

## Chapter 6

### Boost Testosterone by Avoiding These Items

#### 1. Avoid Soy and Soy based products

- Soy contains phytoestrogens called isoflavones that mimic the activity of the hormone estrogen in your body.
- Soy contains goitrogens, substances that depresses thyroid function, which lead to reduced anabolic hormone production in men of all ages.
- The extremely high phytate content of soy inhibits the absorption of calcium, magnesium, iron and zinc from foods. These nutrients are absolutely critical for optimal male hormone production and testicle function.

#### 2. Avoid ingesting Fluoride

- Fluoride is more toxic than lead, but slightly less toxic than arsenic.
- May cause severe dental fluorosis and crippling fluorosis
- Can cause arthritic symptoms and bone fracture well before the onset of crippling fluorosis, and can affect many other tissues besides bone and teeth, including the brain and thyroid gland. There is also evidence that links fluoride to a serious form of bone cancer known as osteosarcoma.
- Prolonged exposure to varying levels of fluoride can damage the brain, particularly when coupled with an iodine deficiency or aluminum excess and 37 human studies link moderately high fluoride exposures with reduced intelligence (IQ).
- Evidence of several types indicates that fluoride affects normal endocrine function
- Studies have found that high-fluoride exposure is associated with reduced male testosterone levels.
- Research shows that consumption of fluoride is linked to numerous health conditions including a common condition called hypothyroidism.

### 3. Avoid BPA's (Bisphenol A & B)

- Fat Producing Chemical Infused into Plastics that mimics Estrogen
- Originally developed as a estrogen replacement
- Bisphenol-A is a xenoestrogen associated with various reproductive disorders in animals
- BPA has also now been linked to heart disease, obesity, diabetes and liver dysfunction. One recent study shows that those with Bisphenol-A tissue levels in the top 25% were twice as likely to suffer from heart disease.
- Dangerous residue levels of Bisphenol-A have also now been found in an abundance of paper products. This includes just about every paper product imaginable including "napkins, toilet paper, tickets, food wrappers, newspapers, and printer paper." These levels are much higher than even those found in canned goods and can be absorbed through the skin. Receipts are particularly risky.
- Never heat food in plastic containers, especially in the microwave
- Do not put hot liquids into plastics

### 4. Avoid Soaps and Shampoos that contain:

- Ingredients ending in Paraben
- Sodium Lauryl Sulfate - Once it has been absorbed, one of the main effects of sodium lauryl sulfate is to mimic the activity of the hormone Oestrogen and may be responsible for a variety of health problems including a reduction in male fertility.
- Sodium Laureth Sulfate (SLES) - somewhat less irritating than SLS, but it cannot be metabolized by the liver and its effects are therefore much longer lasting.
- Propylene Glycol - slightly toxic to the skin and eyes and is toxic in large doses if ingested. The compound is absorbed through the skin, meaning that large surface exposures result in symptoms similar to those produced through ingestion. In particular, propylene glycol causes damage to the central nervous system, which includes the brain and spinal cord.

## 5. Avoid products that contain Phthalates

- Chemicals found in large quantity mostly in flexible plastics but also used in hundreds of agricultural, commercial, residential and consumer products.
- Common Abbreviations: DBP, DEP, DEHP, BzBP, DMP
- 1982 study showed that phthalates shunted testosterone-boosting zinc away from the testes and a study a few years later verified this and noted actual testicular atrophy (shrinkage).
- Other symptoms linked to phthalates include:
  1. Feminization in males
  2. Lowered Testosterone.
  3. Lowered Fertility - linked to lowered sperm quality and DNA damage
  4. ADHD
  5. Altered thyroid function
  6. Insulin Resistance and Diabetes.

## 6. Avoid foods containing High-Fructose Corn Syrup

- HFCS is broken-down by the liver, which can lead to health problems such as fatty liver, and it has also been proven that the liver converts fructose into fat far easier than it does natural sucrose.
- The human body can digest natural sugar more easily than high fructose corn syrup
- HFCS takes longer for the body to digest and rises insulin levels higher than natural sugars which can lead to a higher risk of developing diabetes

## 7. Avoid foods containing Butylated Hydroxyanisole (BHA)

- Used in foods such as chips, sausages and cereals as a preservative and stabilize.
- Classified as a human carcinogen and may cause an increased risk of cancer
- BHA is an endocrine interrupter and negatively affects the endocrine system and has detrimental effects on development and reproductive, immune and neurological functions.

