

# Testosterone Replacement or Supplementation Poses High Risk for Prostate Cancer in the Aging Male

## A Role for MRI-Spectroscopy to the Anti-Aging Generation

The aging process is a reality that all men must face. While we can't alter our chronological age, we can influence our physiologic age through proper diet, appropriate nutrition, adequate exercise, stress reduction and education. Speaking to this point, there isn't a man 50 years old or older who doesn't want to slow the aging process while enhancing quality of life. Who wouldn't want a body mass index (BMI) less than 25, more energy, strength and enduring sexual prowess? The secret to the "fountain of youth" may lie in testosterone supplementation or replacement. The message in the media must be making an impact as there has been a 500% increase in testosterone prescription sales in the United States since 1993.

It is estimated that 1 in 7 men suffer from hypogonadism or decreased testosterone production. Testosterone replacement has been promoted in the literature as the panacea for hypertension, lethargy, depression, obesity, insulin resistance, cognitive function, sexual dysfunction and various other disease states. Paradoxically, the majority of men who would benefit most from testosterone are over 50 years old; an age where the risk of prostate cancer is increasingly significant. Statistics show that one in six men will get prostate cancer in their lifetime while the most prevalent decade for the diagnosis of prostate cancer is the seventh decade of life or men in their 60s. While testosterone has never been proven to cause prostate cancer, it is well accepted that this prominent male hormone causes prostate cancer to grow, when present. Therefore, with this background information, it would seem to make intuitive sense to consider testosterone usage within the context of an individual's clinical status for having prostate cancer.

According to the American Cancer Society, approximately 230,000 men are diagnosed with prostate cancer yearly. This number is expected to escalate as the "baby boomers" continue to age. According to the Surveillance, Epidemiology and End-Results (SEER) Data more than 500,000 men are projected to be diagnosed with prostate cancer yearly within the next 10-15 years. While low testosterone levels are significant in an aging population, prostate cancer is the number one risk factor that men face from a health standpoint.

PSA (prostate specific antigen), a blood test, has been shown to be the best singular marker to prove the presence of prostate disease, albeit, it is non-specific for the diagnosis of prostate cancer. Truthfully, the PSA is better utilized as a "barometer of prostate health" than as a prostate cancer marker. According to Johns Hopkins, the healthiest PSA value for a male aged 40-60 is less than 0.70 ng/ml. Conversely, the Baltimore Longitudinal Data notes that a man with a PSA of 0.71 ng/ml or higher has a 3-4 fold increased incidence of prostate cancer when compared to the normal population. Notwithstanding this commentary, men with a PSA value of 1.0 – 10.0 ng/ml have the same approximate risk of prostate cancer at 20-30%. To state more clearly, 70-80% of men with an elevated PSA will have inflammation of the prostate or chronic non-bacterial prostatitis as the number one reason PSA elevates followed by any combination of inflammation, prostate enlargement (benign prostate hyperplasia-BPH) and prostate cancer.

A reasonable PSA level under which men could confidently consider supplementation or replacement with testosterone is a number less than 2.0 ng/ml, provided that stability has been noted over several prior

years. Not inconsistent with my beliefs, the Society of Endocrinology recommends avoidance of testosterone usage when the PSA number is 3.0 ng/ml or higher. Similarly, men should not supplement or replace with testosterone when there is a family history of prostate cancer or if the PSA number has increased by 0.75 ng/ml in consecutive years, consistent with the definition of PSA Velocity change. An exception would be made if a Urologist has ruled out prostate cancer. Unfortunately, the most common method to rule out prostate cancer when the PSA is 2.5 ng/ml or higher involves a biopsy. Historically, biopsy has been thought to be a relatively innocuous procedure associated with acceptable, albeit, temporary side effects like bleeding into the bowel, urinary tract and seminal fluid as well as the possibility of additional clinical conditions like infection, sepsis and sexual dysfunction.

While the public has been led to believe that biopsies are a reasonable solution to a rising PSA, an extensive search of the literature, exposes a more sinister and compelling reason to avoid a biopsy unless certain precautions are met and the procedure is deemed absolutely necessary. Specifically, there is data that proves a phenomenon called, “needle tracking” takes place routinely with prostate biopsy. This is a significant issue, whereby cells escape the prostate during a procedure, when a biopsy needle encounters prostate cancer cells in its path. While approximately 1 million men annually are exposed to the risk of “needle tracking” associated with prostate biopsy, only 20-30% of men will experience this phenomenon consistent with the percentage number of biopsies that are positive for prostate cancer. In addition to intensifying inflammation as a root cause of prostate cancer, needle tracking or seeding of prostate cancer cells beyond the prostate capsule has been identified in the Perineum (the space between the scrotum and the rectum) as well as in the rectal wall.

Prostate biopsy in the traditional format is a crude diagnostic technique, if not an unacceptable means, to evaluate for prostate cancer based on inherent sampling bias and needle tracking. Sampling bias is associated with the uncertainty for what the biopsy needle will yield as a physician sticks a needle after needle randomly into a prostate (up to 90 times) when a mapping procedure is performed in anticipation of treating prostate cancer definitively. According to Dr. Michael Karin from University of California at San Diego, “needle punctures of the prostate exacerbate inflammation which in turn leads to cellular mutation allowing the evolution of prostate cancer with an increased likelihood for metastasis”.

