabens as a preservative.

Unfortunately, some natural progesterone creams were found to contain methyl and propyl parabens as a preservative.

Shampoos that Purposely Contain Very High Amounts of Estrogen

African Americans favored shampoos with clinically active high doses of estrogen. They also used them on their children. In 1998 Tiwary, now retired, published a study of four girls - including a 14-month-old - who developed breasts or pubic hair months after beginning to use such products. The symptoms started to disappear when they stopped using them. The year before, he published a study showing that some of the products used by his patients contained up to one milligram (1 mg) of estradiol per one ounce of shampoo. By comparison a normal adult topical skin dose for estradiol is 0.02-0.05 mg/day. This means that one ounce of shampoo contains 50 times the daily ADULT dose of estradiol. A small handful of this shampoo on your child every day may give her OR HIM breasts!

Herbicide

Tyrone B. Hayes of the University of California at Berkeley found that atrazine, the most commonly used weed killer in North America, affected frogs at doses as small as 0.1 part per billion. As the amount of atrazine increased, as many as 20 percent of frogs exposed during their early development produced multiple sex organs or had both male and female organs. Many had small, feminized larynxes. See Plastic IV Bags

The United States FDA warns that prolonged fluid exposure in IV bags may affect testicle development in young boys. The chemical, called DEHP, can leach from the plastic into certain liquids, especially fat-containing ones like blood. Studies of young animals show the chemical can affect testicle development and production of normal sperm. Some companies already label that their products contain phthalates (DHEP), and the FDA soon will issue a recommendation — not a requirement — that more companies do so."FDA's public health notification falls far short of what is needed to protect patients," said Charlotte Brody of Health Care Without Harm, a group working to reduce the amount of phthalates — the family of chemicals that includes DEHP — in a variety of products, from plastic toys to cosmetics.

5 Out of 6 Chemicals Used to block UV in Sunscreen are Estrogenic

Margaret Schlumpf and her colleagues (Institute of Pharmacology and Toxicology, University of Zurich, Switzerland) have found that many widely-used sunscreen chemicals mimic the effects of estrogen and trigger developmental abnormalities in rats. (Schlumpf , Margaret; Beata Cotton, Marianne Conscience, Vreni Haller, Beate Steinmann, Walter Lichtensteiger. In vitro and in vivo estrogenicity of UV screens. Environmental Health Perspectives Vol. 109 (March 2001) pp 239-244) Her group tested six common chemicals that are used in sunscreens, lipsticks and facial cosmetics. Five of the six tested chemicals (benzophenone-3, homosalate, 4-methyl-benzylidene camphor (4-MBC), octyl-methoxycinnamate and octyl-dimethyl-PABA) behaved like strong estrogen in lab tests and caused cancer cells to grow more rapidly. Only one chemical - a UVA protector called butyl-methoxydibenzoylmethane (B-MDM) - showed no activity. Uterine growth and endometriosis :One very common sunscreen chemical, 4-MBC, was mixed with olive oil and applied to rat skin. This caused a doubling of the rate of uterine growth well before puberty. "That was scary, because we used concentrations that are in the range allowed in sunscreens," said Schlumpf. Three of the six caused developmental abnormalities in animals. The major cause of sterility in women in the USA is endometriosis, a condition afflicting 5.5% of American women. Exposure to excessive estrogen, that may have come from such sunscreens, is felt to be the primary cause of endometriosis. Perhaps a sunscreen using zinc oxide is a better choice.

Common Chemical in Personal Care Products, Fragrances, Paints, Plastics and Cosmetics May cause Testicular Defects in Boys

For the first time, scientists have shown that pregnant mothers exposed to high but common levels of a widely used ingredient in cosmetics, fragrances, plastics and paints can have baby boys with smaller genitals and incomplete testicular descent. Previous work had shown that prenatal phthalate exposure in rodents can critically affect male hormones, resulting in impaired testicular descent and smaller genital size. The Swan study is the first to look at effects in humans.While none of the boys showed clear malformation or disease, in the 25% of mothers with the highest levels of phthalate exposure, the odds were 10 times higher that their sons would have a shorter than expected distance between the anus and the base of the penis. This so-called AGD measurement is a sensitive indicator of impacts on their reproductive system.

Summary

From a strictly research point of view there may not be enough evidence to create public outrage and shift public opinion. It is a known medical fact that estrogen stimulates breast cancer. However, it is disconcerting to note that the breast cancer rate is now 1 out of 8 women where before breast cancer in the 1950's was 1 out of 20. Dr. Lee believes that overdose of estrogen leads to PMS. The hallmark of PMS is a few pounds of weight gain just before your period. So what do we do?

Use glass or ceramics whenever possible to store food and water. Heat up your food using a glass or ceramic bowl covered with dish. When plastic is heated, it diffuses very rapidly into food. The Dartmouth University study showed that plastic wrap heated in a microwave in vegetable oil had 500,000 times the minimum amount of xenoestrogens needed to stimulate breast cancer cells in a test tube to grow.

Use a simple detergent with less chemicals; Nature Clean is a good choice for both laundry detergent and dish washing detergent.

Simple Soap is a safe choice for shampoo and a body soap.

Use natural pest control not pesticides.

Avoid Synthetic Chemicals - Healthy Living in a Toxic World by Cynthia Fincher PhD. from (see books) is a good place to start.

Don't use herbicides; use a cup of salt in a gallon of vinegar.

Buy hormone free meats to eat.

Buy "Organic" produce, produce grown without pesticides, herbicides or synthetic fertilizer or hormones.

In general, the hormones taken orally are first pass metabolized by the liver 80%-90%. However, when these hormones are applied to the skin, the hormones are directly absorbed by the body. Thus, any skin dose is 10 times that of an oral dose. The vast majority of skin lotions and creams use the parabens as a preservative. Avoid them at all costs. Instead apply a vegetable oil right after a shower to hydrate the skin and lock in the moisture.

The very important changes to make are do NOT eat food with HOT plastic. Change your laundry detergent, no fabric softener, no dryer sheets, change your lotions, soaps, shampoos, and makeup to avoid parabens. Avoid coffee.

Pesticides

The following compounds can enter your body by ingesting foods that were sprayed with them or somehow came into contact with them. They can also be inhaled, or they can even find their way into water. And, it's actually been found that floors of households that have cats or dogs are veritable hotbeds of pesticides as the little furry beasties track the stuff in on their paws.

DDT — While this chemical has been banned for a while in the US, its ability to be stored in body fat has caused some concerns as even small amounts can still have detrimental effects. So what can this compound do? Well, a metabolite of DDT can inhibit androgens from binding to the androgen receptor, thus preventing androgen-induced transcription. (Again, the chemical can take Testosterone's, or any steroid's, parking spot.) This could mean a decreased effectiveness with any androgen that exerts its effects via the AR.

