Maintain youthful libido, sexual function, cardiovascular, bone, muscle, overall health.

The Gentleman's Guide to the Fountain of Youth

Chapter 3. Manhood Machine: Low to High Mileage

3.1 The Manhood Machine Fresh from the Showroom

Until the age of puberty both boys and girls are relatively undifferentiated, although there are differences even before birth. At 3 months past conception, the Y chromosome kicks in and the male fetus produces testosterone and the more active dihydrotestosterone (DHT) in the pelvic area, starts to develop a different set of genitalia, and begins growing a different architecture for brain function from that of a female fetus.

By the age of 13 there are obvious differences that make boys more like men and girls more like women. The differences are attributed to the endocrine hormones

testosterone in males and estrogen in females. Although both males and females have both types of hormones, the proportions of each determine the physical sexual characteristics and basic behavioral characteristics.

For males, the much higher levels of testosterone builds more skeletal muscle, heavier bones and greater strength (including heart muscle), and the transformed version of it (DHT) causes the primary male attributes (genitalia and prostate) to develop, while testosterone causes secondary male attributes such as whiskers, lean body form, lower pitched voice, and initiates the characteristics of robustness, aggressiveness and competitiveness. From about 17 years of age through the 20's, and usually into the lower 30's, normal males are strong, energetic, confident, have a feeling of immortality (immunity to accidents, diseases and bad fortune), are aggressive, enthusiastic and have high libido and great interest in the opposite sex. At this stage we are new manhood machines, driven out of the showroom. We feel good. Our muscles are toned, our joints are flexible and we are easily excited sexually. We are the young heroes.

The years of male youth span those years that form the high point era in a man's life, and that become known as "the good old days." Like Edith Piaff sang, "Those were the days, my friend, we thought they'd never end." These are the exciting, adventurous, and exploratory days that are never forgotten. Most men will never again feel

so good, healthy, so excitable, enthusiastic, and sexy as during this time of manhood fresh from the showroom.

But we are not yet broken in socially or aware that we are relatively inexperienced in life and as lovers prone to satisfying ourselves rather than our partners. Our over-confidence, inexperience and daring-do, coupled with little in the way of accomplishment make us appear somewhat boastful, loud, crude, rude and undesirable company unless we have been taught good manners and consideration of others at home. The females are attracted, but somewhat put off by our manner.

3.2 Lower to Higher Mileage: What Changes?

The manhood machine, still fairly fresh from the showroom, has high levels of crucial octane boosters in the fuel lines. One way to reveal what is changing over the years is to compare the corresponding levels of these crucial performance boosting hormones between machines of lower and higher mileage. Some striking differences are found (but the higher mileage machines can be restored, as we will see).

Testosterone is an androgen, or male hormone, that we all know about and that is produced in the testicles and also in some other places (liver, adrenals). But another more powerful androgen is *dihydrotestosterone*

(*DHT*) that is converted from testosterone by the liver enzyme *5-alpha reductase*. Men have high levels of these androgens (male hormones), while women have low levels. Women have high levels of *estrogen*, of which 3 subtypes are called *estradiol*, *estrone*, and *progesterone*, while men have low levels of estrogen. That is the natural way, anyway. It is clear from research that low testosterone-to-estrogen and low DHT-to-estrogen levels in men cause faltering sexual functioning and prostate problems, less muscle strength, lower bone density, and weaker heart muscle.

Another hormone is *cortisol*, the stress hormone produced by the adrenals to control the inflammations throughout the body and especially in the blood vessels. Such inflammation is caused by primitive cell hormones called *eicosanoids* produced by the cells to heal damaged tissue (we discuss this later). Low level continuing inflammation is an epidemic in the world today, so it seems that humans evolved in a different system of mostly quietude with sudden bursts of fight or flight situations on fairly rare occasion rather than a constant level of day-to-day stress and competition. Long term circulation of cortisol in the bloodstream increases insulin, a hormone that stores blood glucose as fat.

Cortisol also increases insulin resistance (described later) that can lead to Type II diabetes, can damage the hypothalamus (that senses the blood levels of hormones

and controls production by sending messengers of hormone molecules to the pituitary to send messengers to lower or raise the production of the hormones). Note that stress from job or business over the years can do this. When we are under stress, more cortisol is made from progesterone. But progesterone inhibits the conversion of testosterone to DHT, so more testosterone is allowed to be converted to DHT as a result.

