Testosterone Therapy for Women: *Restoring Vitality in Midlife*

Is testosterone for men only?

The misguided assumption that *testosterone = male* has resulted in the widespread dismissal of testosterone (T) as an essential hormone in female physiology. In fact, nothing could be further from the truth. Healthy female bodies produce many times more testosterone than the "female hormone" estrogen, and nearly all female body tissues contain androgen receptors for binding T to elicit vital physiologic effects. In contrast to estrogen, which sharply declines with the menopause transition, testosterone begins a gradual decline from peak levels in a woman's mid twenties, and by age forty is 50% lower than peak. This diminishment typically precedes the menopausal estrogen plunge by at least a decade. In this phase of life, women often begin to notice symptoms of androgen deficiency such as sexual dysfunction (low libido, poor orgasm, vaginal dryness/pain), irritable mood, anxiety, depression, fatigue, brain fog, sleep disturbance, night sweats, muscle and joint pains, abdominal weight gain, bladder control problems, and general lack of well-being.

What are indications and benefits for testosterone in females?

The scientific and medical community is beginning to wake up and recognize the importance of testosterone as a vital female hormone, but we still have a long way to go. Medical providers often believe the only indication for T therapy in women is treatment of sexual dysfunction, but this ignores numerous other documented benefits afforded by T supplementation. By all means, let's get that libido and orgasm optimized, but don't miss testosterone's capability to improve bone density; reduce muscle and joint pain; improve lean body mass and strength; improve mood, anxiety, cognitive function, and confidence; boost energy level; and provide a feeling of general well being and vitality.

Is testosterone a standard female hormone therapy?

At its best, medicine is part art, part science. A physician must be qualified to discern proper diagnoses and treatments, but equally important is the ability to relate to, and advocate for the human person. This philosophy has shaped my practice, and motivated me to spend countless hours exploring scientific research and therapies that may not be thoroughly handled, or taught at all, in formal medical training.

There is a wealth of literature documenting testosterone's function and importance in female physiology. My clinical experience has led me to reach out for safe and effective hormone therapies that are not available at your average local pharmacy. Testosterone (for females) is one such therapy. Sadly, to this day we do not have in the United States any FDA approved bio-identical testosterone product for women. This would be a tragedy if not for the option of compounding pharmacy, which allows us to safely prescribe "off-label" treatments that are desperately needed. Off-label prescribing is a common practice in the medical community that allows physicians some flexibility in prescribing for their patients.

Compounding pharmacy is a process by which a specialized pharmacy will make custom prescriptions to a physician's order. The bulk hormone ingredients used to create custom compounded prescriptions are regulated by the FDA, and reputable compounding pharmacies follow the Current Good Manufacturing Practice (CGMP) regulations enforced by the FDA. CGMP regulations provide for systems that assure proper design, monitoring, and control of manufacturing processes and facilities. The CGMP regulations assure the identity, strength, quality, and purity of drug products by requiring adherence to specific standards. To further ensure the reliability of the compounded formulations prescribed in our practice, we limit our compounded prescriptions to only a very few well known pharmacies with proven track records, and when indicated, follow serum hormone levels to assure consistency of dosing.

Clinical Research on Testosterone for Women

There is a growing volume of medical literature demonstrating the benefits and safety of T therapy for women. Two of the leaders in this field are Rebecca Glaser, MD, a breast surgeon; and obstetrician/gynecologist Constantine Dimitrakakis, MD. These trailblazers have collaborated to examine the benefits, safety, and optimal dosing of T therapy for women, in the form of a subcutaneous implant. They have published several clinical studies, one of which is a 10-year clinical trial that showed no increase, but rather a small decrease in invasive breast cancer with T therapy, owing to its anti-proliferative effect on breast tissue.

According to findings published by this team over the past two decades, T therapy has the potential to relieve most, if not all menopausal symptoms as a stand-alone treatment. This does not mean we pass on the benefits afforded by estrogen therapy, but it does give an alternative option for symptom relief for those who prefer not to include estrogen

in their menopausal HT regimen. Additionally, premenopausal women can receive benefit from T therapy for improving energy level, depression, anxiety, PMS symptoms, and hypoactive sexual desire.

Glaser and Dimitrakakis have pioneered study on optimal dosage and monitoring strategies that maximize benefit while minimizing side effects. They report that as T levels naturally decline in midlife, the precursor androgen hormones decline even more, and this leads to a dramatic loss of androgen receptor activation in the body, meaning it takes more testosterone than the normal "physiologic" amount to restore the body's needs. They hypothesize this may explain the observation that higher doses (pharmacologic dosing) of testosterone produce more satisfaction in symptom relief.

How is testosterone therapy dosed and monitored?

An individual's starting dose is based on the patient's overall clinical picture. Symptoms, lab values, and body weight are considered. As for monitoring, it is important to understand that testosterone is a steroid hormone. When we measure steroid hormones in the blood, the lab result doesn't always provide an accurate measure of hormone action in the body. This is because for steroid hormones to act upon tissues, they must go inside of cells (where they can't be measured) and bind with nuclear receptors to stimulate protein synthesis, which then leads to the hormonal effect. Thus, the hormone's effectiveness can best be measured by observing the response experienced by the individual person. We do find value in blood tests to determine an individual's levels, thresholds, and trends in light of their response to dose adjustments, but there is no particular number or range we are trying to achieve for all. Most females using testosterone therapy will have T levels well above the normal range listed on the lab report, and this is not cause for alarm. It has been well established there is no danger in females having "elevated" testosterone levels, as defined by the lab's normal range. If circulating testosterone were to reach "too high" levels, masculine side effects could result, but our management is designed to avoid this outcome. Our goal is for our patients to achieve relief of symptoms and a feeling of vitality and well being, while experiencing minimal or no side effects.

What are side effects/risks of testosterone for females?

Women using T therapy have reported extreme satisfaction, most with no adverse effects. A small number report acne or facial hair, particularly if problematic in the past. There are effective ways to manage these, and most women prefer to do so rather than stop receiving the beneficial effects of T therapy. Deepening of the voice, outright beard growth, or significant clitoral enlargement are not expected to occur with the doses administered for indications discussed here. As for the question of risk, there are long term studies of T therapy for women, even very high doses administered for gender transition, and it has not been associated with development of any health risk, including cancer, cardiovascular disease, metabolic disease, or other significant medical condition.

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