



Competent Compounding

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Testosterone Replacement therapy.....In Women?

Testosterone has been known to improve bone density, muscle mass, mood and libido in androgen-deficient men. It's also controversial regarding its use in anti-aging products. Not many of us though know the role it plays in females. Throughout childhood, both males and females produce low levels of testosterone.

Once puberty begins in males, testosterone stimulates growth of pubic and axillary hair, enlargement of the skeletal system, thickening of the vocal cords, and emergence of voluntary and involuntary sexual sensations. It continues to serve as the basis for promoting sexual activities even in women.

Data in regards to testosterone administration in women are primarily based on menopausal populations. A study was performed on surgically menopausal women, who received testosterone, revealed an improvement in libido and sexual function in comparison to placebo. Another study focused primarily on testosterone effects on bone density, body composition and neurobehavioral function in a group of women with hypopituitarism which is a condition of deficient pituitary hormone production. This study showed an increase in hip and radial bone density, fat-free mass, and thigh muscle area, improved mood and sexual function.

Studies report significant increase in acne and a small increase in total cholesterol compared to placebo.

None of the participants experienced hair loss or increase in hairiness. Generally, testosterone therapy was tolerated by the female participants. It's important to be aware that the female dose is just a small fraction of the dose used in males to replace testosterone. Other studies are still ongoing to investigate the long term safety and side effect profile of testosterone replacement in women.

Reference:

Miller KK, Biller BMK, Beauregard C, Lipman JG, et al. Effects of Testosterone replacement in Androgen-deficient women with hypopituitarism: A randomized, double-blind, placebo-controlled study. *J Clin Endocrinol Metab* 2006;5:1688-1690.

Cutler, HG, Cutler SJ. Testosterone Replacement therapy in males. *US Pharm* 2003;28:1-3.

Fluoride Recommendations for kids

Dental decay remains the number one illness among young kids. The American Dental Association (ADA) and the American Academy of Pediatric Dentistry (AAPD) recommend that all children should have their first dental exam by the age of one year or within six months after the first tooth erupts. Fluoride is the mainstay in preventing tooth decay and it can be used topically or systemically. When used systemically, about 90% of fluoride is absorbed in the stomach and is incorporated in the matrix of developing teeth to decrease the solubility of enamel. Topical products promote mineralization of teeth and

inhabiting decaying effects of bacteria found in the mouth.

It's recommended that kids be exposed to fluoride by the age of six month and continued until the age of sixteen. Fluoride supplements are available in many forms and can be either prescribed or purchased over the counter. Available fluoride products include tablets, mouth rinses, pastes, or gels. Fluoride is available in drinking water in most communities and that is the easiest way for a child to receive systemic fluoride. Bottled water containing fluoride is also available now and is especially important for children living in rural areas or communities with unfluoridated water. Fluoride must be at least one part per million to be efficacious in preventing tooth decay. State environmental water protection agencies provide home water-testing to evaluate fluoride concentration, and can be done upon the request of the child's dentist or pediatrician.

Children six month of age and up to four years old can be prescribed liquid fluoride drops and this should be given once daily. Children older than four years old can suck on one lozenge or chew one tablet for one to two minutes before swallowing at bed time.

Fluoride containing toothpastes are the most common form of topical fluoride products. These should be used twice daily when brushing; however, they should be kept away from children under two years old to prevent possible toxicity. For children older than two years old, it's acceptable to use toothpastes marketed for adults or kids as long as the products bears the ADA



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seal of acceptance.

Other products are available in combination with multivitamins, and these can be prescribed if your child is in need of both supplements. In this case it's critical to inform the pediatrician with all fluoride containing product that your child is consuming, in order to make sure that the child is receiving an adequate dose and not exceeding the recommended dose especially if the child is receiving fluoride also through drinking water. Symptoms of fluoride overdose include excessive salivation, nausea, vomiting, abdominal pain, irritability diarrhea, convulsions, respiratory and cardiac failure. A harmful dose of fluoride can range from 70-140 mg per kilogram of body weight. Fluoride overdose can be reversed by administering calcium since it inhibits fluoride absorption from the stomach. In the case of overdose, calcium may be administered in the form of milk, milk of magnesia or calcium carbonate.

If you have any questions about the recommended dose for your child, contact your pharmacist or pediatrician.

Reference:

Schick, E. Current fluoride recommendations for the pediatric patient. *US Pharm* 2007;32(10):52-56.

Veterinary Corner: Hypothyroidism in Canines

Hypothyroidism in canines is a

metabolic disease cause by thyroid hormone deficiency and is reported to be the most common endocrine disease in canines. Some breeders estimate that up to 80% of dogs are being treated for hypothyroidism. Unfortunately, most of these dogs have never been tested to confirm the diagnosis. These dogs are treated due to the relative low cost of thyroid drugs and the ease of obtaining them. About 95 % of canine hypothyroidism is due to progressive loss of thyroid function because of destruction to the thyroid gland; this is referred to as primary hypothyroidism. On the other hand, secondary hypothyroidism only accounts for less than 5% of total hypothyroidism cases, and it's usually caused by inadequate secretion of thyroid stimulating hormone (TSH) from the pituitary gland that's located at the base of the brain.

Thyroid hormones affect other systems of the body. They also increase the metabolic rate and oxygen consumption of many tissues, and are essential for growth and function of neurologic and skeletal systems as well as dermal health. The most common signs of hypothyroidism in dogs include lethargy, weight gain, and cold intolerance. Most dogs will also present with dermatologic abnormalities such as change in coat color or quality, and dry or scaly skin. Hair loss usually manifests in the dog's trunk, thorax or tail. Other symptoms are rare but may include muscle wasting, facial nerve paralysis,

and irregular estrus cycle.

It's critical to refer your dog to the veterinarian if you suspect hypothyroidism based on these symptoms. Hypothyroidism can then be confirmed or ruled out, based on an exam and lab work. Hypothyroid canine can be treated with oral thyroid hormone replacement therapy. Levothyroxine is the drug of choice and it will be prescribed for your dog as a dose of 0.02 mg/kg orally twice a day. You may expect to see improvement within one or two weeks of initiating therapy. However, hair coat and body weight may take up to six weeks to improve. It's essential to schedule a follow up with the veterinarian after about 8 weeks of therapy to recheck lab work, monitor the effectiveness of the drug and adjusting the Levothyroxine dose if necessary.

Reference:

Lust, E. Thyroid disease in Canine and Feline. *US Pharm* 2005;6: 41-49.
Weitkamp RA, Keller GG, Nachreiner R. Is hypothyroidism really the leading canine genetic disease? *The advocate*. Vol 1(1):1,4.



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cialize in bio-identical hormone replacement therapies and veterinary medicine, to name a few. We have all the facilities and equipment needed to make anything from topicals to capsules and sterile injectables. We do not ac-

cept insurance, but do provide claim forms with prescriptions we fill. So, next time a patient wants a compound you're unsure of - we'd be happy to serve them!