### **8. Avoid foods containing Nitrates**

- Used to preserve color and flavor in cured meats and fish
- Research has found that Nitrates may be the cause an increased risk of heart disease by 42% and type-2 diabetes by 19%.

### **9. Avoid the ingestion of Atrazine**

- Atrazine is the most commonly detected pesticide contaminant of ground water, surface water, and precipitation.
- Atrazine is an endocrine disruptor that, among other effects, alters male reproductive tissues when animals are exposed during development.
- Atrazine de-masculinizes male gonads producing testicular lesions associated with reduced germ cell numbers in teleost fish, amphibians, reptiles, and mammals, and induces partial and/or complete feminization in fish, amphibians, and reptiles.

## **SUPPLEMENTS THAT “MAY” BOOST TESTOSTERONE**

Below is a list of Supplements that may improve hormone balance, boost testosterone, block the production of excess estrogen, improve libido, prostate health, energy, muscle recovery and decrease fat. This assumes that you have an intact and functional H-P-T Axis. Best advice is to get labs first as a baseline before starting any of these supplements and work closely in concert with your physician.

### **1. Silybum Marianum (Milk Thistle)**

- Essential in supporting healthy liver function, and depending on the health of the liver, can help rebuild parts of it as well. In order for the prostate to remain healthy, your liver should remain in optimal condition in order to continue to effectively remove toxins from the body. Milk thistle not only protects the liver, it acts as a detoxifying agent in the body.

## 2. Diindolylmethane (DIM)

- A natural substance formed when the human digestive system breaks down cruciferous vegetables (broccoli, cabbage, cauliflower, etc.)
- In small amounts, it can both inhibit the aromatase enzyme (and prevent conversion of testosterone into estrogen) and it can act on more potent forms of estrogen and convert them into less potent forms; this conversion reduces the overall effects of estrogen in the body. However, taking too much DIM at once can actually induce the aromatase enzyme and act in the opposite manner and increase estrogen synthesis.
- In regards to androgen metabolism, DIM appears to be a strong antagonist in human prostate cancer cells.

## 3. Resveratrol

- There appears to be an increase in insulin sensitivity seen with resveratrol at doses low enough to be achieved via wine consumption, all tests currently in obese and unhealthy persons.
- A significant decrease in circulating TNF $\alpha$  levels have been detected with resveratrol supplementation; linked to anti-inflammatory effects of resveratrol.

## 4. Coleus Forskohlii

- Increase cAMP in fat cells, which increases the rate of fat loss and can make other fat burners better at fat burning.
- Shown to increase Testosterone levels in men, have some anti-cancer effects, some anti-inflammatory effects, and interacts with muscle tissue
- Increasing cAMP can in part mimic caloric restriction and exercise, as cAMP is a signal of energy deprivation or energy usage.
- Increase of testosterone observed in men not overly potent and is highly variable.

### **5. Phosphatidylserine (Sunflower based)**

- Phosphatidylserine reduces the amount of free cortisol in your body and helps keep cortisol levels in a balanced, cyclical rhythm. Phosphatidylserine has been shown to reduce post-workout muscle soreness, hasten recovery, increase fat loss and promote muscle growth.
- No significant influence on testosterone noted with PS supplementation.

### **6. Mucuna Pruriens (Cowhage)**

- A bean-like plant grown wild in tropical climates
- Provides a neurotransmitter pre-cursor called L-Dopa, the amino acid compound the body uses to make Dopamine.
- Healthy levels of Dopamine improve energy, mood, mental focus, and motivation.
- An increase in testosterone is seen in infertile men. It is unsure if this increase in testosterone occurs in fertile and otherwise healthy men.