Dehydroepiandrosterone (DHEA) is a sterone (prehormone associated with maleness in men) that is the most plentiful of all sterones in the blood. But it decreases steadily as the mileage increases on the manhood machine. Some of it converts to testosterone. It keeps the immune system strong, helps prevent cancer and senile dementia, and very low levels are associated with Alzheimer's disease. It also seems to aid the neural connections in the brain. It has become known nowadays as the major *anti-aging health supplement* because it lowers cortisol levels.

Table 3.1 lists some very important relative differences between lower and higher mileage manhood machines in a normal sense. Cases of disease and abnormality can be different, but we are not interested in those here (those are cases for medical doctors).

Table 3.1 - Low and High Mileage Machine Differences

	Low Mileage Machines		HighMileage Machines
Testosterone	High	⇒	Low
DHT	High	⇒	Low
DHEA	High	⇒	Low
Estrogen	Low	⇒	High
Cortisol	Low	⇒	High
Libido	High	⇒	Low
Prostrate Problems	None	⇒	Prevalent
Muscle Mass	High	⇒	Low
Strength	High	⇒	Low
Immunity	High	⇒	Low
SHBG	Low	⇒	High
Thyroid	High	⇒	Low
Aromatase	Low	⇒	High
5-Alpha Reductase	High	⇒	Low

In the last row, *SHBG* is *sex hormone binding globulin*, a protein that testosterone and DHT bind with to travel throughout the blood stream (too much of the binding reduces their ability to act as male hormones). The enzyme 5-alpha reductase converts testosterone to DHT. Aromatase is another enzyme that is contained mostly in body fat. It converts testosterone to estrogen (which is bad for men).

In Table 3.1 we need not explain Immunity, Strength or Muscle Mass, and we have already discussed Libido, Cortisol, Estrogen, DHEA, DHT and Testosterone. However, we will discuss *Prostate Problems* a lot, starting in the next section.

The differences shown in Table 3.1 are striking and show a logically consistent shift. So what about midway between lower mileage and higher mileage machines? There is a gradual shift, but it is faster at later stages. Any scientist worth his salt would ask "what is causing this."

There are some interesting biochemical actions that explain the "what." The "why" is a philosophical question that may relate to our evolution or to our designers, if such entities exist in a "higher plane." By understanding the "what" we can seek the "how" to overcome it so we can restore, maintain and tune our manhood machine to function well into extra high mileage.

3.3 Type I Gunk in the Manhood Engine

Table 3.1 shows the high testosterone and low estrogen levels for low mileage machines. That is the desired state for us, guys. The normal state for young men is to be lean. This means few fat cells. Fat cells contain the enzyme *aromatase* that converts testosterone into estrogen, including estradiol, the strong kind that

induces cell growth and the failure of cells to die (*apoptosis*) associated with breast cancer in women and prostate cancer in men. Too much estrogen emasculates a man, but as a man gets older his body's ability to eliminate estrogen declines without help. A 55 year old man may have more estrogen than a 55 year old woman.

To understand what happens, we need to know that cells have an outer membrane cover that has *receptors* in it for particular hormone molecules. The hormonal molecules bind to these receptors and pass through the membrane into the cell where they biochemically interact by means of amino acid (proteins) with cell DNA in the appropriate positions of certain chromosomes to cause certain actions. The field of biochemistry is on the verge of dramatic new breakthroughs in activating DNA for better health and longer life spans.

The estrogen in a man's blood binds to the testosterone receptors in the hypothalamus (the master controller of blood hormones that is located in the lower center part of the brain that samples the blood). This bound estrogen fools the hypothalamus into acting as if there were too much testosterone, causing the body's production of testosterone to decrease. This is done with messages (special types of hormone molecules) from the hypothalamus to the pituitary, which then sends secondary messages to the Leydig cells in the testicles to lower production. Testosterone and estrogen are actually

very similar chemically, but invoke different action from different locations of the cell DNA.

The more fat cells a man gets, the more aromatase there is in his body, which in turn converts more testosterone into more estrogen. Estrogen, in turn, causes the body to store more fat, much of it in places where women store fat. One result is flabby breasts (*gynocomastia*, known in gyms as *bitch tits*). This increases the level of aromatose, which in turn converts more testosterone into estrogen, etc. This vicious cycle continues unless a major change is made in lifestyle, which includes food, physical activity and stress avoidance.

