

Regulation of Blood Sugar, Body-fat, Belly Fat, Libido and Overall Vitality: The Essential Link to Testosterone YOU Really Need to Know

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YouTube Videos Coming Soon on All Topics of Testosterone and TRT for Bioidentical Hormone Replacement Therapy. Loaded with info and guaranteed to inform you better than 99% of the doctors treating us guys in this vital area of medical need.

Testosterone is one of the most misunderstood topics in modern medicine. It is also one of the most underutilized yet extremely valuable tools in a knowledgeable medical professional's arsenal. Testosterone has shown great benefits with clinical metabolic conditions such as type II diabetes mellitus also known as adult onset diabetes (AOD), metabolic syndrome ("pre-diabetes" or "syndrome X"), and various cardiovascular conditions.

In order to get a better understanding of how to avoid these lifestyle-related medical conditions, we first have to understand what makes them begin. Diabetes, metabolic syndrome and many cardiovascular diseases first begin with an inability to metabolize sugars. Insulin is a hormone essential to life and its main function is proper regulation of blood sugar. Although insulin is secreted from the pancreas at every meal, dietary carbohydrate of any form stimulates the largest increase in insulin. The more sensitive the body is to insulin, the less quantity is needed to metabolize a given amount of food. This is known as *insulin sensitivity*.

With advancing age the body's natural tendency is to lose insulin sensitivity. Basic endocrinology (study of the body's hormones) uses a "**lock and key**" analogy to describe how hormones function. The hormone itself is the key, the receptor is the lock. Each and every lock is unique and needs a specific key in order to function and nothing can happen until the key goes into the lock and all its teeth line up in a manner that allows the key to be turned. Generally as the body ages, the fit between the "lock and key" for various hormones becomes less efficient. In the case of uncontrollable or rising blood sugar, this is commonly known as insulin resistance.

As insulin resistance increases the body's metabolism becomes damaged and does not burn fuel as efficiently. The body now needs much more insulin in order to accomplish the same job. At this point weight gain, usually subtle up to this point begins to aggressively increase. As body-fat rises additional

chemicals are produced and secreted from the newly accumulated fat cells which serve to make the insulin resistance even greater. Fat cells have been known since the early 1990s to secrete inflammatory chemicals which can affect the heart, brain, organs and further worsen blood sugar regulation. Fasting insulin levels begin to rise above the “reference range” and NOW your DOC is likely to say something to you about the need for blood sugar meds.

At this point fat begins to accumulate around the waist and lower belly at a rapid rate. Some people who are not typically “overweight” or even somewhat fit will not necessarily gain weight – muscle is lost because you need insulin to build and maintain muscle tissue.

Belly fat comes in two types-subcutaneous and visceral. Subcutaneous is the type of fat just beneath the skin and visceral fat is the type that grows deep in the abdominal cavity embedded between the organs. Visceral fat is the lethal fat. Visceral fat is linearly related to death in aging men. What is the best remedy for burning visceral fat? Pay attention, now is where things start to get interesting.

Testosterone increases the body’s ability to metabolize sugar by enhancing “insulin sensitivity”. Testosterone helps the body to INCREASE the sensitivity to insulin by working on two main receptors – the glut2 and the glute4 receptor. Although there are others, glut2 and glut4 are the main ones. Glut2 is the most abundant and significant. I’ll give you one guess where the glut2 receptors are found. That’s right, on the muscle cells. One of testosterone’s functions is to maintain the sensitivity of the glut2 receptors on muscle cells.

- Increased oxidative stress. Increased free radical formation; this uses up your body’s enzymes, supplements (such as vitamin C, E, beta carotene, etc.), and strains your immune system
- Free radicals cause accelerated damage to the endothelium (innermost canal of your arteries). Translations: your arteries become damaged at an accelerated rate increasing likelihood of stroke and heart attack.
- Formation of advanced glycation end-products. The acronym literally is AGES. This creates total systemic wear and tear that breaks down your entire body from the inside out. It is now known that the majority of brown spots formed on the skin with aging are due to excess production of AGES.
- Increased damage and accelerated aging to brain tissue from oxidative stress. Over time this negatively affects memory and cognition.
- Increased risk for all Cancers due to high and poorly controlled blood sugar regulation which allows for less restricted cancer cell growth (drops the body’s defenses).
- Increased body-fat storage. One of insulin’s main functions is lipogenesis (“lip” = fat, “genesis”=make), i.e. fat making hormone.
- Increased weight gain and inability to lose weight despite diet and exercise.
- Increased cravings for high sugar, carbohydrate rich foods which keep the entire vicious cycle of weight gain, insulin resistance and progression towards disease.

By restoring testosterone to the normal healthy range (50th percentile and above), many ailments of aging can be minimized. Elevated blood sugar leads to many other diseases and health

challenges that most people would probably never think are related. Deteriorating health is a cascade of events that begins very slowly and unnoticeably. Limiting the damage at the onset is the best way to control the extent and the rate of aging as well as reverse many symptoms that greatly affect your quality of life.

There are many other benefits to testosterone replacement therapy that go beyond the scope of this article. In summary, one of the most significant properties of TRT is enhanced insulin sensitivity which acts to reverse the insulin resistance and allows your body to stay leaner and healthier.

It is part of my personal mission in life for you to become educated and responsible for your own optimal health. I hope that a greatly improved quality of life and a proactive sense of well being makes more sense to you than fighting an uphill battle against father time while hoping to stay healthy. If this sounds like something that interests you, please feel free to contact me so we can discuss how a personalized TRT regimen can enhance your quality and overall extension of your life.

Benefits of TRT:

- Specific fat-loss around the gut/waist
- Leaner and healthier overall physique
- Improved cardiovascular function
- Improved VO2 max (the body is better able to use oxygen) resulting in “better lung function”
- Better response to exercise and diet efforts – both functionally and cosmetically
- Increased Energy Levels
- Better Sleep
- Decreased aches and pains
- Improved Mood and Overall Outlook
- Improvement in Muscle Tone and Strength
- Stronger Bones and less risk of breaks and fractures
- Improved Cognition
- Enhanced Libido and Sexual Function
- Decreased Risk of Heart Disease

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