### **7. Niacin (Vitamin B3) (Nicotinic Acid)**

- Helps the body metabolize glucose from food to produce energy
- Niacin is most often touted for lowering LDL cholesterol (the bad kind), protecting against cardiovascular disease and boosting HDL cholesterol (the good kind).
- Additionally, niacin plays a role in the production of hormones, including sex-related and adrenal hormones.
- Evidence that it helps reduce atherosclerosis, or hardening of the arteries.

## 8. Tribulus Terrestris

- Flowering plant that is native to the temperate and tropical regions of southern Europe, Asia, Africa, and Australia.
- Supplementation stimulates androgen receptors in the brain
- In otherwise healthy males, testosterone is not influenced with supplementation of *tribulus terrestris*. There may be an increase in infertile men, but this is weak.
- In infertile men, supplementation of 6g tribulus root appears to increase rigidity of erections and improve performance (reduce anxiety while delaying ejaculation and improving orgasm).

## 9. Fenugreek seeds

- Indigenous to India and North Africa, *Trigonella foenum-graecum*, more commonly known as fenugreek, is used in traditional medicine for treating arthritis and sexual dysfunction.
- Although there is limited evidence to support an increase in testosterone, more evidence than not denies such an increase.
- Increases in libido have been noted before, which is notable due to the lack of significant influence on testosterone and possible suppression of DHT (theoretically should reduce libido, yet a large increase is seen with fenugreek)

## 10. Avena Sativa (Oat Straw or Panax pseudoginseng)

- Used in sexual supplements is also used to treat mood and anxiety
- Used to relieve pain; and to reduce swelling, cholesterol, and blood pressure. It is also used for chest pain (angina), strokes, dizziness, and sore throat.
- May increase testosterone in infertile men, has also failed in fertile men to influence testosterone; likely a mere antioxidative effect in damaged testicles.
- An improvement in erectile dysfunction is seen with 3g of Korean Red Ginseng (fermented panax ginseng, regular panax ginseng not as well tested), which is thought to be secondary to anti-fatigue effects and improved blood flow.

**11. Suma (Brazilian Ginseng)**

- The dried root of *Pfaffia paniculata*, a plant native to the Amazonian rain forests.
- May boost the immune system and combats low energy or fatigue
- No alterations noted in serum testosterone associated with ecdysterone consumption.

**12. Ashwaganda (Winter Cherry)**

- A shrub cultivated in India and North America whose roots contains flavonoids and many active ingredients of the withanolide class
- Testosterone may be increased in infertile men (who have a reduction in testosterone), but there is currently no evidence to suggest an inherent testosterone boosting effect in otherwise normal men.

**13. Tongkat ali (Malaysian ginseng)**

- Used to treat male infertility and chronically low testosterone levels in men.
- There is no evidence to suggest an inherent testosterone boosting effect in otherwise normal men.
- Contains quassinoids such as eurycomalacton, eurycomanon, eurycomanol and has been reported to have aphrodisiac properties and to increase testosterone levels in men.
- Test results suggest that water-soluble extract of Tongkat Ali increased fat free mass, reduced body fat, and increased muscle strength and size.

**14. Catuaba**

- A medium-sized tree found in the Amazon forest in the northern part of Brazil
- Catuaba bark is considered a central nervous system stimulant with aphrodisiac properties and a bark decoction is used for nervousness, poor memory, and sexual weakness

### 15. Maca (Andean Ginseng)

- Plant grows in Peru
- Prized as a nutritious food rich in fiber, amino acids and essential fatty acids.
- Study found men who took maca for four months had a significant increase in motility, sperm count and semen volume
- No significant influences on testosterone in any tested demographic.
- Studies have shown that maca might help reduce enlargement of the prostate, a condition known as benign prostatic hyperplasia by acting on androgen receptors in the prostate, preventing the binding of hormones that fuel prostate growth.
- An increase in erection frequency has been noted in men, likely related to the libido enhancing properties.

### 16. Muira Puama

- Study showed that short-term effects of supplementing with Muira Puama rapidly increased blood flow to the genitals, increasing sexual function and sensations for both men and women. Long-term use of this herb showed to enhance the production of sex hormones in both male and females alike.