Further, the resulting shortage of testosterone makes it harder to burn fat. The diminishing of testosterone, and thus DHT that some testosterone is converted to, leads to the weakening of skeletal and heart muscles, and loss of strength of bones and libido. From less DHT there is a loss of sexual function and diminution of the size of the genitalia. A clue to too much estrogen is the voice that becomes less masculine. Once started on that cycle, drastic health and conditioning action is needed - the sooner the better.

An easy way to *start* corrective health action is by walking 2 miles each day for 4 days per week (1 mile if you have been sedentary for months and have not walked

much, and then increasing to 2 miles after 3 weeks); eating mostly chicken, turkey, fish and other seafood, and fibrous vegetables while avoiding everything made with white flour or rice or sugar (but potatoes, yams, melons, raw apples and whole grain breads are permissible); completely avoiding all fried foods; and consuming lots of estrogen blocker foods (e.g., the cabbage family) or taking the stronger estrogen blocker supplements *indole-3 carbinol* (I3C) from health food stores and taking zinc supplements. I3C, soy products such as soy yogurt or tofu, along with zinc supplements and long walks outside (without sun glasses) are effective. In 3 weeks a definite difference will be felt, provided that no DHT blockers are taken (such as saw palmetto or the prescription drugs finasteride, also known as propecia or proscar) because they cause sexual dysfunction.

3.4 Type II Gunk in the Engine

Table 3.1 shows that low mileage machines have low cortisol, while higher mileage machines have high cortisol. Cortisol (which is sometimes called cortisone or hydrocortisone) is a hormone produced by the kidneys to control inflamation. It is also increased by any kind of stressful situation. When there is stress or damage to tissue, a primitive form of cell hormones, the *eicosanoids*, are produced by the cells to induce inflammation to help repair tissue or to fight foreign bodies in the blood (there

are lots of these particles in the air we breath, water we drink and food we eat, as well as chemicals that come into contact with our skin).

The eicosanoids cause the blood vessels to swell and stretch thin so that white blood cells and liquid can pass through the blood vessel walls into the tissue (this generates redness, swelling, heat, and puss, but it is necessary for healing). Cortisol comes to the rescue as a control. But the blood vessels suffer damage from this over time, so cardiovascular disease may follow.

Cortisol is also increased when, e.g., one has a deadline to get a report in tomorrow but there are also two other important things that must be done immediately (pressure, or stress, at work or business). Cortisol is synthesized from progesterone and thus lowers the level of progesterone, diminishes the level of testosterone in the blood, and so it lowers the testosterone/estrogen ratio. Progesterone is a female hormone (to produce prolactin for breast feedng) that is also helpful in males to counter-balance the bad estrogen (estradiol).

If higher than normal levels of cortisol continue on a long term basis then the cells become *insulin resistant* (it becomes difficult for the insulin to bind to insulin receptors in the cell wall and get the glucose inside of the cell) so the cells can't get the energy they need, even

though the pancreas is producing more insulin in an attempt to overcome this resistance. Thus people feel exhaused even though they have been sitting all day, and hungry when they are somewhat full. This causes fat gain (insulin stores blood glucose on the body as fat), can damage the endocrine glands and the hypothalamus, kill nerve cells, depress the immune system, and damage the control system for our hormone balance. Ultimately it can lead to heart attack because of the clogging of arteries due to plaque buildup at inflamed areas.

The current epidemic in the US of constant low level inflammation throughout the body and high cortisol levels is spreading to other countries. It causes obesity and the body damage stated above. It is associated with, and likely causes, degenerative diseases that accompany aging such as obesity, diabetes, arthritis, heart disease, alzheimer's disease, depression, and possibly many others. For a man, it causes a loss of libido and vitality because cortisol lowers the levels of testosterone (and progesterone) in the blood and energy in the cells.

Cortisol lowers progesterone, an antagonist to estradiol, and this permits the estradiol to run amok and attach to DHT receptors in the prostate, causing *benign prostatic hyperplasia* (BPH), i.e., swelling of the prostrate. This results in difficult, partial and frequent urination and can lead to prostate cancer. Cortisol also causes the burning of muscle protein that burns faster in

an emergency (it is converted to glucose first), and thus reduces muscle mass. In summary, cortisol in anti-manhood.

