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WHAT'S THE DEAL WITH ANDROPAUSE?

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In the beginning, it can be difficult to recognize and easily dismissed. It might start with lowered immune function, maybe a little irritability and unexplainable fatigue, or perhaps difficulty sleeping. Slowly, the symptoms can increase and others appear, including hair loss, depression, the typical actions of a "mid-life crisis," and erectile dysfunction. This cascade of events is often due to andropause (AKA the "male menopause" or hypogonadism). It is the decline of androgens, such as testosterone and dehydroepiandrosterone (DHEA) in men. Although andropause does not appear as abruptly as menopause does for women, it is just as devastating. And what's more, practitioners are noticing the appearance of low hormone symptoms earlier and earlier in life, sometimes in young teenagers.

But let's start with the roles of testosterone and DHEA. Libido often comes to mind, and although important, it is only one of many biological expressions of these two hormones.

TESTOSTERONE

Testosterone is anabolically the most powerful of the androgenic hormones. In men, it is produced in the adrenals and testes. It is the hormone that gives men the feeling of comradery and compassion, and one of the reasons they are less susceptible to autoimmune diseases than women. Of course, testosterone is vital in keeping many other physiological functions working properly as well, including the cardiovascular system, spontaneous erections, normal libido, and ejaculation.

On average, a man's testosterone level begins to decline at a rate of 1% per year once he reaches the age of 35 or 40. One may be considered hypogonadal (having low testosterone) at any age if his total blood level of testosterone is less than 200ng/dl. Unfortunately, patients are frequently told their blood levels are fine, even when they are between 300 and 500. These levels may be considered "normal" because they are "in range," but may still represent up to an **80% reduction** from youthful peak testosterone levels. Basaria

and Dobs of Johns Hopkins University recommend that elderly men with symptoms of hypogonadism and a total testosterone level of 300ng/dl or less should start hormone replacement. But what about young men with those same levels? They are also being told by their physicians that their lab values are in range and therefore just fine. After all, testosterone is now a controlled substance and some practitioners don't want to go there unless they have to. However, many men need interventions long before their levels become that low. Most men feel best and are healthiest when their testosterone is somewhere between 700-1500 ng/dl.

DHEA

The age related falling off of the adrenal hormone, DHEA, is another cause of andropause and of low testosterone, since the latter is made from DHEA. In fact, DHEA is a precursor to as much as 50% of the testosterone produced by the body. Men make twice as much DHEA as women. However, by the time a man is 40, his DHEA level will most likely be 1/2 of what it was at 20! By the time a man is 80 years old, the chances are good his DHEA production will be less than 5%.

DHEA is produced in the adrenals, testicles, and brain of men. It is one of the most important stress-busting hormones. It is also the second most anabolic hormone. It is necessary for tissue stamina and function. Among so many other attributes, it is an antioxidant, antidepressant, helps produce and maintain energy, facilitates proper cellular functioning, preserves ocular health, prevents type II diabetes and cardiovascular disease, and is neuro-protective.

Many patients have never heard of DHEA and so will not ask for it to be tested as they age. Many doctors do not thoroughly understand DHEA, therefore they may not link decreasing levels as the culprit of many aging symptoms. It is also tricky to know which DHEA lab to request, as only the unconjugated DHEA test will give the best picture of what is happening. A little indication of low DHEA: the lower 1/3 of the arms / legs will have decreased amounts of hair.

SYMPTOMS OF ANDROPAUSE

- Erectile Dysfunction
- Reduced Libido
- Hair Loss
- Disturbed Sleep
- Reduced Cognitive Function
- Osteoporosis
- Obesity, Type II Diabetes
- Depression, Anxiety
- Heart Disease
- Impaired Blood Cell Formation
- Slow Wound Healing
- Low Sperm Count
- Prostate Problems
- Weakness, Fatigue
- Insomnia
- Memory Impairment
- Reduced Muscle Mass
- Irritability
- Apathy
- Atherosclerosis, Hypertension
- Hyperlipidemia
- Immune System Impairment

BENIGN PROSTATIC HYPERPLASIA (BPH) AND PROSTATE CANCER

More than half of American men have microscopic signs of BPH by the age of 60. By age 70, over 40% of men will have an enlarged prostate to the point that it can be felt on a physical examination. BPH is caused by diet, environmental toxins, genetics, and, of course, hormone imbalance.

To help avoid prostate cancer and allow the prostate to be at its healthiest, the body needs adequate levels of testosterone and DHEA. When men are younger and their testosterone levels are high, the prostate functions normally.

