

Hormone Replacement Therapy...For Women & Men!

Hormone deficiencies currently affect over 55 million women and men in the U.S. With the average American age on the rise, more research is being done on the effects of aging, hormone decline, and hormone replacement therapy (HRT). Commonly referred to as Menopause and Andropause (the “Male Menopause”), the decline in hormone production that results in a hormone deficiency often brings with it unpleasant side-effects. HRT can address these symptoms and restore hormone levels.

Conventional HRT consists of using standard doses of commercially available synthetic hormones without considering each person’s individual hormonal profile. In recent years, research such as the Women’s Health Initiative study has linked synthetic hormones to an increased risk of heart disease and breast cancer. In addition to this research, many doctors and patients have abandoned this “one-size-fits-all” approach for HRT based on individualized hormone profiles.

Hormone Deficiency Symptoms (Women & Men):

fatigue, low libido, slow cognitive function, insomnia, depression, weight gain, muscle loss, migraines, and osteoporosis.

Women may also suffer from:

hot flashes, night sweats, feminine discomfort, and decreased interest in intimate relations.

An individualized approach to HRT, using bio-identical hormones (BHRT), pinpoints a person’s exact hormone levels, and what hormones are needed to balance their hormone deficiency. Studies show that BHRT in physiological doses (equivalent to what your body used to make) produce significantly fewer negative side effects than synthetic hormones.

The differences between synthetic and bio-identical hormones are in their chemical structures and functionality. Synthetic hormones are often produced from animals, are not identical to those made by the human body, and do not act in the body as human hormones do. Bio-identical hormones (derived from plants such as soy or yam), are both chemically and functionally identical to those produced by human reproductive organs and adrenal glands.

As with any prescription medication, the pros and cons of hormone replacement therapy must be discussed with a knowledgeable healthcare provider. For additional information on hormones, to take a hormone self-assessment, or to learn more about custom compounding, visit www.collegepharmacy.com and browse the Women’s and Men’s Health sections. You may also call **College Pharmacy’s Hormone Hotline at (719) 262-0022 ext. 192** to request information or schedule a Hormone Consult.

Testosterone Replacement In Aging Men May Improve Vitality, Libido, Cognition, Cholesterol, Cardiovascular & Prostate Health.

As men grow older, levels of free testosterone decrease and estrogen levels increase. In fact, the average 60-year-old male has more circulating estrogen in his blood stream than the average 60-year-old female! As if the decline in testosterone weren't problematic enough, new research has shown that even small increases in estrogen may have detrimental effects on men's cardiovascular health.

This age-related decline in free testosterone levels (commonly referred to as "Andropause") may result in diminishing energy, reduced libido, decreasing muscle mass, abdominal weight gain, depression, reduced cognitive function, and an increased risk of Heart Disease.

Advances in understanding the function of hormones and the role of hormone replacement has made it possible to manage many of the negative side-effects associated with age-related hormone decline. One therapy that has gained popularity in recent years is biologically identical testosterone replacement therapy (TRT) for men.

TRT in men has been shown to enhance libido, decrease heart disease risk, increase lean body mass, and prevent osteoporosis. Maintaining testosterone levels may also lower total cholesterol and LDL, and decrease insulin resistance. Additional research has shown a beneficial impact on cellular energy production, brain function, and oxygenation.

Testosterone therapy for men is based on personal hormone test results to determine the testosterone dosage that fits the needs of the person. No two people are alike, and hormone needs differ from person to person. There are many commercial products available that promise to help overcome the negative effects of a testosterone decline (such as loss of libido). However, TRT actually helps address the cause of the problem...not just the side-effects, while offering a combination of additional long-term health benefits.

Biologically identical testosterone therapies include injections, topical gels, sublingual tablets (dissolved under the tongue), and pellets. Injections are usually administered every two weeks. Topical gels are applied once per day and sublingual tablets are taken twice per day. Pellets are inserted by the doctor and release a steady amount of testosterone over three to six months.

As with any prescription medication, the pros and cons of hormone replacement therapy must be discussed with a knowledgeable healthcare provider.

For additional information on testosterone replacement (including research), to request a practitioner referral, or to take a hormone self-assessment, visit www.collegepharmacy.com and browse the Men's Health section. You may also call **College Pharmacy's Hormone Hotline at (719) 262-0022 ext. 192** to request information or schedule a Hormone Consult.