### 17. Nascent Iodine

- Nascent Iodine holds an electromagnetic charge and is iodine in its atomic form.
- May work to naturally balance the thyroid to a state of homeostasis
- Stimulates thyroid production of T3 (triiodothyronine) and T4 (thyroxine) hormones
- May help stop bromine, chlorine, and fluoride storage in the body, and slow the production of goitrogens.
- Best form of iodine to protect the body from harmful radiation exposure

## 18. Krill Oil

### Benefits of Krill Oil:

- The Omega-3 fatty acids in krill oil are known for their anticarcinogenic properties; they also prevent cardiovascular diseases and optimize the immune system. Research has also shown that a regular intake of Omega-3 fatty acids improves memory and other brain functions.
- Krill oil is a major source of choline, which is extremely important for cellular health and early brain development. Choline is present in krill oil in the form of Phosphatidylcholine, which is very important in the formation of all cell membranes; it is also responsible for the proper communication between the brain and the various parts of our body.
- The Astaxanthin contained in krill oil is one of the most powerful antioxidants in nature. Antioxidants are known to neutralize free radicals, which can cause cancer and various other chronic diseases. Unlike most antioxidants, Astaxanthin is able to cross the blood brain-barrier, thereby protecting the brain from free radical damage.
- Regular krill oil supplementation helps lower LDL cholesterol or “bad cholesterol”, preventing serious cardiovascular diseases.
- Consumption of krill oil helps even out blood sugar levels preventing diabetes; it also helps diabetics keep their blood sugar levels in check.
- A recent study has shown that daily consumption of krill oil (300mg) helped reduce pain and stiffness in arthritis patients.
- Anecdotal evidence suggests that krill oil helps in reducing the symptoms associated with PMS (Premenstrual Syndrome).

**19. Bulbine Natalensis**

- An indigenous African botanical that is traditionally used in South African herbal medicine to improve potency in men
- Test results demonstrate that it helps to boost testosterone, progesterone, luteinizing hormone and follicle-stimulating hormone levels and decrease estrogen levels. Bulbine Natalensis appears to adversely affect the structure of the liver and kidneys at dosages used to increase testosterone. **Not recommended and not safe.**

**BOOST TESTOSTERONE BY CONSIDERING THESE ITEMS**

Buy / Use	Reasons / Effects on humans
1. Organic Meats and Produce	Limit toxin exposure
2. Natural Soaps and Shampoos	Limit toxin exposure
3. Use only glass containers	Limit toxin exposure

**A Case for Glass Containers**

There is a rather large toxic threat that we face on a daily basis and that is from plasticizers, which are a family of compounds that have been used for decades to keep plastics flexible. They are found practically in every commercial product and are everywhere. The most familiar is BPA; this persistent chemical does not break down and likes to accumulate in fat tissue. Studies have demonstrated that the levels of BPA found in the fat tissues and urine of humans were at the levels that have been found to be harmful to other species on our planet. BPA belongs to a rather large family of chemicals referred to as endocrine disruptors. Why is this a problem? The endocrine system is our bodies’ communication and messaging superhighway, it is how glands talk to organs and tissue. If this messaging system gets disrupted then our crucial hormonal messages are being negatively altered.

BPA binds to the receptors on our cells that our hormones use to regulate our hormonal and physiologic functions. What BPA does is play “king of the hill” with our hormones. When BPA displaces our hormones, knocking them off their respective receptors, taking their place, BPA now sends altered cellular messages. What I find particularly disturbing is that it takes only a very small exposure to these endocrine disrupting chemicals to create changes in cellular communication and health changes.

So what can you do to get away from these endocrine disrupting chemicals? Avoid using commercially packaged foodstuffs as much as possible. Prepare your own food; use organic meats, fruits, vegetables, and nuts. When it comes to storing your foods, use glass storage containers and avoid using any plastic container, and especially do not reheat any food in a plastic container is a good way to play it safe.