OSTEOPOROSIS AND REDUCED MUSCLE MASS

Fracture occurs at a later age in men than in women because men's bones are more dense at baseline. However, gradual loss of testosterone is one of the major causes of osteoporosis in elderly men. In one study, 59% of men with hip fractures had low testosterone compared with 18% of controls. Several studies have reported beneficial effects of testosterone therapy on bone in older men, showing an increase in bone mineral density and slowing of bone degeneration. Without enough testosterone, benefits dissipate such as lower adipose tissue, lean muscle mass, and collagen building, including bones, tendons, ligaments, skin, etc.

CARDIOVASCULAR DISEASE

The risk of cardiovascular disease is decreased with higher serum total testosterone levels according to most reports. A number of studies have demonstrated that testosterone

minimizes several important risk factors for heart attack as well, including reducing cholesterol and triglycerides, reducing blood glucose levels, decreasing visceral fat mass, and normalizing blood clotting. The degree of atherosclerotic disease, as measured by the mean percent coronary artery occlusion, increases significantly with declining levels of testosterone. Visceral fat accumulation is connected with increased vascular risk, and studies have shown that androgen administration can decrease this fat accumulation.

DEPRESSION

The presence of testosterone in the brain elevates serotonin and dopamine levels, helping its antidepressant properties. Standardized measurements of depression are worse when levels of active testosterone are low. In the Rancho Bernardo Study, which examined the association between levels of sex hormones and depressed mood in 836 men ages 50-89, active testosterone levels were 17% lower for depressed men. The results suggest that testosterone treatment might improve depressed mood in older men who have lower levels of active testosterone.

Testosterone is also vital for reducing stress and anxiety, promoting proper sleep patterns, stimulating mental acuity, and improving memory as well as cognitive function.

IMMUNE SYSTEM

Not having enough of endogenous hormones is disastrous for the immune system, creating a susceptibility to any virus, infection, or disease state, including cancer. DHEA and testosterone are critical members of this club. Studies have shown DHEA promotes t-cell function and increases natural killer cells, beta cell activity, IL-2, and IGF-1, as well as other immune components. Testosterone lowers the overreaction of the immune system to viruses and other oxidative damages such as IL-1, IL-6, TNF-, also preventing autoimmune diseases. It is extremely protective of the respiratory system, improving peak oxygen consumption and preventing oxidative damage to lungs. In fact, both DHEA and testosterone strengthen the heart and all tissues of the respiratory tract, including the lungs, pharynx, and diaphragm. Is it any wonder that men with stellar DHEA and testosterone levels are more protected and become less ill from viral and bacterial invasions?

TESTING

The diagnosis of hypogonadism is made based on the presence of symptoms and confirmed by laboratory testing, which should include:

- Total Testosterone
- Estrone
- Lipid Profile
- PSA
- Estradiol
- DHEA, Unconjugated
- CBC

Proper monitoring of laboratory values and clinical response are essential when prescribing testosterone replacement therapy.

ENDOCRINE DISRUPTORS AFFECT ALL OF US

Until this newest generation, people have been living longer than previous generations, but with that are elongated demands on aging minds and bodies. Balanced hormones are needed for carrying out most day to day functions and to simply feel good. Aging is certainly a cause of decreased hormones, but even more so is the heavy toxic burden affecting everyone in the form of endocrine disruptors, such as agricultural and lawn chemicals (like atrazine and RoundUp®), plastics, drugs, detergents, and other chemicals and pollutants. Endocrine disruptors introduce hormones from other species and “fake” hormones in the form of xenoestrogens and xenobiotics to the body. They attach to human hormone receptors, blocking the healthy signaling of endogenous hormones to cells and replacing it with their own damaging mechanisms. And they are not just making life difficult for more aged-advanced men - more and more younger men as well as teenage boys suffer from interrupted endogenous hormone function due to toxins. The natural hormone levels are at an all time low. These toxins and their effects on human hormones are also what has reached a critical mass so as to shorten the life expectancy of younger generations.

For most people, the largest, continuous intake of endocrine disruptors are via eating meat, fish, eggs, and dairy. They are loaded with not only the native hormones of the animal they come from (which are much different and more powerful than human hormones), but also all the artificial hormones, drugs, and chemicals the animal has ingested or been exposed to. The animal fat concentrates these disruptors before people take them in. No amount of cooking, homogenizing, or organic animal husbandry can take away the disturbance these substances cause to human hormone functions and many other detrimental biological reactions.