Procymidone — Another common pesticide that's also able to prevent androgens from binding to the AR.

Vinclozolin — same as above

Dimethoate — This insecticide has been shown to lower T4 and negatively affect thyroid metabolism in general. It can also cause sperm and testicular damage. It also lower Testosterone levels.

Trichlorfon — This is yet another organophosphate insecticide like Dimethoate. It has been shown to damage immune system function in men.

Metiram — This pesticide can reduce thyroid hormone levels.

Alkylphenolics

These compounds can be found in detergents, surfactants, paints, shampoos, spermicidal lubricants (nonoxynol-9), cosmetics, drinking water, and can enter the body via inhalation and even ingestion from pesticide sprays.These compounds were shown to be estrogenic long ago. They've also been shown to cause growth of cultured breast cells taken from humans.

Phthalates

These compounds can be found in many things, but are mostly associated with plastics. Common culprits include plastic food wrap, ink on plastic, vinyl floors, emulsion paint, cheese, milk, eggs, meat, water, baby teethers. Not that any of us use them. If this class of chemicals wasn't bad enough on its own, they're also lipophilic, which makes them great candidates to be stored in fatty foods as well as in your own body fat. They've been shown to activate protein transcription after first binding to the estrogen receptors in breast tissue. That means they're great for growing breasts, regardless of whether you're a man or a woman. They also posses potent anti-androgenic activity and are toxic to testicular cells.

Bisphenol A

This compound can be found in cans used for foods and infant formulas, plastic storage containers, and even baby bottles. Actually, it can be found in most plastic bottles and even dental sealant. As far as negative effects go, it's been shown to cause the growth of MCF-7 human breast cancer cells, and that means it's estrogenic. It's also demonstrated potent anti-androgenic activity similar to that of phthalates.

Brominated Flame Retardants

These chemicals can be found in many household appliances such as televisions, computers, and other electrical devices that are prone to causing fires. While they might have a hard time getting into your system, it still makes you wonder. As far as effects go, they can negatively affect thyroid hormones and can even impair memory and learning. They've also been shown to cause growth of cancerous breast cells.

PCBs

Polychlorinated biphenyls, or PCBs, can be found in fire retardants, adhesives, waxes, and as heat transfer fluids in large transformers and in capacitors. They remain in our environment a long time because they're very resistant to breakdown and are very soluble in fat. That means our fat, too. These substances have been shown to be very effective at mimicking estrogen. Not only that, but they've even been tied to reduced IQ and development in children.

Parabens

These chemicals are used in perfumes, toothpaste, and certain cosmetics. They even seem to exist in air fresheners. Like the others, they're estrogenic.(37)

If all this wasn't bad enough, all of these xenoestrogens can activate the ER alpha, and that could cause breast tissue growth, in addition to cancer.(38-46)

Estrogen Cocktails

We've talked about how estrogen-like compounds can find there way into our bodies via inhalation, ingestion, absorption, etc. However, is it possible that actual estrogens like estradiol could find their way into our food or drinks? The answer appears to be yes.

Numerous studies have found estrogen and progesterone to be present in dairy products, including milk. Even though most of the estrogens were bound, there's still enough free hormone present that could possibly have some adverse effects on the body. However, you'd probably have to drink at least a few gallons of milk before you'd have to worry about it. So unless you're a milk freak, I doubt there's any real worry. Also, it appears that the higher the fat content, the higher the hormone concentration. So, it might be a good idea to stay away from hormone induced whole milk and full-fat cheese.(milk that is raw or unpasteurised and have not been giving hormones is a healthy alternative)

WATER, It turns out that conjugated estrogens excreted by women in their urine are "reactivated" by bacteria in sewage. Both natural and synthetic forms of estrogen and progesterone have been found in drinking water.

Protect Yourself

The last thing to discuss, of course, is how to minimize or eliminate exposure and if exposure is impossible to avoid, a way to reduce the negative effects.

As far as the drinking water goes, there are a few options. It seems that regardless of which type of water you drink, you're going to get some type of estrogen or estrogen mimicking compound in it. For instance, reverse osmosis will remove cadmium (also a xenoestrogen). Conventional water treatment, however, did not remove estrogens found in drinking water. But, chlorine and ozone treatment did mitigate the problem. For the most part however, conventional treatment will not remove most of these chemicals. So, water treated through reverse osmosis or via ozonation or activated carbon, which is probably the best treatment, may be better in most cases.

Some bottled waters might be better, but unfortunately, they come in plastic bottles, many of which contain Bisphenol A. CONTACT THE MANUFACTURES AND SEE IF GLASS CAN BE USED IN THERE PRODUCTS

Here are some tips on how to avoid exposure to the compounds mentioned earlier:

• Use water-based paints to avoid alkylphenolics

• Make sure that the teething toys you have are PVC-free. Otherwise, they could contain phthalates.

• If you're really concerned with certain fruits or vegetables being contaminated with pesticides, opt for organic food instead (THEY HAVE CONSIDERABLY LESS THEN THE STORE BOUGHT STUFF, USUALLY ABOUT 30-50%LESS). Other than that, washing the fruit or vegetable thoroughly can help too. Still it doesn't guarantee complete elimination.

• Plastic utensils, baby bottles and even things like beakers that are scratched can leak chemicals like Bisphenol A. Replace those that are damaged with new products. USE GLASS WHEN FEEDING OFFSPRING

• Perfumes and air fresheners, along with other scented products may contain parabens. Fortunately, perfumes should list their ingredients, so you can check for parabens and choose a product that doesn't contain them.

• One last thing that may work would be to use some type of anti-estrogenic compound like clomiphene or tamoxifen.

Something along the lines of 25 mg of clomiphene every day to every other day might well do the job. In other words, it wouldn't require a very large dose. Besides, clomiphene would help to combat not only the risk of breast tissue growth and cancer, but it can help prevent the xenoestrogen-caused reduction in Testosterone.

1. Avoid using plastic with food and water whenever possible. Especially avoid heating food or water in plastic. When food and or water is heated with plastic, the diffusion of plastic into the food and water is much worse. Heat up food in the microwave using ceramic plates and bowls.

