

## 3-hydroxy-5alpha-androst-1-en-17-one Enhances Muscular Gains but Impairs the Cardio-metabolic Health of Resistance Trained Males.

JORGE GRANADOS<sup>1</sup>, TREVOR GILLUM<sup>2</sup>, CAMMIE HODGES<sup>1</sup>, and MATTHEW KUENNEN<sup>1</sup>

<sup>1</sup>Human Performance Research Laboratory; Department of Sports and Exercise Sciences; West Texas A&M University; Canyon, TX

<sup>2</sup>Baptist University; Riverside, CA

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Category: Masters

### ABSTRACT

Anabolic steroids increase resistance training (RT) gains (muscle strength and hypertrophy) but are illegal to purchase. Prohormone supplements are purported to offer similar benefits but research on the efficacy and side effects of these supplements is scarce. **Purpose:** To assess the efficacy and side effects of a popular prohormone supplement in resistance-trained males. **Methods:** 16 males (23±1yrs; 13.1±1.5%BF; 5.3±1.0yrs RT experience) were randomly assigned to ingest either 330 mg/d 3-hydroxy-5alpha-androst-1-en-17-one (PROHORMONE; n=9) or 330 mg/d sugar (PLACEBO; n=7) while completing a 4 week (16 session) structured RT program. Data collection was double-blind. Body composition (lean mass: hydrodensitometry), muscular strength (total load (kg) on 1 repetition maximum of bench/squat/deadlift), circulating lipids (cholesterol, HDL-C, LDL-C), cardio-metabolic function (creatinine, serum glutamic oxaloacetic transaminase (SGOT), circulating cytokines (TNF- $\alpha$ , IL-6, IL-10) and psychological factors (anger: State/Trait Anger Expression Inventory/ anxiety: Hospital Anxiety & Depression Scale/ fatigue: Fatigue Impact Scale/ mood: Profile of Mood States) were assessed at the beginning and end of the supplementation period. A 2-factor [Time\*Condition] repeated measures ANOVA was used to discern differences between groups. **Results:** Increases in lean mass (4.7±0.9 VS. 0.5±0.6 kg;  $p=0.013$ ) and muscular strength (73.2±5.8 VS. 31.4.1± 8.6 kg;  $p=0.008$ ) were greater in PROHORMONE than PLACEBO. However, creatinine (1.06±0.03 to 1.27±0.04 mg/dl;  $p=0.033$ ), SGOT (24.8±0.9 to 41.4±6.3 IU/L;  $p=0.008$ ), LDL-C/HDL-C (2.2±0.2 to 4.8±0.6;  $p=0.008$ ), and Cholesterol/HDL-C (3.6±0.3 to 6.4±0.6;  $p=0.003$ ) increased and HDL-C (46.1±3.5 to 27.3±1.3 mg/dl;  $p=0.018$ ) decreased from pre-posttest in PROHORMONE; these variables were unchanged in PLACEBO. None of the circulating cytokines nor any of the psychological factors changed from pre-posttest in either group. **Conclusion:** The prohormone supplement contributed to robust improvements in muscle mass and strength in resistance-trained males but these gains came at the price of subject's cardio-metabolic function.