TACSM Abstract

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

Lisa Jansen[1], Jorge Granados[1], Halie Harton[1], Trevor Gillum[2], Kevin Christmas[3], and Matthew Kuennen[1]

[1]Human Performance Research Laboratory; Department of Sports & Exercise Sciences; West Texas A&M University, Canyon, TX
[2] Department of Kinesiology; California Baptist University, Riverside, CA
[3] Department of Kinesiology & Health Education; The University of Texas at Austin; Austin, TX

Category: Masters

Advisor / Mentor: Kuennen, Matthew (mkuennen@wtamu.edu)

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.