2.Do not use pesticides or herbicides on the lawn or in your house. Eat Organic food. Organic food is grown without pesticides, herbicides and synthetic fertilizer. Minimize canned food. (read labels to valid this just because it says organic does not mean it is free of all the xenoestrogen causing elements)(Organic in some countries where we get our foods can mean nothing more then carbon based, and as a result they can spray chemicals or other substances that can still cause a imbalance in you hormonally,OR EVEN CANCER, OR OTHER HEALTH ISSUES. IF YOU ARE NOT CERTAIN THEN PEEL ALL YOUR FRUITS AND VEGES, OR DON'T EVEN PURCHASE THESE PRODUCTS UNLESS THEY ARE SPECIFIED DIRECTLY NO PESTICIDES, HERBICIDES OR SYNTHETIC CHEMICALS OR FERTILIZERS OF ANY KIND)

3. Change your laundry detergent to powdered detergent from the health food store without additives. Use Simple Soap as a shampoo and bath soap. Use dish washing liquid from the health food store. OR USE A SIMPLE CASTILLE...OR A VINEGAR BAKING SODA MIX

4. Do not use Birth Control Pills. CONDOMS HAS LATEX WHICH IS A XENOESTROGEN AS WELL AS OTHER TYPES OF BIRTH CONTROL.....IF YOU ARE GOING TO USE A CONDOM THEN USE THE ONES MADE OF SHEEP SKIN Do not use HRT.

5. Eat meat grown without hormones. Commercial lamb and fish usually are hormone free.) AGAIN READ READ READ YOUR LABELS!!!!!

6. In general, the hormones taken orally are first pass metabolized by the liver 80%-90%. However, when these hormones are applied to the skin, the hormones are directly absorbed by the body. Thus, any application via the skin will be 10 times the concentration of an oral dose. The vast majority of skin lotions and creams use the parabens as a preservative. Avoid them at all costs. Instead apply a SEED OIL right after a shower to hydrate the skin and lock in the moisture.

7. Avoid Coffee, Beer, Sunflower Seeds, Red Clover Tea, Chamomille Tea. Pomegranate, Licorice, Red Clover, Yucca, Hops and Motherwort, Bloodroot, Ocotillo, Mandrake, Oregano, Damiana, Pennyroyal, Verbenna, Nutmeg, Yucca, Thyme, Calamus rt., Goldenseal, Licorice, Mistletoe, Cumin, Fennel, Camomille, Cloves, Queen Anne's lace (wild carrot), Fennel, Alfalfa Sprouts.

Anatomy of Matriarchy

A Masculinist Manual

Anatomy of Matriarchy

The term men's liberation was derived, from the term women's liberation and thus insinuates that women have power over men. Its very name infers liberation from female domination and is therefore an inversion of fact as well as women's liberation principles.

For instance, The Concise Oxford Dictionary (6th Edition, 1976) defines a matriarch as a "woman corresponding in status to a patriarch (usually jocular)". The venerable compilers of that dictionary add that the word is derived "from Latin mater mother on false analogy of patriarch". Treating the notion as a joke derived on a "false analogy" suggests that matriarchs are illusory, phantom figures. However, powerful matrons, often elderly, who dominate family groups and clans, who are patriarchs in all but their gender, are neither unknown nor rare.

Similarly, according to the Encyclopaedia Britannica, (15th Edition, 1986) matriarchy is a "social system in which familial and political authority is wielded by women".

[...]reject the conventional definitions of matriarch and matriarchy

Women do get, and always did get, what they want[...]

[...]other modes and centres of power which women monopolize. Such are the subjects of this inquiry.
As this inquiry shall show, matriarchs (who wield female power) and matriarchy (an organized structure or institution for the exercise of female power) do exist,

indeed have always existed. The power they wield is neither illusory nor a joke. Furthermore, in human society, it is not male power but female power which is supreme.

Part I

Features of Female Power

1. The Five Pillars of Female Power

[...]women's control of the womb; women's control of the kitchen; women's control of the cradle; the psychological immaturity of man relative to woman; and man's tendency to be deranged by his own excited penis.

[...]"the hand that rocks the cradle is the hand that rules the world".
That is so because whoever trains a child in its first years shapes it for life. Woman, who rules the nursery, shapes boys and girls for life; and the ways in which she shapes boys make them what they become as men.

2. Womb, Kitchen and Cradle: Control Centres of Female power

Woman's monopoly of the womb loads the mating encounter in her favour. It reduces the man to a supplicant. Since he is driven to survive through his progeny, he will pay any price to be allowed the use of a womb. He has little recourse.
In anticipation of the bride's demands, and of her monopolist's veto powers, a man is trained to seek adventure and win the world; by laying the booty at her feet, he can avoid her withering scorn and rejection.

Of course, man's situation is not as terrible as that of the male mantis which is obliged to surrender his life when he mates; but it is close enough: man is obliged to surrender his liberty and his earnings when he mates.

The power of the kitchen:
And the kitchen holds power over hunger. It holds the power to sate as well as the power to starve; and it wields that power every day.

The power of the cradle:
Mothers use their cradle power in the strategic interest of female power. In the nursery, they channel boys towards certain kinds of behavior, and guide them away from others.

If men are so powerful, how come they
allow women to keep control of the kitchen and the cradle?

Woman's control of the womb is unassailable, and will remain so until such a time as cloning makes the womb unnecessary for procreation.

Why, despite all this, is there the illusion that a power as durable and ubiquitous as female power hardly exists?

Whereas male power is hard, aggressive and boastful female power is soft, passive and self-effacing. Whereas male power is like an irresistible force, female power is like an immovable object. Whereas male power acts like a storm, full of motion, sound and fury, female power is like the sun- steady, quiet and incontestable.

Generally, then, whereas male power tends to be crude, confrontational and direct, female power tends to be subtle, manipulative, and indirect. Whereas aggressiveness is the hallmark of male power, manoeuvre is the hallmark of

female power. And where man is the great physical aggressor, woman is the great psychological maneuverer.

From a male-centred view of what power is, it is easy to be misled into thinking that a female form of power does not exist at all; and even when female power is recognized, it is easy to dismiss it as power of an inferior type, just because it is not hard, aggressive or boastful like the highly visible male form.

female power
[...]vastly greater might is so well entrenched, in
both biology and social arrangements, that it does not need to call attention to itself, and so goes largely unremarked.

[...]phases of female power (namely mother power, bride power and wife power)

Part II

Mother-power: In the Nest of His Father's Matriarch

3. The Commandant of the Cradle

Many a son is only vaguely aware of being ruled, through such precise techniques, by his mummy dearest. A vague awareness makes it unlikely that he will ever stand up to his mother; and even if, by some miracle, he did, he is not likely to battle effectively against a power he hardly understands. With a daughter, matters are different. As her mother's apprentice, a daughter learns the game, is privy to its techniques, and could effectively counter her mother's moves if she got up the courage. The result of such knowledge is that the average daughter can, at some point, shake off her mother's authority, whereas

the 'ignorant son cannot. Her hold over him usually lasts till his death; even if she dies before him, her hold is maintained through his ingrained desire to please her memory.