As cortisol increases in higher mileage manhood machines, so does the estrogen due to higher insulin levels and the storage of more fat (and thus more aromatase in fat cells). How can this be controlled somewhat? *DHEA* (*dehydroepiandrosterone*) can control high cortisol. DHEA is produced by the adrenal glands (from cholesterol) in profuse quantities at age 20, but tapers off until there is very little by age 70. DHEA is important for the immune system and in the connections of brain neurons. It is a good health supplement for men over 45 years of age. But there is good news and bad news.

The *good news* is the fact that DHEA suppresses cortisol levels. For manhood machines of higher mileage, DHEA is good (and cortisol is bad), so we would expect that taking DHEA to control cortisol would be a good idea. The *bad news* is that DHEA converts to testosterone, which in turn converts to bad estrogen and this estradiol can cause BPH and prostate cancer (estradiol also causes breast and uterine cancer in women, which is at epidemic levels around the world). It is not that estradiol is not useful and needed, but it is that there becomes too much of it so as to cause too much cell growth (proliferation).

3.5 Reving the Horsepower Up or Down?

Testosterone is the horsepower for any manhood machine because it yields bone and heart and skeletal muscle strength, but DHT powers the sexual functions. Some testosterone is converted to DHT by the enzyme *5-alpha reductase* that is produced in the liver. Lower mileage machines produce lots of 5-alpha reductase and so they have high levels of DHT. Yet they have no prostate problems with these levels of DHT, which is critical in the growth and development of the male genitalia. But DHT is also crucial to the erection, ejaculaton and orgasm functions. The profuse DHT receptors in the cells of the prostate and genitalia are laced with bound DHT for this. We see from Table 3.1 that machines of higher mileage have less DHT, so they need more, not less of it.

We know there is less testosterone to convert to DHT and less 5-alpha reductase to do the conversion, which accounts for the lower levels of DHT (the levels of 5-alpha reductase decline with increasing mileage). So even if the high octane fuel testosterone is given, it effectively increases the estradiol, which attaches to the prostate and genitalia cell receptors for DHT and testosterone, passes through the cell membrane activates certain female related cell DNA to create a contradiction of effect that stymies the male function.

Further, a standard treatment for prostate swelling consists of the herbs saw palmetto and stinging nettle, or drugs (finasteride, also known as propecia and proscar) to inhibit the production of 5-alpha reductase and thus lower the conversion of testosterone to DHT. This blocks the formation of DHT that is more prevalently attached to receptors in the prostrate and genitals where it is needed for erection, orgasm and ejaculation. Some recent research with rats shows that it is not DHT that causes prostate swelling and cancer, but the estradiol that attaches to the DHT receptors in the cells. This indicates that the medical establishment is responsible for the epidemic of prostate cancer in the United States because they do not accept valid knowledge from outside sources.

The combination of DHT and estradiol together yield an overload of cell growth stimulation on the genitalia and prostate. It is safe to say that in higher mileage machines, relatively more testosterone is being converted to bad estrogen (estradiol), and less is converted to DHT, which is the opposite trend from lower mileage machines. There may be less testosterone being produced in higher mileage machines, but it is sufficient if estrogen is low, except in fairly rare cases. The simple solution here to prevent sexual dysfunction is to block the estrogen and not the DHT, but this contradicts the wisdom of the medical and pharmaceutical establishments.

The combination of cortisol and aromatase together can essentially defeat testosterone by lowering the ratio of testosterone to estrogen. Testosterone is the primary agent for muscle mass and strength, so it is not very surprising that higher mileage machines lose muscle mass and strength. Testosterone is the driving force for libido, competitiveness, strong heart muscle, muscle strength, bone strength, and secondary male characteristics such as whiskers and a lower pitched voice, so when estrogen dilutes it by occupying its cell receptors, there goes one facet of manhood.

But the ratio of DHT to estrogen is also lowered, which negatively affects erection, ejaculation, orgasm and genitalia size, so there goes yet another facet of manhood (what is left after these?). So, we feel ever more dismayed as our manhood slips away due to estrogen.

Testosterone has a relatively short life span due to metabolism in Phase I enzymatic action in the liver. On the other hand, estrogen has a relatively longer life span because it takes both Phase I and Phase II enzymatic action (and plentiful zinc) for the liver to eliminate it. DHT can not be aromatased into estrogen, which is an enormous advantage over testosterone. It also appears that DHT combines in some fashion with aromatase to inhibit it from converting testosterone into estrogen. DHT also lasts longer in the tissue and creates more androgen receptors in the cells. It impacts the central

nervous system to a much greater extent than testosterone does, which means it helps the coordination of the skeletal muscles. Neurons are rich in DHT receptors.