**Plastic recycle codes 1-7: These are the most common daily plastics consumers use.**

Code	Name	Common Use	Recommendation
	<b>PET</b> Polyethylene Terephthalate	Plastic bottles (soft drink, single use water bottles).	Be careful. Designed for single use only. Extended use increases risk of leaching and bacterial growth.
	<b>HDPE</b> High density Polyethylene	Grocery bags, detergent bottles, milk and juice jugs.	Appears to be safe.
	<b>PVC</b> Polyvinyl chloride	Garden hose, cable sheathing, window frames, blister packs.	Avoid. Nicknamed the Poison Plastic, contains many dangerous toxins.
	<b>LDPE</b> Low density Polyethylene	Heavy duty bags, bread bags, plastic food wrap.	Appears to be safe.
	<b>PP</b> Polypropylene	Medicine bottles, cereal liners, packing tape, straws.	Appears to be safe.
	<b>PS</b> Polystyrene	CD & video cases, plastic cutlery, foam packaging.	Avoid. May leach styrene, a possible human carcinogen. May be a hormone disruptor.
	<b>Other</b> <b>PC</b> Polycarbonate	Baby bottles, water cooler bottles, car parts.	Caution: Concern with leaching of Bisphenol A which appears to cause chromosomal change.

**Low T Patient Profile: Too Much Too Young**

Mark - Age 27: Works At Local Pesticide Company

27 year old, 5’ 5”, 127lb, male with recent visit to a “commercial clinic” for Low T and was given 200mg of testosterone cypionate and now “feels bad,” complains of pounding in chest, feeling anxious and wired and cannot rest.

**Labs:**

Glucose: 88 mg/dL	Free Testosterone: 26.5pg/mL
HgA1c: 5.2	Sensitive Estradiol: 23.0pg/mL
Liver panel: normal	DHT: 78ng/dL
CBC: normal	SHBG: 24.0nmol/L
PSA: 0.9	DHEA Sulfate: 330/dL
Insulin: 7.0uIU/mL	Vitamin D: 48.2ng/mL
Lipid Panel: normal	Serum Iron: 113ug/dL
Prolactin: 6.2	Serum Ferritin: 195ng/mL
Cortisol AM: 19	TSH: 1.0 uIU/mL
LH: 0.1 mIU/mL	fT3: 3.6 pg/mL
Total Testosterone: >2000ng/dL!!	fT4: 1.19 ng/dL

**Pre-TRT Labs at commercial clinic:**

Total Testosterone: 533ng/dL  
Free Testosterone: 10.5pg/mL

**Physical Examination revealed:**

Obviously agitated demeanor  
Normal blood pressure 123/76  
Average testicles  
DRE: unremarkable

**Considerations for Differential Diagnosis:**

Iatrogenic Androgen Excess  
 Daily Pesticide/Herbicide exposure  
 DHEA Deficiency  
 Vitamin D deficiency  
 Zinc deficient by Zinc Tally Test

**Therapy and Recommendations:**

Recover H-P-T Axis	Omega 10 one daily
Organophosphate detox	Vitamin D 5000IU Sublingual QD
10-15 minute Sauna daily	DHEA 25mg twice daily
Testralin two daily	No Alcohol
Zinc 75 mg two daily	No caffeine
Restorative Sleep in bed by 10PM	
Recommend no further testosterone delivery	
10 Day Liver Detoxification along with a Mediterranean diet	
Alpha Lipoic Acid daily: <i>α-lipoic acid (LA) is a pleiotropic compound with potential pharmacotherapeutic value against a range of pathophysiological insults.</i>	

**Subjective Patient Report**

Feels better and has taken another job

**Follow Up Lab at 90 days:**

Liver panel: normal	DHT: 42 ng/dL
CBC: normal	SHBG: 22.0nmol/L
Lipid Panel: normal	DHEA Sulfate: 379.0ug/dL
Prolactin: 6.0	Vitamin D: 66.2ng/mL
Cortisol AM: 17.0	Serum Iron: 145ug/dL
LH: 5.2 mIU/mL	Serum Ferritin: 195ng/mL
Total Testosterone: 662ng/dL	SH: 1.0 uIU/mL
Free Testosterone: 13.0pg/mL	fT3: 3.7 pg/mL
Sensitive Estradiol: 19.6pg/mL	fT4: 1.09 ng/dL

**Take Home Point:**

**Limit your daily toxic exposure!**