But what is motherpower used for? The primary objectives of motherpower are to prepare boys so they can be ruled by their future wives, and to train girls to rule their future husbands. To this end, the main tasks of motherpower are these: 1) to lay the appropriate personality foundations in the children: narcissism in girls, and heroism in boys: 2) to secure kitchen power and cradle power for girls; and 3) to magnify wombpower by teaching sexual restraint to girls, through codes of modesty, while undermining sexual self-control in boys by addicting them to the female body.

Consider a beautiful girl and a strong boy. When they are successfully reared by motherpower, they mature into their respective gender ideals: the dolly bird and the macho. To bring this about, the girl is taught self-worship or narcissism; the boy heroism or self-sacrifice. Her narcissism induces an absolute self-centredness which smothers those self-sacrificing impulses which are fostered in the boy by male codes of honour, gallantry and heroism. When they grow up, the dolly bird will worship herself; but the macho will worship woman and serve her, even to the point of sacrificing his life to preserve hers.

The narcissist personality is what makes a woman take it as a matter of course that a man should offer goods and services to her for her contribution to their joint sexual pleasure.

Whereas the mother equips the future dolly bird with a narcissist personality, she equips the future macho with a heroic personality. The hero is a servant who performs extraordinary duties for family, community or humanity: as warrior or

protector, as organizer of wealth, or as bringer of vital knowledge. He is, at heart, a sentimental fool who takes great risks, carries out great labours, all in exchange for such vanities as medals, ribbons, statues, and being mentioned in talk and song.

In the course of his training, the future macho is taught to regard women as the weaker sex, to adore dolly birds, and to consider it heroic to provide for and protect his womenfolk. He is also taught that being given a beautiful woman to husband is the most precious reward for heroism.

This woman-fixated personality makes a macho consider it right and proper for him to give a woman sexual pleasure and pay her too. It prevents a love-smitten general or tycoon from entertaining the thought that the strumpet he is wooing might not be worth one millionth of what he is deliriously offering her for the right to help her put her womb to work.

These two types of personality (heroic macho and narcissist dolly bird) are complementary in serving female power. Narcissism imbues the dolly bird with a sense of her natural right to be worshipped and served by men; heroism imbues the macho with a sense of his natural duty to serve women.

Likewise, mothers secure cradle power for their daughters by channelling boys toward adventure and away from childcare duties.

For the magnification of wombpower, mothers primarily rely on female sexual restraint as taught through codes of modesty.

Mothers magnify the advantage of female restraint by not teaching boys to restrain their sexual appetites, and even by teaching them to become hopelessly addicted to the female body.

A child introduced to carnal pleasures by women's expert hands will be willing, even eager, in adult life, to do anything required of him in order to get what, for him, would have become the greatest reward on earth. The subconscious memory of that addictive pleasure will drive his behaviour long after he attains puberty.

Addiction to the female body weakens a man's powers of sexual abstinence; it puts him into the power of whoever can satisfy his cravings.

As any negotiator will tell you, the more desperate your opponent is for what you have, the more unfavourable the terms you could get him to accept. Or, as one woman friend told me: "When it comes to sex, the one who wants it less holds the power." Thus, an addiction which makes a man more desperate for sex increases woman's power over him.

A mother who has raised a macho[...]a mother who has also raised a dolly bird - a narcissist beauty[...]who has contributed her expected quota to the continuation of female power.

Part III

Bride-power: In the Cockpit of Courtship

4. The Powers of Her Body beautiful

Male susceptibility to female beauty gives women a great leverage in their dealings with men; this leverage is further increased by women's artifice. Their determination to make the female body even more provocative has led to women's preoccupation with that delusive self-beautification which is commonly known as glamour.

Glamour bathes the body with an illusory beauty; its purpose is erotic provocativeness; its function, during courtship, is to arouse a man's aesthetic appetites, and thereby lure him into a trap a woman has set to catch a nest slave. The sexiness of her own body, as enhanced by glamour's tricks, is a woman's frontline weapon in the battle called courtship.

Glamour - the artificial beautification of the body for erotic provocativeness - is serious business.

[...]handbag[...] it is her magician's tool box.

In it are the essential implements of her economic activity- namely, self-beautification for the purpose of luring men to serve her.

Men, clearly, do need protection, both from their own stupidity and from their susceptibility to female beauty. Indeed, one of the best laws ever passed by men, one of the few which male legislators have passed in the male interest, was an Act of the British Parliament of 1770. It said:
All women, of whatever age, rank, profession or degree who shall after this Act, impose upon, seduce, and betray into marriage any of His Majesty's subjects by virtue of scents, paints, cosmetic washes, artificial teeth or false hair, iron stays, bolstered hips, or high-heeled shoes, shall

incur the penalty of the law now in force against witchcraft and like misdemeanours; and marriage under such circumstances, upon conviction of the offending parties, shall be null and void.

5. Love: Male and Female

A woman in love is far from insane; she is anything but unwise or blind to her interests. On the contrary, her first sigh of love is like a whiff of smelling salts which clears her head, leaving her with four eyes and night vision; it instigates her to a ruthless pursuit of what she wants.

"Woman in Love", she declared:
I am a woman in love And I'll do anything
To get you into my world
And hold you within.

To compare Willie Carter Spann with Barbra Streisand is to realize that love is a disease of the heart terrible for man's liberty, but an excellent pep pill for a woman hunting for a slave: when love smites a man, it turns him into a dazed prey; when it possesses a woman, she becomes a clear-eyed, calculating huntress coolly stalking her befuddled prey.

utilitarian view:
"Love makes men lame and tame".

When next we find a woman extracting love-struck nonsense from a man, we should not consider her absurd. No woman believes such nonsense literally. She knows perfectly well that they are lies, and exaggerations, but they give her

proof that he is sufficiently out of his mind to promise her anything, including what she really wants from him: life-long nest slavery.

Man, in his sentimentality, may refuse to acknowledge that the love felt for him by the woman who loves him is, at its core, a slaver's love for her slave.

Were men fully conscious of the predatory nature and exploitative purpose of a nesting woman's love for her man, they might be found each day praying: "God save man from the love of woman!" That men do not is a measure of how sentimentality thoroughly beclouds their eyes.

6. Courtship: The Hunting of the. Love-smitten Man

If he should pass her eligibility tests for economic ability, nest defence capability, emotional loyalty, sexual loyalty, etc.; and if she has no better candidate within reach, she accepts his application for the job of her nest-slave.

[...]the woman is like a judo artist who uses the aggressiveness of the man to bring him down.