Rats given extra DHT instead of DHT blockers responded positively. The medical establishment is doing it wrong and is contributing to the epidemic of prostate cancer and sexually dysfunctional males. This robs millions of men of a quality life. But the state laws are on the side of the medical establishment.

3.6 High Octane Fuel Diluted

Both DHT and testosterone bind to the proteins SHBG (sex hormone binding globulin) and albumin in about even proportions to each protein. Because DHT binds to SHBG much more easily that does testosterone, more DHT causes less testosterone to be bound. It is the amount of free (unbound) testerostone in the blood that is effective (musculature and strength, secondary male characteristics). The bound hormones are transported throughout the body and some are released at various times to attach to cell receptors.

But SHBG increases with age and thus ties up too much male hormone. Estrogen causes the body to produce more SHBG, while testosterone decreases the

production of SHBG. A manhood machine with higher mileage and less testosterone will produce more SHBG and so will have even less *free testosterone*, which is the kind that matters most (the normal levels of free testosterone are 2 to 3 %). This is a strong justification for taking estrogen blockers.

3.7 Engine Processes: the Big Picture

Figure 3.1 shows many of the interactions, which are difficult to display because of the ways the different biochemicals affect each other. The biochemistry of the human body is extremely complicated with pro and contra forces controlling everything. We sum up some important actions.

> *testosterone and aromatase => estrogen* (reduces testosterone)

> *estrogen => extra fat* (weight gain)

> *extra fat => more aromatase* (in fat cells)

> *more estrogen => more SHBG* (binds up testosterone and DHT)

> *SHBG and albumin => less available testosterone and DHT* (they bind to these)

> 5-alpha reductase and testosterone => DHT (male sexual functions and fullness of genitalia size)

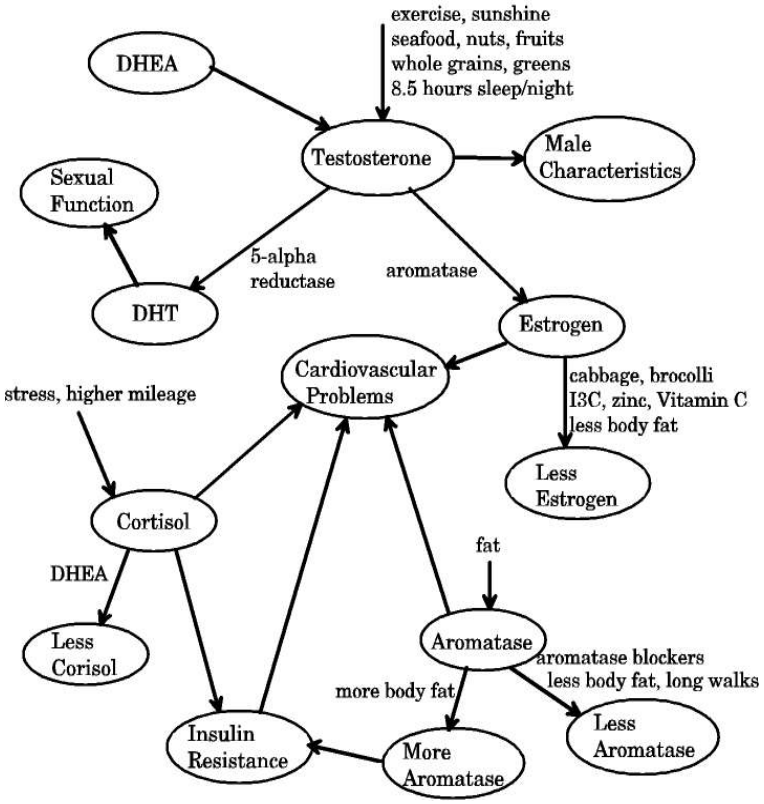
> less testosterone => lower muscle mass, strength, libido, heart health and bone strength

> less DHT => less nerve coordination, weaker erection, weaker orgasm and ejaculation, shrinking genitalia

> more mileage => more SHBG, less 5-alpha reductase (less male hormones available)

> more progesterone => less DHT, more testosterone

Figure3.1. Some Important Interactions



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