IT ALL BEGINS WITH LIFESTYLE CHOICES

To actually reverse andropause, one has to first address lifestyle habits that cause the premature drop in hormone levels. The best way to disrupt the disruptors and support naturally occurring hormones is to adopt a healthy lifestyle. It has been shown, both in studies and clinically, that having a healthy lifestyle affects all chemical functions in the body, including hormone production, utilization, and metabolism.

Erectile dysfunction (ED) is absolutely a concern for men as their testosterone drops, affecting more than half of American men over 40 years old. It is one of the last symptoms of low testosterone to show up. But ED is more often the result of the atherosclerosis caused by lifestyle choices, such as diets high in dairy and animal products, obesity, smoking, daily drinking, and the lack of exercise. The Massachusetts Male Aging Study reported that hypogonadism is the sole cause of erectile dysfunction (ED) in only 10% of cases.

But what does it really mean to live a “healthy lifestyle?”

DIET

Eating a diet lower in animal foods (due to their high content of xenobiotics and endocrine disruptors) and rich in organic fruits and vegetables along with purified (not just filtered) water bodes well in many studies for a healthier, more youthful prostate. While a plant based diet supports the body's ability to produce and use hormones efficiently, a diet high in animal products and pesticides, herbicides, and artificial hormones negatively affect hormonal balance. Meat eaters might try cutting back their intake to 2 ounces twice a week, then once a week. The most long-lived and active peoples throughout history have been those who eat plant-based diets, so working toward this lifestyle would be of great benefit.

Diet and nutrient status is the primary controller of metabolism. As men age, having healthy metabolism is an asset in warding off obesity, lack of energy, and disease states such as diabetes, cardiovascular disease, and degenerative neurological diseases.

HELPFUL SUPPLEMENTS

The following supplements can help promote optimal sexual function. Start with a therapeutic multi-vitamin and mineral product such as ODA, antioxidants such as Body &

Vision, and essential fatty acids such as Health From the Sun Flaxseed Oil, which are the building blocks for the body and will support hormone utilization, hormone production, and proper hormone metabolism. They are necessary to make up for what is no longer in food and to help the body rid itself of harmful toxins.

Yohimbe is an herbal treatment used for years in West Africa to “enhance virility and sexual prowess,” and has been used for the last 80 years or so in the United States to do the same. Many studies support the positive effects of yohimbe for improving sexual function and found it to be effective with those whom have the mildest degree in ED. It does have the potential to cause an increase in blood pressure, so patients need to be monitored.

L-Arginine is an amino acid which is relatively safe to use and has the reputation of being the “natural Viagra®” as it can increase the ability to have an erection in certain individuals. L-arginine attached to citrulline is the best form. It has several positive side effects, such as lowering blood pressure and enhancing immune function. It is best to balance this with L-lysine, 500mg twice daily for your immune system.

Creating big boosts of nitric oxide in the body is how ED drugs such as Viagra®, Cialis®, and Levitra® work, but for a price to one’s health. Unlike these medications, over-the-counter nitric oxide supplementation gives an ideal boost, just enough to provide many benefits such as vasodilation (allowing more blood flow to the penis and helping blood flow in general) and anti-aging effects, but not so much as to create oxidation and a decrease of oxygen to the heart and brain.

EXERCISE

Exercise, when done in the morning, creates chemical reactions which increase longevity and overall wellness. It positively affects mood, confidence, stamina, blood pressure, anxiety, blood sugar, BMI, and immune function. Lack of exercise, excessive alcohol use, and many diseases can reduce active hormone levels. When hormone levels decline, men become less active and gain weight. As weight is gained, more of the already declining testosterone is converted to estrogen. In men, excess estrogen results in many physical issues, including even more weight gain and the never-desired “man boobs.” For optimal results, it is vital that hormone replacement therapy be combined with adequate exercise, as well as proper nutrition and appropriate use of natural supplements.

Weight training and exercise stimulate increased production of testosterone up to a point, but levels are decreased if one overtrains. Excess of anything, including exercise, food, and alcohol, can have a negative effect on the body and hormones. The same can be said for taking in too little food or food that holds meager or no nutritious value. The body goes into a tailspin either way, and hormones quickly become depleted.

Growing awareness of common symptoms associated with male aging has resulted in open discussions of these problems. Knowledge and attitudes regarding the existence and treatments for andropause have recently undergone revolutionary change. However, understanding treatment options and the benefits of bio-identical hormone replacement can still be a challenge for both patients and doctors.