If courtship were organized in the male interest, it would be a quick game of kidnap, rape and escape; but because it is organized in the female interest, it is an elaborate game of slave-breaking, with the woman as broncobuster.

To make the obstacle course seem worthwhile to the poor man, a rainbow of happiness-ever-after was painted at the end of it all. He would enter this paradise of eternal bliss at their honeymoon, from the moment he received the gift of her priceless virginity. He was made to believe that, as she wandered through a forest of marauding pricks, she valiantly preserved for him her

vaunted virginity: she would, on their wedding night, present it to him as a unique gift to his victorious manliness.

The cunning of it all is stunning! Imagine a hunt in which the huntress takes on the appearance of the prey; in which the true prey enjoys the illusion that he is the hunter; in which he is made to exert himself, alternately suffering pangs of disappointment and spells of exhilaration, while the huntress leads him, step by wily step, into her well-laid trap. And even after she has closed the trap over him, tied him up, and led him off to slave for her; she does not neglect to confirm him in his illusion that he has been the hunter. Still exploiting his hunter psychology, she lays herself out on his wedding bed, and acts the prey surrendering her irreplaceable hymen to his body spear. After plunging it into the prostrate "victim", he glories in his bloodied spear, like a hunter would after slaying a mighty beast. Well, has a more exquisite game of cunning ever been invented?

The length of a courtship depends on how long it takes the boss to make up her mind about the candidate's suitability, on how long it takes to tame and habituate him to her domination, and on how long it takes to conclude the bargain.

Let us first examine the job interview aspect of courtship. The principal job she needs done by her husband will be economic. He must supply the income to run her nest, especially if she herself is not wealthy; and even if she is wealthy, he will have to manage her wealth. Therefore, her first concern is to administer an economic eligibility test on the suitor.

If the man's social standing is obvious, the test is not difficult to conduct. Where his social standing is not obvious, and she has to find things out for herself, she

does so with professional thoroughness.

In urban, middle class America, the preliminary economic interview is the stuff of cocktail encounters. The man is asked: "What do you do?" If he gives an easily interpreted answer (for example, if he says he is a doctor, lawyer, banker, stockbroker, or high executive in a major corporation) then that part of the interview is quickly concluded. If he says he is a welder, bus driver, factory foreman or something like that, that also settles the matter. Either way, the woman has a fair estimate of what she is really after: How much does he earn, and what assurance is there that he will continue to earn at least that much?

Where a man passes the woman's economic eligibility test she might then test his abilities as a nest-protector.

[...]she may provoke a brawl and incite him to show whether, and how well, he would defend her nest (and her good self) from attack.

If the man's abilities as economic provider and nest-protector satisfy the woman, she may start to tame him by securing three essential commitments from him: sexual commitment, emotional commitment and economic commitment. Of these, economic commitment is central. The applicant must be taught to habitually devote his earnings to maintaining her nest and herself. All other feeders at his trough must be banished; those not banishable (like his parents, siblings, relative and close friends), will have their access to his income minimized. If he is the generous type, his impulse must be curbed, and he must be trained, if need be, to hand his pay packet directly to her each payday.

For securing a man's sexual loyalty, a woman's main ruse is to get him sexually addicted to herself, whether by heavy petting that doesn't go all the way, or by full and abundant sex. Once hooked, he is never let out of her sight, except when he goes off to work, lest some chance encounter with another woman should break her spell on him.

His jealousy and her cantankerousness are great instruments for this task. The more jealous she makes him, the more strongly the heat of his own jealousy bonds his heart to her. In inciting his jealousy to incandescence, a woman's ways can be quite bizarre. She might deliberately encourage the attentions of rival suitors.

[...]by her cantankerousness, she aims to test if he will stomach anything rather than leave her. She will play hard to get; she will insult and humiliate him; she will require him to flatter her to the point of irrationality.

Thus it is that, if a woman's behaviour during courtship seems mad, seems arbitrary to the point of tyranny, there is a simple purpose to it all: to establish and test her power over him. The suitor must be reduced to unquestioning obedience to her, otherwise her hold on him, on which the security of his nest services will depend, might prove tenuous.

[...]tactics of lust and motherly care.

To soften up a man to the point where he proposes, a woman can either withhold sex from him or lavish it on him. In the sex-lavishing tactic, the woman gives him sex, quite readily and freely, till he is addicted and can no longer do without his regular dose. Then, like an expert drug dealer, she can make him pay any price for what she supplies. And her asking price? A trip to the marriage altar.

7. Wedding: The Bride's Triumph Ceremony

Of course, the bride is happy because the wedding is her triumph ceremony marking the end of her man hunt, marking the beginning of her retirement on the earnings of her husband. She has spotted a suitable male, and disorganized him with the effects of her body-beautiful.

Part IV

Wife-power: In the Nest of His Own Matriarch

8. The Husband Managers

To the management of her husband, a wife brings the highest possible professionalism. If the essence of professionalism (in contrast to amateurism) is in doing what one is doing for monetary or other economic reward and not for fun; at as high a level of skill as is possible; and with a singleness of purpose that is intolerant of distraction or frivolity - then it is in husband management that women show the highest professionalism.

The wives of elite men are, of course, the best husband managers.

She also has at her disposal the entire set of social arrangements, cultural values and psychological forces which, for millennia, have been organized for the exercise of wife power. These include the facade of patriarchy, the double standard, man's fear of woman, man's silly soul which is full of sentimental illusions, their almighty baby, and man's fear of divorce. In using these tools and resources of husband management, an elite wife is a pastmaster (pastmistress?) among women.

9. The Facade of Patriarchy

At society matrons, Western elite women control political parties from behind the scenes, from places where they are safe from political shrapnel.

If the wife became the overt head of her own nest, she would have to do all that for herself[...]

But why does the average woman prefer covert to overt matriarchy? Just consider the matter from her standpoint. Overt leadership would give a woman duties which expose her to too many pressures and risks.

Under this arrangement, a woman has everything to gain and nothing to lose, except little vanities. Being far more down to earth, she prefers the substance to the shadow, the power to the glory, the rewards to the exertion. Behold the matriarch, the great queen bee, in all her power. Hers is the power to manipulate from hidden and protected places.

But why do men settle for a patriarchy that is, alas, a mere façade? The answer is quite simple. A facade is the most that their rulers will allow them; and a facade is the least that will make the male ego feel good enough to endure the burdens of his alloted role. Furthermore, should men try to subvert matriarchy in order to substitute a genuine patriarchy, women will thwart them. Men, therefore, settle for a figurehead patriarchy simply because they must.

10. The Double Standard

1) In the Western World, the wife of a king is queen; but the husband of a queen is not necessarily king.