Frequently Asked Questions: Andropause, Libido, Hormones

What is andropause or male menopause?

Similar to menopause in women, andropause arrives in a man's life when there is a drastic drop in hormone levels. When levels of testosterone fall, the condition is called hypogonadism (hypo=low, gonad=testis). Although total testosterone may not drop drastically, free testosterone, or the active form of testosterone, drops significantly with age.

What are some of the symptoms of andropause?

Symptoms may include:

Fatigue	Loss of Muscle Mass
Abdominal Weight Gain	Low Libido
Insomnia	Reduced Overall Sexual Function
Migraines	Difficulty Achieving/Maintaining an Erection
Cholesterol	Mood Swings & Depression
Arthritis	Decreased Strength & Endurance
Osteoporosis	Aches & Pains

What can I do?

Hormone replacement therapy may help reverse some of the negative effects of low testosterone. Biologically identical testosterone is the same molecular structure and might produce the same effects as the free form of testosterone produced by the testes.

What are Biologically Identical Hormones?

Biologically identical testosterone is derived from yams. It has the same molecular structure and may help produce the same effects as the free form of testosterone produced by the testes.

Are there any side effects?

Before testosterone replacement is initiated, your healthcare practitioner should order a PSA (prostate specific antigen) test, DHT (dihydrotestosterone) test, and Estradiol level test. All drugs taken in non-physiological doses have the potential to present adverse side effects. Talk to your healthcare practitioner or pharmacist for more information.

How are Biologically Identical Hormones administered?

Biologically identical testosterone therapies include injections, topical gels, sublingual tablets (dissolved under the tongue), and pellets. Injections are usually administered every two weeks. Topical gels are applied once per day and sublingual tablets are taken twice per day. Pellets are inserted by the doctor and release a steady amount of testosterone over three to six months.

How do I find a doctor who will prescribe Biologically Identical Hormones?

Please CONTACT US at College Pharmacy. We will be happy to provide you with a practitioner referral and answer any questions you may have! Contact us directly at **(719) 262-0022 ext. 192** to request information or schedule a complimentary Hormone Consultation.

Common BHRT Hormones

Biest	1.25mg - 5mg	E2/Testosterone	0.5mg/1.25mg - 1mg/2.5mg
Biest/P4	2.5mg/100mg - 5mg/200mg	Melatonin	1mg - 50mg
Cortisol	5mg - 20mg	Pregnenolone	5mg - 200mg
DHEA	5mg - 200mg	Progesterone	50mg - 400mg
Estradiol	0.5mg - 2mg	Testosterone	0.625mg - 100mg
Estriol	1mg - 5mg	Triest	1.25mg - 5mg
E2/P4	0.5mg/100mg - 1mg/200mg	Triest/P4	2.5mg/100mg - 5mg/200mg

P4=Progesterone E3=Estriol E2=Estradiol E1=Estrone

Testosterone USP For Women: Common Formulations

Testosterone SL Tablet	0.3mg	0.625mg	1.25mg	2.5mg	5mg
Testosterone PerQ Gel™ (All per 2ml)	0.5mg	1mg	1.25mg	2.5mg	5mg
Testosterone Thick Gel (30gm)	2%	5%			
Testosterone Creams (1mg - 2mg/gm)	0.5mg	1mg	2mg	5mg	
Testosterone Pellet Implants	12.5mg	18.5mg	25mg	37.5mg	50mg 100mg
Testosterone/Estradiol SL Tablet	1.25mg/0.5mg	2.5mg/1mg			

Fused Pellet Implants: For Women & Men

Estradiol	20mg ^R	25mg ^{R,N}	50mg ^R	75mg ^R	100mg ^L		
Testosterone	12.5mg ^N	18.5mg ^N	25mg ^R	37.5mg ^N	50mg ^R	100mg ^L	200mg ^L
Testos / Anastrozole	60mg / 4mg, 6mg, 8mg ^R						
Biest (Estriol / Estradiol)	25mg / 25mg ^R						
DHEA	25mg ^R						
Pregnenolone	50mg ^R						
Progesterone	50mg ^R						

R = Regular L = Large Diameter N = Norplant

Trocars: 2-piece Trocar: Regular / Large 3-piece Trocar: Regular / Large

Single-Use Trocar Kit: (3-piece, disposable) includes pick-ups, alcohol wipe and betadine swabs, 12cc syringe with 21 gauge needle (for local anesthetic), fenestrated drape, scalpel (#11 blade), gauze, steri strips, sterile gloves (non latex).

