



Estrone Increase during the Recovery Period after Resistance Exercise in Men

In the archives section of the Species newsletter there is a report which links high intensity weight lifting to increases in DHT and hair loss. A recent study also links increases in estrone after exercise. Estrone is one of the three estrogens, which also include estriol and estradiol. Estrone is the least prevalent of the three hormones, estradiol being the most prevalent. Estrone acts as a reservoir which can be converted as needed to the more active estradiol. Estrone is an estrogen produced in the fat cells, muscle cells and skin of men and women. In men, almost all estrone is converted from androstenedione, which is produced in the testes and adrenal glands. Most studies have documented that high intensity exercise results in acute increases testosterone but the effects of other metabolites as androstenedione and estrone have not been well studied. Researchers investigated the anabolic and catabolic hormone response after resistance exercise. The subjects performed a whole body workout which included bench press, seated-pulley row, knee extension/ flexion (machine), behind-neck press, biceps curl, and triceps press. The subjects performed 3 sets of 10 repetitions, with a 3-minute recovery time between sets, at 70–75% of 1RM strength testing. The study shows that immediately after the exercise session, there was a decline in the urinary excretion of testosterone, its metabolites, and other androgens. In particular, the decrease in urinary excretion of testosterone at 3 hours post-exercise which is probably because testosterone is utilized or taken up by muscle androgen receptors in order to promote protein synthesis and muscle hypertrophy, therefore a reduction in testosterone occurs during exercise recovery. There was an increase in the urinary excretion of androstenedione at 3 hours post-exercise, which the researchers speculated that the rise might reflect an increase in adrenal gland production to maintain and favor the anabolic environment required during the recovery phase of exercise. Remember, androstenedione is the main adrenal precursor of testosterone so rises in androstenedione may be the body's need to increase testosterone production but androstenedione also increases estrone a metabolite of estrogen. At 48 hours in the post-exercise recovery period there was also a significant increase in estrone compared to pre-exercise levels. So why was there an increase in the estrogen metabolite estrone after exercise? To understand this result, one has to recall that a part of the androstenedione is transformed (by aromatization) into estrone at the peripheral level. So although androstenedione increases testosterone it also increases estrone production. The study was an acute response but you can see that this over many years of training chronic increases in estrone is not conducive for male health. Estrone is stored in adipose tissue: the more body fat the higher the level of estrone. This becomes a vicious circle as estrone promotes the storage of more fat. Excess estrone can lead to weight gain and prostate enlargement in men. The study highlights that there is an immediate drop in testosterone and an increase in androstenedione and estrone after exercise to maintain an anabolic environment. The use of anti-estrogen supplements such as TESTOSTOLYZE can minimize the effects of excess estrogens and DHT that can occur from testosterone related pathways.

-Timon R, Olcina G, Muñoz D, Maynar JI, Caballero MJ, Maynar M. Determination of Urine Steroid Profile in Untrained Men to Evaluate Recovery After a Strength Training Session. J Strength Cond Res. 2008