2) The rites of love require that if a man loves a woman, he show it by giving gifts to, and doing things for, her; however, if a woman loves a man, she is expected to show it by accepting gifts and services from him.
Thus, for him, it is better to give than to receive, while for her, it is better to receive than to give.

3) Men are expected to provide economic support for women, but women are not expected to support men.

4) A mother and a father are not equally responsible for the financial support of their children.

5) Beauty and virginity are valued in women; but physical strength and economic ability are valued in men. Moreover, if a man cons a girl out of her virginity, it is viewed with disapproval: in fact, where pre-marital loss of virginity is deemed to dishonour a girl's family, a man could be murdered by her vengeful relatives. But if a woman cons a man out of his wealth, neither a crime nor an act calling for vengeance is deemed to have been committed.

6) Everything possible is allowed (such as adverts with images of nude females in provocative poses, as well as live women in scanty dresses on the streets) which puts men in a state of sexual unrest

7) Men are trained to initiate sexual contact; women to be restrained, and even to offer coy resistance to sexual advances from men.

8) Whereas the world of high risk is reserved for men, the world of maximum safety is reserved for women.

9) In the division of labour, within each class, women get the lighter and less risky tasks, whether in the home or outside it.

10) It is also an example of the double standard that male chauvinism is declared sexist, but female chauvinism is not. In fact, female chauvinism goes largely unrecognized and uncriticised.

11. The Silly Souls of Men

The head of the average man is packed with silly beliefs about men and women. Like fumes of booze that boost the ego, these beliefs cloud up man's perception, and leave him swaggering and staggering through life like a hopeless drunk, to be taken advantage of by any woman who wants to.

A sober look at the actual world yields quite a different picture. It shows that women are far less fragile and weak than they pretend to be; that women are cleverer than men; that their fickleness, passivity, irrationality and helplessness are calculated instruments of power; that women are far less sentimental, but more down-to-earth, cynical and ruthless than men; that, in so far as a natural order exists, women are, within it, superior to men; and that women are not mysterious at all, but only appear so owing to male foolishness. Let us go through these popular male illusions and see how badly they accord with the realities, and how women use them to exploit and rule men.

Are women weak and fragile?

Because it helps them to exploit men, women have a vested interest in making themselves look more fragile than they really are.

Women may not be as weak or fragile as they look; but aren't men certainly cleverer? Now, now; men the cleverer sex? These creatures that women fool with a bit of face paint here, some finery there, and a smile under dimmed lights? These gulls who can be subdued with a trickle of actress' tears, or confused with a sliver of thigh showing through a split in the skirt? These fools who, down through history, have been stuck with clearing the marshes, digging the coal, and getting bloodied in battle? They the cleverer sex? Ridiculous, simply ridiculous!

The illusion of female helplessness is also a handy weapon against men. Because men's chief interest in women is sexual, men are prone to think that women's chief interest in men is also sexual. In so doing, they overlook the point that men and women are biologically complementary rather than identical; and that, therefore, their main interest in each other would be complementary rather than identical. This elementary error is the key to men's historic inability to understand women.

By focusing on women's key interest, women's behaviour becomes readily understandable and far from mysterious. In brief, woman's mysteriousness is projected unto her by the muddled male mind.

[...]man may be the brawnier and brainier sex; woman is not the weaker but the wilier sex.

12. Man’s Fear of Woman

Nevertheless, if a man must choose between a Calypso and a Circe, which should he choose as his mate? Better a Calypso than a Circe, for Calypso's heart is not a block of flint. She knows what pity is; she has some sense of what is fair;

and one could negotiate a deal with her.

They are sometimes experienced as Ishtar, whose desire may neither be satisfied nor spurned without danger; or as Circe, the enslaving magician; or as the Sirens, the deadly enchantresses; or as Calypso, the gentle imprisoner and weakener of resolve; or as Eve, the temptress who communes with snakes and reduced man to a life of hard labour. Their common lesson to men is: FEAR WOMEN!

[...]the cowed man, even if stronger than his woman, is inhibited from freeing himself from her rule. Man's fear of woman establishes a psychological climate in which female power can hold sway without brute force.

13. The Baby as Wife's Weapon

A baby is a breathing, bawling, flesh-and-bones club with which a woman can beat a man down to the ground, and compel him to toil for her. Even an embryonic baby, a mere speck of a foetus in her womb, will do just fine when a woman wants to bend a man to her will.

[...]she can count on the baby's arrival to weaken his resolve.

Secondly, his male peers will pressure him to do his duty by the child, regardless of whatever hostility he may feel towards its mother for tricking him. Though animosity may grow between him and her, he will be urged to stay with her for the baby's sake. Which is why a baby is a powerful man-trapping weapon in a woman's hands.

If he wanted it out of a desire for an heir, or a successor, or an immortalizer of his name, his ambition would be defeated should anything adverse happen to the child.

Because of his ambitions for the child, the baby becomes a powerful instrument of blackmail in his wife's hands.

She rejoices because of the power which her first -born gives her over her husband. That power, she knows, comes from the duties which a father expects his first-born to perform for him, including keeping alive his name and freshening his memory among humanity after his physical death. Knowing that, she knows that their child is her certificate of entitlement to its father's support. She knows that she now holds him by something that is even stronger than law, custom and public opinion, namely his own ambitions. That is why she is now happy and content. Yes, indeed: a woman grabs a man by his balls, and then holds him securely by their baby.

Should the father of the child, for his part, attempt to leave its mother, she may threaten to deny him all future access to it.

14. The Penalties of Divorce

In strict Mohammedan countries, like Saudi Arabia, where matriarch power is probably at its weakest in the world, divorce is not very difficult for a man to obtain.

Where there is an absolute legal or moral sanction against divorce, marriage becomes, for the husband, a form of life imprisonment, with the hard labour of carrying a talking and nagging millstone around his neck. Where divorce is

allowed, but is hedged with discriminatory penalties against the husband (e.g. alimony; child custody rules that are weighted in the mother's favour; the ouster of the husband from his family house; the loss of half his estate to his wife; social censure; etc.), such penalties can keep a husband trapped for life in his wife's nest.

Against remaining in nest-slavery, he will weigh the following: 1) the vexation of making alimony payments with which she will support herself and some new lover; 2) the humiliation of being ousted from the house he built or has bought, and seeing it turned over to the woman he no longer loves; 3) the penalty of losing half of his estate to her, an estate he either inherited or won with his sweat; 4) the fear of her getting custody of their child, with him having to endure a partial or total loss of access to it; 5) the fear of social censure, with loss of prestige, in a society that will view him as a weak man who could not keep his wife.