BIO-IDENTICAL HORMONE REPLACEMENT

Symptoms of andropause such as depression, low libido, and hair loss are not due to a deficiency of anti-depressants, Viagra®, or The HairClub for Men. They are due to having not enough hormones on board. Therefore, the most direct and effective way to treat andropause lies in individually augmenting and balancing hormones while introducing lifestyle improvements.

The term “bio-identical” is used to describe hormones that are atom for atom and configuratively equivalent to human hormones. They are generally made from plant precursors. Bio-identical hormones work to achieve hormone balance without the untoward side effects of conventional hormone medication. Most bio-identical prescriptions are not available commercially, but instead compounded per a doctor’s order based on the individual patient needs. Perhaps the greatest advantage is the ability of the compounding pharmacist and physician to tailor the dose to exactly fit the individual, avoiding the “one size fits all” mentality. As an added bonus, it is typically a fraction of the cost of the commercially-made synthetic testosterone that come in limited doses and dosage forms. Compounding pharmacists are also able to add other hormones to the dose like DHEA, pregnenolone, and progesterone as the physician sees fit, for a more balanced approach.

Please do not confuse natural hormones with synthetic derivatives or “anabolic steroids” used by some athletes and bodybuilders. Commercially made synthetic hormones are not the exact human molecule, and result in disastrous cardiovascular and liver issues, as well as cancer. Testosterone

cypionate injections and methyltestosterone are widely used synthetic forms of testosterone. They are altered to affect absorption, breakdown, or biological effect. Many synthetic forms of testosterone decrease HDL-C and increase LDL-C. Yet hormone replacement with bio-identical testosterone results in lower total cholesterol and LDL cholesterol levels while leaving little or no impact on serum HDL cholesterol levels. Methyltestosterone can cause gallbladder disease, a rise in liver enzymes, peliosis of the liver, and liver toxicity.

Confusing bio-identical with synthetic molecules is a common mistake made by many experts and in the medical literature. Studies must be examined carefully to determine the form of hormone used.

TROCHES

It is not enough to replace hormones with bio-identical forms. It is imperative the safest route of administration is used. With regard to any sex hormone replacement, the safest and most effective route is the troche. A troche is a buccal lozenge dissolved between the upper cheek and gum. This allows the molecules to absorb more directly into the bloodstream through the mucosal membrane, which is designed to transport many substances, unlike the skin. When replacing testosterone, it is extremely important to use a troche, not injections, not capsules or pills, and not creams.

Troches are preferred because they avoid first pass liver metabolism of the hormones, which avoids the negative effects on blood pressure, clotting factors, liver formed carcinogens, insulin growth factor, weight gain, protects the liver and gallbladder, and more. The absorption thorough the oral mucosa allows a higher percentage of the hormones to reach the bloodstream. Troches are dosed every 12 hours because the hormones have a 6-8 hour half-life. This gives the patient control over keeping more consistent blood levels. Multiple hormones can be compounded into one troche, making it possible to receive several hormones in one prescription.

Injections do not provide combination hormone therapy and have high initial doses that fade over time. The injected hormones are not bio-identical, yield high estrogen levels, and have a higher lability, resulting in unpredictable testosterone levels. Over time, the injections have to be administered more frequently and are harmful to tissues.

Testosterone and DHEA supplemented in capsule or pill form are absorbed through the gastrointestinal tract, passing

directly into the blood vessels supplying the liver, the portal circulation. In the liver, the hormones are significantly inactivated and the testosterone is converted into unnatural, detrimental forms of hormones such as estrogens, etc.

The skin is a natural protective barrier while mucous membranes are designed to transport multiple substances into the bloodstream. Applied to the skin, hormones tend to get metabolized into other hormones, then trapped in the thin layer of fat under the skin where they undergo further breakdown, making it nearly impossible to achieve therapeutic levels of several hormones.

Hormone replacement for hypogonadal men can be a godsend, helping improve psychological well-being and mood, erectile dysfunction, libido, muscle mass, strength and stature, bone mass, and cardiovascular health, just to name a few. To learn more about andropause, hormones, and toxins, we invite you to read *Learning to Thrive in a Toxic World and the Impact of Clinical Endocrinology and BHRT*, available at O'Brien Pharmacy and online at lisaeverettandersen.com.

For more information about hormone consultations with Lisa Everett Andersen, please call the pharmacy at 913-322-0001.

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