A much more sophisticated technology is now available with the arrival of the 3.0 Tesla Magnetic Resonance Imaging Spectroscopy (MRI-S) Scan from General Electric in December 2006. This technology represents the most sensitive and specific diagnostic modality for the prostate, replacing substandard scanning procedures like PET (Positron Emitting Tomography), CAT scan and Proscint scans. Peter Scardino, M.D. (Chairman of the Departments of Surgery and Urology at Memorial Sloan-Kettering), called the 3.0 Tesla MRI-Spectroscopy scan, “the next greatest diagnostic test for prostate cancer”. The MRI-Spectroscopy scan creates a virtual road map enabling an evaluation of the entire organ, subsequently allowing for a determination to be made regarding the presence or absence of prostate cancer. In the event, an image indicates the presence of prostate cancer; a targeted biopsy can be performed while using a specific protocol to prevent cells that escape from proliferating. When the MRI-S evaluation identifies a localized area of interest that proves to be consistent with the presence of prostate cancer, a decision can be made to treat the disease conservatively with a Chronic Disease Management Protocol, referencing a peer reviewed study published in the Journal, *Clinical Interventions in Aging* or provide the road map for a focal therapy using either cryosurgery or high intensity focused ultrasound (HIFU). While a typical biopsy procedure has noted a yield for prostate cancer detection to be only 20-30%, a 3.0 Tesla MRI-S scan has predicted or confirmed the presence of prostate cancer in greater than 80% of patients scanned at the Diagnostic Center for Disease™. Based on our findings, we believe

that the future diagnostic landscape will feature a prostate biopsy, only when preceded by an MRI-S scan to isolate a region of interest. This paradigm shift in how men qualify for a biopsy will become the new standard of care, allowing men with no evidence of prostate cancer to avoid an unnecessary procedure while treating prostatitis only. Even if doctors choose not to embrace or understand the advantage of this exceptional technology, patients will demand a change in the diagnostic model as it is the patient who is asked to bear the scars of professional ignorance.

Presently, physicians from all over the country, who have concern for the patients they treat, have confidently referred patients to the Diagnostic Center for Disease™ for a 3.0 T MRI-Spectroscopy scan when the PSA rises in concert with Testosterone usage. With image guided targeted biopsies, the guessing game is over as no more than 6 selective biopsies validate the presence or absence of cancer. To date, many men have been diagnosed with prostate cancer, stimulated by Testosterone. In the absence of prostate cancer and a subsequent reduction in inflammation (prostatitis resolution) with the patented Peenuts™ prostate nutritional formula, it is not unexpected that Testosterone therapy can be resumed with confidence.

A recent case of a 51 year old male with an interest in testosterone replacement illustrates the benefits of the 3.0 Tesla MRI-S scan. Noting a PSA value of only 2.1 ng/ml; the digital rectal exam (DRE) identified an area of interest on the left side, albeit, it was not definitive for prostate cancer. Neither the gray scale ultrasound nor Color Flow Doppler ultrasound evaluation suggested any specific abnormality consistent with the area of interest previously identified on DRE. An MRI-S scan using the enhanced 3.0 Tesla magnification was suggested as the next best step in the evaluation. The scan isolated a region of interest on the left side at the Apex to Middle portion of the prostate gland concordant with the findings on the DRE. Based upon the findings of the MRI-S scan, a targeted biopsy with 6 needle cores was recommended and implemented. An Antiandrogen was initiated pre-biopsy to mitigate against “needle tracking”. Specifically, an Antiandrogen selectively blocks the receptor on the prostate cell from attracting testosterone as it exits the capsule, thereby, disabling the cells in preparation for cell death or apoptosis. The Pathology evaluation revealed a grade of cancer that was amenable to being treated conservatively or focally. In this case, the failure to use a 3.0 Tesla MRI-S scan would have exposed this patient to the possibility of missing the cancer altogether; associated with sampling bias, a very real possibility for needle tracking (assuming cancer was found), or worse yet, the go ahead to supplement with testosterone, when in fact, the cancer was missed. Using testosterone in this scenario would have stimulated cancer cells to grow wildly, while causing the PSA to spike abnormally, thereby, making the diagnosis of prostate cancer – a potentially uncontrollable clinical event, albeit, avoidable. Given the expertise of a Urologic consultation, this case turned out well. The patient is now contemplating a focal treatment with high intensity focused ultrasound with a plan to supplement with testosterone once his cancer has been cured. An inability to document the resolution of prostate cancer by a repeat MRI-S scan and/or a stable PSA post-operatively will preclude this patient from using testosterone replacement therapy.

While studies have shown healthier men require testosterone replacement less frequently than diseased men, there is nonetheless, a generation of men who will want to try to turn back the hands of time. In men with a PSA greater than 2.0 ng/ml and an interest in anti-aging remedies like testosterone, I urge them to continue the educational process while considering a *Free Consultation* with Ronald Wheeler, M.D., Urologist and Medical Director of the Diagnostic Center for Disease. The toll free number to call to schedule a *Free Consultation* is 1-877-766-8400. By doing so, an individual may avoid becoming a statistic of ignorance.

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