Understanding Bio-Identical Hormone Replacement Therapy (BHRT) Pellet Implants

For men and women

Introduction

Data supports that hormone replacement therapy with pellet implants is the most effective and the most bio-identical method to deliver hormones in both men and women. Implants, placed under the skin, consistently release small, physiologic doses of hormones providing optimal therapy.

What are pellets?

Pellets are made up of either estradiol or testosterone. The hormones are pressed or fused into very small solid cylinders. These pellets are larger than a grain of rice and smaller than a 'tic tac'. In the United States, the majority of pellets are made by compounding pharmacists and delivered in sterile glass vials. There is an FDA approved 75mg testosterone pellet.

Why pellets?

Pellets deliver consistent, healthy levels of hormones for 3-5 months in women and 4-6 months in men. They avoid the fluctuations, or ups and downs, of hormone levels seen with every other method of delivery. Estrogen delivered by subcutaneous pellets, maintains the normal ratio of estradiol to estrone. This is important for optimal health and disease prevention. Pellets do not increase the risk of blood clots like conventional or synthetic hormone replacement therapy.

In studies, when compared to conventional hormone replacement therapy, pellets have been shown to be superior for relief of menopausal and andropausal symptoms (male hormone decline or "male menopause"), maintenance of bone density, restoration of sleep patterns, and improvement in sex drive, libido, sexual response and performance.

Testosterone delivered by a pellet implant, has been used to treat migraine and menstrual headaches. It also helps with vaginal dryness, incontinence, urinary urgency and frequency. In both men and women, testosterone has been shown to increase energy, relieve depression, increase sense of well being, relieve anxiety and improve memory and concentration. Testosterone, delivered by pellet implant, increases lean body mass (muscle strength, bone density) and decreases fat mass. Men and women need adequate levels of testosterone for optimal mental and physical health and for the prevention of chronic illnesses like Alzheimer's and Parkinson's disease and heart attacks, which are associated with low testosterone levels.

Even patients who have failed other types of hormone therapy have a very high success rate with pellets. There is no other 'method of hormone delivery' that is as convenient for the patient as the implants. Pellets have been used in both men and women since the late 1930's. Research on hormone implants to support breast cancer patients in staying in remission is out of the United States and there are also clinics that specialize in the use of pellets for hormone therapy in the U.S. In fact, there is more data in support of pellets than any other method of delivery of hormones worldwide.

How and where are pellets inserted?

The insertion of pellets is a simple, relatively painless procedure done under local anesthesia. The pellets are usually inserted in the lower abdominal wall or upper buttocks through a small incision, which is then taped, closed. The experience of the health care professional matters a great deal, not only in placing the pellets, but also in determining the correct dosage of hormones to be used.

Are there any side effects or complications from the insertion of the pellets?
Complications from the insertion of pellets include; minor bleeding or bruising, discoloration of the skin, infection and the possible extrusion of the pellet. Other than slight bruising or discoloration of the skin, these complications are very rare. Testosterone may cause a slight increase in facial hair in some women. Testosterone stimulates the bone marrow and increases the production of red blood cells. A low testosterone level in older men is a cause of anemia. Testosterone, delivered by implants or other methods, can cause an elevation in the red blood cells. If the hemoglobin and hematocrit (blood count) get too high, a unit of blood may be donated.

After the insertion of the implants, vigorous physical activity is avoided for 72 hours in women and 5-7 days in men. Early physical activity is a cause of 'extrusion', which is a pellet working its way out. Antibiotics may be prescribed if a patient is diabetic or has had a joint replaced. However, this is a 'clean procedure' and antibiotics are most often not needed

Why haven't I heard about pellets?
You may wonder why you haven't heard of pellets. Pellets are not patented and have not been marketed in the United States. They are frequently used in Europe and Australia where pharmaceutical companies produce pellets. Most of the research on pellets is out of Europe and Australia. Pellets were frequently used in the United States from about 1940 through the late 70's prior to when oral patented estrogens began being marketed to the public.

Do men need hormone therapy?
Testosterone levels begin to decline in men beginning in their early 30's and is routinely referred to as "andropause". Most men maintain adequate levels of testosterone into their mid 40's to mid 50's, some into their late 70's to early 80's. Men should be tested when they begin to show signs of testosterone deficiency as mentioned. Even men in their 30's can be testosterone deficient and show signs of bone loss, fatigue, depression, erectile dysfunction, difficulty sleeping and mental decline. Most men need to be tested around 50 years of age. It is never too late to benefit from hormone therapy.

What if my primary care physician or my gynecologist says that there is 'no data' to support the use of pellet implants?
He or she is wrong. There is a big difference between 'no data' and the doctor not having read the data. It is much easier for busy practitioners to dismiss the patient, than it is to question their beliefs and do the research. It's about a patient making an informed choice. After pellets are inserted, patients may notice that they have more energy, sleep better and feel happier. Muscle mass and bone density will increase while fatty tissue decreases. Patients may notice increased strength, co-ordination and physical performance. They may see an improvement in skin tone and hair texture. Concentration and memory may improve as well as overall physical and sexual health. These are obvious benefits that the patient experiences. There is also data that supports the "long term" safety of hormones delivered by pellet implants.

Do pellets have the same danger of breast cancer as other forms of hormone replacement therapy?
Pellets <u>do not</u> carry with them the same risk of breast cancer as high doses of oral estrogens. Oral prescriptive estrogens do not maintain the correct estrogen ratio or safe hormone metabolites. Pellets <u>do not</u> increase the risk of breast cancer like the synthetic, chemical progestins used in the Women's Health Initiative Trial. Data supports that *balanced*, bio-identical hormones are breast protective.