Part V

Matriarchy and its Discontents

15. The Matriarch: Sovereign of Her Nest

[...]like any potentate, a matriarch wields over her court powerful weapons of persuasion and coercion. She can suggest or command or nag-nag-nag. She can quietly veto any of her husband's decisions which do not suit her. She can reduce the flow of her favours, or cut it off altogether.

A boychild may run away from home, but the matriarchist laws and customs of the larger society will seek to return him to his mother. If a husband absconds, the

matriarchist laws of the larger society will seek to return him to his nest duties, and to punish him for nest desertion; and should he decide to quit his nest duties permanently, he may find himself paying wife and child support dues in lieu of services he has chosen to default on.

If female power does not operate through large, formal organizations, it is because it doesn't need to.

Since the cardinal aim of female power is the procurement and management of a nest-slave by a nest-queen; and since, as we have seen, this one-on-one control operates mainly through intimate psychological manipulation; female power does not need those elaborate structures of formal authority which have evolved to control the large aggregates of persons required by the specialist activities of the male domain -namely, hunting and war and their modern extensions. In particular, grand councils of matriarchs are not necessary for the effective exercise of female power.

The nest or family home, where a woman is both mother and wife, is the seat of female power.

[...]female power also operates informal consultative bodies like sororities, kaffee klatches, gossip groups, and associations of the wives of generals, politicians, businessmen, etc. These suffice for exchanges of ideas on how to manage men, and for conspiracies against men which each wife then implements on her husband.

[...]matriarchy and patriarchy are, respectively, mother-rule and father-rule A nest (mother, father and children) has two heads: a female head and a male

head. A matriarch is the female head of a nest. A patriarch is the male head of a nest.

[...]the matriarch is the real head, with more of the actual power, the patriarch is the figurehead, with more of the aura of authority.

Matriarchy is a form of social organization in which the female head of a nest exercises dominant power in it, while the male head is her lieutenant who operates its formal machinery of authority.

Patriarchy is a form of social organization in which the male head of a nest operates its formal machinery of authority, while giving the impression of exercising dominant power in it.

So long as women exercise dominant power somewhere in the social system, that system is matriarchal, for it features mother-rule.

[...]the patriarchal subsystem specializes in the front structures of authority, the matriarchal subsystem specializes in back channel power.

The grand matriarchs[...]who rule the grand patriarchs who rule the world, are indeed the overall bosses of the world.

The relationship between grand patriarchs and grand matriarchs is this: the former, like a management team, run society in the interest of the latter who are, indeed, society's supreme stockholders.

Most women like being women, they are keen to get husbands to support them in the style they aspire to, and they wouldn't like to be men, or to live the way men do.

These privileges, which are available to all women, turn the lives of grand matriarchs (who enjoy them at the highest level) into the closest thing to paradise on earth. Unsurprisingly, the cardinal aim of elite matriarchs is to preserve the social arrangements which bestow these paradisiac privileges upon all women. And in furthering this aim, they can count on the support of the matriarchist majority of women.

16. Feminism: A Revolt in Paradise

Despite woman's paradise of privileges - privileges anchored on the womb, privileges of which most women are fully and happily aware - feminists claim that women are powerless, and are oppressed by men. They have therefore demanded a reorganization of society on the basis of equality between men and women. They say they want a world without roles assigned by gender: a world in which women share power and work and status equally with men - in the home and outside it, in the kitchen and in the office; in minding the mess and confusion of the children's play pen, and in managing the crises and disasters in the corridors of public power.

To help us assess feminism, we ought to note that, in their attitudes to men, there are three basic types of women: the matriarchists, the tomboys and the termagants. A matriarchist is a woman who believes that a man's natural or god ordained role in life is to serve some matriarch or married mother; and that the best way to get full service out of him is to make him think that he is his matriarch's boss.

A tomboy is a woman who would rather be a man. A termagant is a woman, whether tomboy or quasi-matriarchist, who insists on showing her man that she, not he, is boss; she therefore takes sadistic pleasure in harassing and bossing men.

Feminism is a movement of bored matriarchists, frustrated tomboys and natural termagants; each of these types has its reasons for being discontented in the matriarchist paradise that is woman's traditional world. Indeed, the career of post WWII feminism may be summarized as follows:

Bored matriarchists (like Betty Friedan) and frustrated tomboys (like Simone de Beauvoir) kicked it off; Termagants (like Andrea Dworkin) made a public nuisance of it;
Satisfied matriarchists (like Phyllis Schlafly) oppose it;
Non-militant tomboys (the female yuppies) have quietly profited from it.

Most men did not see feminist egalitarianism as the ruse that it was. Of the few who did, a mere handful glimpsed that feminism was not a revolt against oppression by men, but a clamour for additional privileges and opportunities for women.

Many non-feminist women understood the ruse in the egalitarian campaign of the feminists. While they were, understandably, less than eager to join a campaign which could endanger their paradise of traditional privileges, it was also not in their interest to expose it. In fact, for so long as feminism brought new opportunities to women, but without endangering traditional female privileges, many women were sympathetic to it. But when it became clear that gender equality might threaten their traditional privileges (by, for example,

requiring women to be drafted into infantry platoons), feminism lost many of its female sympathizers and fellow travelers.

In the USA, that threat emerged with the proposed Equal Rights Amendment (ERA) to the US Constitution.

What the anti-ERA women fought to protect was the traditional matriarchist arrangement where the husband takes responsibility for decision making, for earning the family income, and for the safety of his wife's nest. So many women wanted that arrangement preserved that they helped to stop the feminist tide at the gates of the ERA.

Epilogue:

On Masculinism

If the standard privileges of women make the world of elite matriarchs the closest thing on earth to paradise, then men, on whose risks and effort women's privileges rest, are the helots of woman's world. Even the grand patriarchs are but headmen among the helots; each is merely the chief public agent for the grand matriarch whose nest he serves.

To understand why men have not yet revolted in the wake of feminism, we ought to note that, in their attitudes to women, there are three basic types of men: the macho, the musho, and the masculinist. A macho is a brawny, and sometimes brainy, factotum who has been bred for nest slavery, and who is indoctrinated to believe that he is the lord and master of the woman who rules him. A musho is a henpecked version of the macho who hangs like a bleeding worm between the beaks of his nest queen. A masculinist is a man who is devoted to male liberty,

and who would avoid nest slavery.

The macho (or male chauvinist, or manly man) is a strutting factotum with bulging biceps, stone-dry eyes, brains that are ruled by his gonads, and an ego indoctrinated to believe that he is the lord and master of the woman who rules him. His psyche is primed to defend his woman's supposed honour from other men's advances. Thoroughly conditioned to serve women, his life satisfaction comes from loyally serving his nest queen. Naturally, he is the matriarchist's ideal man.