Common Formulations For Men

Compounded Testosterone

Testosterone USP SL Tablet	10mg	25mg	50mg	75mg	100mg
Testosterone USP PerQ Gel™ (All per 2ml, except 200mg = 3ml)	50mg	75mg	100mg	200mg	
Testosterone USP Creams	10mg	25mg	50mg	100mg	
Testosterone USP Pellet Implants	50mg	100mg*	200mg*		
Testosterone USP / Anastrozole Pellets	60mg / 4mg, 6mg, 8mg				
Testosterone Cypionate / Enanthate Injectable	150mg/50mg/ml			10ml vial	

Common Formulations For Men Cont.

Commercially Available Injectables

Testosterone Cypionate	Injectable	100mg/ml - 200mg/ml	10ml vial
Testosterone Enanthate	Injectable	200mg/ml	5ml vial
Depo-Testosterone	Injectable	100mg/ml - 200mg/ml	1ml vial
HCG	Injectable	10,000iu	---

Common Men's Health Formulations

Anastrozole	Capsule	0.05mg - 0.5mg	
Beta-Sitosterol	Capsule	300mg	
Bi-Mix: Pap / Phen	Penile Injection	300mg/5mg	10ml vial
Bi-Mix: Pap / Phen	Penile Injection	300mg/10mg	10ml Vial
Chrysin	Capsule / Gel	250mg - 500mg	
D.E.S.	Capsule	0.5mg - 5mg	
DHEA	Sublingual Tablet	10mg - 50mg	
Indole-3 Carbinol	Capsule	200mg - 400mg	
Papaverine	Penile Injection	30mg/ml	10ml vial
Phentolamine Mesylate	Penile Injection	5mg/ml	1ml vial
Pregnenolone	Sublingual Tablet	50mg	
Progesterone	Sublingual Tablet / Gel	5mg - 15mg	
Prostaglandin (PGE1)	Penile Injection	10mcg - 40mcg/ml	10ml vial
Tri-Mix: Pap / Phen / PGE1	Penile Injection	150mg/2.5mg/50mg	10ml vial
Tri-Mix: Pap / Phen / PGE1	Penile Injection	300mg/10mg/25mg	10ml vial
Tri-Mix: Pap / Phen / PGE1	Penile Injection	300mg/10mg/100mg	10ml vial

Urethral Gel: ED penile injection formulations can also be compounded into a urethral gel.

*Larger diameter pellet. For more information about BHRT Formulations call (800)888-9358, or email us at info@collegepharmacy.com.

Biest: Most commonly an 80:20 ratio of estriol and estradiol. This combination allows for all of the protection of estriol while providing the cardiovascular and osteoporosis benefits and vasomotor symptom relief of estradiol.

Cholesterol: Cholesterol molecules are transformed into pregnenolone precursors. Cholesterol is the starting point for the hormone process.

Cortisol: The major natural glucocorticoid made by the adrenal cortex. High levels are often associated with puffiness, high blood pressure, diabetes, and heart disease.

DHEA: A steroid hormone produced by the adrenals, DHEA has been shown to protect against cancer and heart disease and to lower blood cholesterol. DHEA has also been shown to improve memory, strengthen the immune system, prevent bone loss, reduce body fat and enhance libido.

Estrone (E1): Most commonly found in increased amounts in postmenopausal women, the body derives estrone from the hormones that are stored in body fat. It is considered the most cancer causing of the three estrogens.

Estradiol (E2): Produced by the ovaries, estradiol is the principal estrogen found in a woman's body during the reproductive years. Estradiol is very effective for the symptomatic relief of hot flashes, genitourinary symptoms, osteoporosis, psychological well-being and reduction of coronary artery disease. When estradiol is replaced using a sublingual tablet, pellet implant or percutaneous gel, it is not subject to first-pass metabolism by the liver, and therefore does not produce high levels of estrone. Using these routes of administration, a woman can mimic the physiologic release of estradiol from the ovaries.

Estriol (E3): Although considered the weakest of the three estrogens, estriol has potential protective properties against the production of cancerous cells. No American drugs contain estriol and, because it cannot be patented, it does not hold much interest for the pharmaceutical industry. Its availability through compounding has caused its use to grow rapidly throughout the country.