Testosterone, delivered by pellet implantation, has been shown to decrease breast proliferation and lower the risk of breast cancer, even in patients on conventional hormone replacement therapy. Clinical studies show that bio-identical testosterone balances estrogen and is breast protective. This is not true of oral, synthetic methyl-testosterone found in Estratestâ, which gets converted to a potent synthetic estrogen, which can stimulate breast

tissue. In the past, testosterone implants have been used to treat patients with advanced breast cancer. In 1940, it was theorized that treating patients with testosterone implants earlier, at the time of diagnosis, would have an even greater benefit, preventing recurrence. Androgens have also been shown to enhance the effect of Tamoxifen® therapy in breast cancer patients. References supporting these statements can be found in the data section of www.hormonebalance.org in the 'Breast Cancer Folder'.

Are there side effects to estrogen delivered by pellet implantation?
When a patient first starts on hormone therapy there may be mild, temporary breast tenderness, which resolves on its own. Hormone receptors may be very sensitive and take time to adjust. There may be a temporary water weight gain, which will also resolve on its own. Women, especially those who have not had a hysterectomy, may choose a different method of delivery of estrogen, as the risk of bleeding is significant. Balancing the progesterone to estrogen ration can effectively curtail vaginal bleeding. Further diagnostic testing may be ordered to determine the cause of bleeding.

Will hormone therapy with estradiol and testosterone pellets help with hair loss?
Hormone deficiency is a common cause of hair loss and treatment with estradiol and testosterone implants can help re-grow hair. Hair becomes thicker and less dry with pellet therapy.

How long until a patient feels better after pellets are inserted?
Most female patients begin to 'feel better' within 48-72 hours while others may take a week or two to notice a difference. Men usually take 2-4 weeks before they start to notice the benefits of the pellets. Diet and lifestyle, along with hormone balance are critical for optimal health. Stress is a major contributor to hormone imbalances and illness.

How long do pellets last?
The pellets usually last between 3-5 months in women and 4-6 months in men. The pellets do not need to be removed. They completely dissolve on their own.

Do patients need progesterone when they use the pellets?
Most of the time, when estradiol is prescribed, progesterone is also prescribed even if the patient has had a hysterectomy. Progesterone is prescribed in an alternate delivery system as it dissolves too quickly to include in the pellet. It usually is delivered in an oral troche or cream.

The main indication for the use of synthetic progestins, like Provera®, is to prevent the proliferation (stimulation) of the uterine lining caused by estrogen. However, there are progesterone (not progestin) receptors in the bone, brain, heart, bladder, breast and uterus where progesterone has been shown to have beneficial effects.

Progesterone can be used as a topical cream, vaginal cream, oral capsule (Prometrium®), sublingual troche or drops. Only oral progesterone (100-200mg) and vaginal progesterone (45-90mg) have been studied and shown to protect the uterine lining from estrogen stimulation.

Women at any age may experience hormone imbalance. Levels decline or fluctuate contributing to debilitating symptoms. Hormone therapy with pellets is not just used for menopause. If a patient is pre-menopausal, she uses the progesterone the last two weeks of the menstrual cycle (day 1, being the first day of bleeding). Pellets are useful in severe PMS, post partum depression, menstrual or migraine headaches, and sleeping disorders. Pellets may also be used to treat hormone deficiencies (testosterone) caused by the birth control pill.

How are hormones monitored during therapy?

Hormone levels will be tested and evaluated before therapy is started. This will include a FSH , estradiol, SHBG, testosterone and free testosterone for women. Thyroid hormone levels will also be evaluated. Men need a PSA, estradiol, testosterone, liver profile and blood count prior to starting therapy. Levels will be reevaluated during hormone therapy, usually three weeks after insertion and prior to insertion of the next set of pellets. After the first year of therapy, hormone levels may be followed less frequently. Men must notify their primary care physician and obtain a digital rectal exam for prostate symptoms. Women are advised to continue their monthly self-breast exam and obtain a mammogram (or thermogram) and a pap smear as advised by their gynecologist or primary care physician.

How much does this cost?

The cost for the 1st insertion of pellets is $875 for men and $675 for women. Men need a much larger dose of testosterone than women and the cost is higher. Pellets need to be inserted 2-4 times a year depending on how rapidly a patient metabolizes hormones. Re-insertion costs $475 for men and $375 for women. There may be extra costs for progesterone creams or troches. When compared to the cost of drugs to treat the individual symptoms of hormone decline, pellets are very cost effective. There is better, 'unbiased' data on pellets and bone density than any pharmaceutical drug on the market and it is beyond the scope of this handout to examine the cost of drugs used for insomnia, depression, sexual dysfunction, obesity, diabetes, hypertension and more conditions that are related to hormone imbalances.

Will insurance cover the procedure?

Most physicians require upfront payment for their services. Patients may want to contact their insurance companies to see if their costs will be reimbursed. Patients know that prevention is much more cost effective than disease. In conclusion, estrogen and testosterone therapy by implantation of pellets is a safe and effective method of hormone therapy for both men and women. Long, continuous administration of hormones by pellets is convenient and economical for the patient. Pellet implantation has consistently proven to be more effective than oral, intramuscular, and topical hormone therapy with regard to bone density, sexual function, mood and cognitive function, urinary and vaginal complaints, breast health, lipid profiles, hormone ratios and metabolites.