The modern musho (the new or feminal man) is one of that breed of diffident men who have been bullied, guilt-tripped, ego-bashed and penis-twisted into pram pushing, diaper changing and breast envy. He is the befuddled, henpecked male who lacks the wit to recognize his male interest.

The masculinist

In keeping with his commitment to the liberation of men from nest slavery, the masculinist would end the psychological, social and legal conditions for that slavery, and create instead conditions for equitable relations between the complementary sexes.

The masculinist is a libertarian. His commitment to men liberty, and his understanding of the conditions for male liberty, shape his beliefs.
The masculinist accepts that, contrary to what the macho believes and the feminist claims, it is a woman's world, and not a man's.

The masculinist accepts that, contrary to feminist propaganda and macho illusions, the arch enemies of feminism are not men, but that vast majority of matriarchists who do not wish to give up their traditional powers and privileges. Since patriarchy is but a facade for a basic matriarchy, the men whom feminists claim as their enemies are simply fall guys for the matriarchists. Masculinists, therefore, would redirect the feminist arrows to their proper destination, namely, matriarchy.

The masculinist accepts that, as the calypso songs say, "the woman is smarter" and "woman is boss". The masculinist accepts that men are the biologically more dispensable sex - which is why societies train men for high risk occupations like hunting and war, whereas wombs (and their carriers) are protected to maximize a society's reproductive capacity, hence its chances of survival.

The masculinist does not believe in being owned by any woman; nor does he believe in owning any woman. He recognizes that the owning of a human being by another was abolished long ago, and quite rightly too, and he has no interest in having the practice revived in any form.

The masculinist believes that every woman has every right to do whatever she wants with her body, except enslave a man with it.

The masculinist has no quarrel with love itself. He knows that a woman's love, when she is not nest-minded, when she is either pre-pubescent or postmenopausal, can be quite safe and pleasant for a man. But he also knows that it is rare, most rare, for a woman, between puberty and menopause, to indulge in non-nesting, non-predatory love.

To the masculinist, a wedding is a ceremony in which a woman is issued with a public licence to ride piggyback on a man and exploit him. He therefore does his best not to wed. He does not believe in marrying to obtain househelp. Unlike the macho; he finds it cheaper (financially, emotionally, mentally) to rent househelp than to marry it.

The masculinist does not subscribe to gallantry. He does not believe I that a man should open doors for, or give up his seat to, a woman.

He does not believe that it is for any man to defend any woman's honour. He believes that, if her honour matters to her, a woman is quite capable of defending it herself.

The masculinist believes that every woman should protect herself. She should learn karate and other martial arts so as not to depend on men for her physical defence. He believes that, since rape is better prevented than punished, martial arts, as well as anti-rape techniques should be standard items in every girl's education.

The masculinist believes that if it is all right for women to be feminists, it is all right for men to be masculinists. What is good for the goose is good for the gander: each should, therefore, define and protect its own interest.

But what is the male interest? Or rather, what are the sorts of things that are NOT in the male interest?

It is not in the male interest to be a nest-slave, or to be programmed for nest slavery. It is not in the male interest to be society's specialists in violence, war and other

dangerous pursuits. So long as these pursuits are necessary, men and women should equally engage in them.

It is not in the male interest to maim or slaughter one another in their competition for wombs.

It is not in the male interest to live in an environment that is polluted with sexual stimulants which weaken men's bargaining position in transactions with women. It is not in the male interest to be exploited through alimony payments and other rackets of divorce.

[...]how do matriarchism, feminism and masculinism relate to one another? Broadly speaking, feminism and masculinism are two different revolts against matriarchy. Feminism is a revolt by some women who are bored or frustrated within the matriarchist paradise; masculinism is a revolt by some of the helots on whose backs that paradise rests.

Matriarchists have been the expert exploiters of men since the beginning of human society. Their ideology, matriarchism, still demands the same thing from men: obedient and uncomplaining servitude. Since they are dedicated to nest slavery, matriarchism and matriarchists are most dangerous to masculine liberty; they are, therefore, the focus of the masculinist's freedom-loving scrutiny.

From the masculinist point of view, the demands of tomboy feminism are understandable, negotiable and mostly reasonable. Equal opportunities in the world of their brothers and fathers for those women who prefer careers in that arena? Yes. Equal pay for equal work? Yes, of course. But why, the masculinist wonders, do tomboy feminists limit their clamour for equality to the soft, white

collar jobs in the erstwhile male sphere? If, as they insist, equality should replace complementarity as the overriding principle in the gender division of labour, risk and status, then why do tomboys not demand that both genders be equally drafted into infantry platoons or coal pits? Should gender equality stop short at the edges of swamps, mine pits and battlefields? Until tomboys demand equal access to the nasty and strenuous jobs which men do, the masculinist can only be sceptical of tomboy feminism's good faith.

To the tomboy feminist who advocates gender equality, the masculinist would address this vital question: Is it fair to reorganize the centres of male power to accommodate women without also reorganizing the centres of female power to accommodate men? Upon the answer received would depend the masculinist's attitude to the tomboy feminist.

The demands of termagant feminism are another matter entirely. They are not demands with discernible remedies, but rather excuses for guilt-tripping, harassing and mauling men in the unhallowed tradition of harridans and shrews.

To termagant feminism belong those man haters who would legitimize man-killing for nest desertion (Jean Harris and her supporters), or even man-killing for spurned love (Ishtar style), on the implicit ground that a man has no right to choose whom to love, but must submit to any woman's offer of her embrace, like a slave to a tyrant's wishes.

To termagant feminism belong the palimony racketeers and the alimony extorters; and the man-humiliators who demand: "Love me, love my menstrual blood" (even in this age of aids?). Of termagant feminism, all sane males must beware.

Paradoxically, the tomboy is the masculinist's least uncongenial type of woman.

She is his partial ally in revolt against matriarchism; and, temperamentally, she is like a buddy with whom he could have sex and children.

He knows that probably nothing can be done about woman's relatively greater psychological maturity. But he also knows that much can be done, through cultural training, to whittle down woman's control of kitchen and cradle, and to reduce the deranging powers of the erect penis. He therefore welcomes feminist demands that men be obliged to work as baby-minders. When men get control of the cradle, they will be able to train children in the male interest, and so reduce the numbers of machos and mushos in the world. When men get control of the kitchen, female power over man's stomach will diminish. A man who cooks cannot be half-starved into submission, on any matter, by his wife. The masculinist believes in bringing about the revolt of the helots of matriarchy. Ah, what a different world it would be if only the macho ego would give up its ingrained stupidity and respond to the masculinist call: Men of the world unite; you have nothing to lose but your macho illusions and your nest-slave burdens!

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