Melatonin: Probably best known for regulating sleep, melatonin is also an excellent anti-oxidant and, most importantly, a regulator of zinc.

Pregnenolone: Often referred to as the "parent hormone," pregnenolone is synthesized from cholesterol. It is a super-hormone that is the key to keeping the brain functioning at peak capacity. Believed to be the most potent memory enhancer, it has also been shown to be beneficial in improving concentration, fighting mental fatigue and relieving severe joint pain and fatigue in arthritis.

Progesterone: The ovaries and the adrenal glands in women and, in smaller amounts, in the testes and the adrenal glands in men, produce progesterone. Levels of progesterone are especially high after ovulation and remain high through mid-cycle. If pregnancy does not occur, it signals the uterus to shed this lining. Progesterone plays an important role in brain function and is often called the "feel-good hormone" because of its mood-enhancing and anti-depressant effects. Progesterone is especially beneficial because it keeps the other hormones in balance.

Testosterone: Testosterone works differently in the bodies of men and women, but plays an important role in the overall health and well-being of both sexes. Often called the "hormone of desire" because of its powerful effect on libido, testosterone is also important in building strong muscles, bones, ligaments, as well as increasing energy and easing depression.

Thyroid: Thyroid stimulates hormones. Increased scores on a TSH test usually are viewed as an indication that something is wrong. In reality, TSH is not a reliable test.

Triest: Most commonly an 80:10:10 ratio of estriol, estradiol, and estrone. Estrone replacement is not normally recommended.

Sublingual Tablets: Half of the total daily dose should be taken twice daily using this mode for hormone administration. Like the percutaneous gel, sublinguals are not subject to first-pass metabolism by the liver. College Pharmacy's sublingual tablets incorporate Lipid Matrix technology.

Percutaneous gel: A once-a-day application of this percutaneous gel is all that is required to achieve a near constant 24-hour steady state of hormone levels. If using a traditional adapt-a-cap bottle with syringe, 2mls of percutaneous gel are spread (not rubbed) onto the skin over a large surface area in the morning or evening just once daily. If using College Pharmacy's waste-minimizing airless metered pump bottle, one to two pumps (1.2ml - 2.4ml) of percutaneous gel are spread (not rubbed) onto the skin over a large surface area in the morning or evening just once daily. The skin acts as a reservoir, slowly releasing hormones from its microcirculation into the main circulation continuously over a 24-hour period. This gel is extremely hypoallergenic and compliance is very good due to its once-a-day dosing.



Fused Pellet Implants: Typically utilizes estradiol and testosterone and are inserted subcutaneously every 3 to 5 months (varies between women and men, and with individual metabolism). This route provides very constant hormone levels similar or better to those achieved using percutaneous gel. College Pharmacy's Fused Pellet Implant formulations include: estradiol, testosterone, biest, pregnenolone, progesterone, DHEA, testosterone / anastrozole.

PLO Gel: Applied two times daily. Volume of each dose is 0.5ml or less typically. May require refrigeration to keep the gel stable depending on the formulation requested. Good blood levels can be achieved, but it is rather messy to use.

Topical Creams: Popular with people with dry skin. Requires application two to three times per day. Good hormone levels are achievable. Main drawbacks are difficulties in measuring the dose and erratic blood levels.

Suppositories: Are made using fatty acid bases and are hypoallergenic. Not commonly used for BHRT – but still used by some for extreme cases of premenstrual syndrome.

Injectables: Use the most hypoallergenic oils available. Typically require administration every 2-3 weeks, and hormone levels do not remain constant from shot to shot.

Vaginal Creams & Ointments: Good for localized therapy. You can specify either water or petrolatum bases.

Powder & Oil-Filled Capsules: Oral dosing recommended for Progesterone only. Powder-filled capsules can be prepared for immediate or slow release. Oil-filled capsules can be used to improve absorption of some hormones.

Combination Dosing of Hormones: Hormones compounded into a gel, cream, sublingual tablet, or capsule form can be combined into a single prescription dosage form for added convenience.

Resources

Brownstein, David. The Miracle of Natural Hormones, 3rd Edition. Medical Alternative Press: 2003
Ford, Gillian. Listening to Your Hormones. Prima Publishing: 1997
Lichten, Edward. Textbook of Bio-Identical Hormones. Foundation For Anti-Aging Research, LLC.: 2007