

## **3b-hydroxy-5a-androst-1-en-17-one Increases Testosterone Bioavailability Through Downregulation of Sex Hormone Binding Globulin Protein**

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### ABSTRACT

**Introduction:** In 2012 we reported that the oral prohormone 3b-hydroxy-5a-androst-1-en-17-one improved muscular strength by 13% and body composition (by augmenting lean body mass (4.7±0.8kg), and decreasing fat mass (2.7±1.0kg)). These changes exceeded those shown in subjects supplemented with an oral placebo who improved muscular strength by 6%, (p=0.002), and body composition (by increasing lean body mass (0.3±0.5 kg), (p=0.004), and decreasing fat mass (1.2±0.5kg), (p=0.014)). **Purpose:** The present study examines the mechanism behind these anabolic effects. **Methods:** 17 resistance-trained males (Age: 23±1yrs; Body Fat: 13.1±1.5%) were randomly assigned to ingest either 330mg/day of 3b-hydroxy-5a-androst-1-en-17-one (PROHORMONE; n=9) or 330mg/day of sugar (PLACEBO; n=8) and complete a 4 week (16 session) structured resistance-training program. The total testosterone (TT), free testosterone (FT), sex hormone binding globulin (SHBG), and free androgen index (FAI) were assessed at onset and termination of the study. **Results:** The PROHORMONE group decreased in TT (28%) and SHBG (68%) and increased in FAI (157%). These values were virtually unchanged in the PLACEBO group TT (+7%), SHBG (+1%), and FAI (+10%). FT did not change from PRE to POST in either PROHORMONE (3%) or PLACEBO (4%). The interaction between condition (PROHORMONE or PLACEBO) and time point (PRE or POST supplementation) was assessed via a 2-Factor Repeated-Measures ANOVA, and was significant for each variable (all p<0.01). Tukey post-hocs were used where appropriate. **Conclusion:** Our present data suggest that the anabolic effect of 3b-hydroxy-5a-androst-1-en-17-one is mediated via downregulation of SHBG. The resulting elevation in FAI contributes to greater peripheral androgen bioavailability that may improve body composition and muscular strength.