



Mid Atlantic Regional Chapter of the American College of Sports Medicine

Annual Scientific Meeting, November 1st – 2nd, 2019
Conference Proceedings

International Journal of Exercise Science, Volume 9, Issue 8



Effects of Cholecalciferol Supplementation on Vitamin D Status among Male and Female Collegiate Basketball Athletes

Nicole M. Sekel, Sina Gallo, Margaret T. Jones, Tammy L. Wagner, Jennifer B. Fields, George Mason University, Fairfax, VA

Vitamin D is a fat-soluble micronutrient commonly found to be clinically deficient in a young, athletic, and otherwise healthy population. **PURPOSE:** to assess the prevalence of vitamin D insufficiency in a diverse sample of collegiate basketball athletes and to define the required dosage of vitamin D₃ supplementation in order to beneficially affect serum 25-hydroxyvitamin D (25(OH)D). **METHODS:** This was a quasi-experimental vitamin D intervention trial. Participants were allocated to one of three groups based on their baseline vitamin D status as follows: insufficient (<75 nmol/L) were allocated to 10,000 IU of vitamin D₃ daily, sufficient (75-125 nmol/L) to 5,000 IU of vitamin D₃ daily, and optimal (>125 nmol/L) to no supplementation. Demographics, body composition via dual x-ray absorptiometry, skin pigmentation via spectrophotometer and blood sampling for the assessment of serum 25(OH)D were completed. **RESULTS:** The majority of participants (n=13) were allocated to the high dose supplementation group (10,000 IU daily) vs. n=5 allocated to 5,000 IU daily and n=2 to no supplementation. Overall, 77% of participants allocated to the high dose supplementation group (10,000 IU daily) were male (p=0.005), with olive to dark skin tone (p=0.022), and 85% self-reported as African American (p=0.027). Differences among groups were noted for whole body BMD Z-score (p=0.027) and lean body mass (p=0.004). A dose-response emerged wherein the 10,000 IU daily group exhibited the greatest change in 25(OH)D concentrations (35.01±26.96 nmol/L) vs. the 5,000 IU daily group (-9.34±9.62 nmol/L) and the no supplementation group (-41.57±11.66 nmol/L, p<0.01). A significant correlation between the change in 25(OH)D concentrations was observed with baseline 25(OH)D ($r_s=-0.78$, p=0.01) as well as with lean and fat mass percent $r_s=0.83$ and $r_s=-0.80$ respectively, p=0.01). **CONCLUSION:** A dosage of 10,000 IU of vitamin D₃ supplementation taken daily and allotted sufficient time to see marked improvement will help to mitigate the high prevalence of vitamin D deficiency among collegiate basketball players by beneficially impacting serum 25(OH)D levels.

Supported by George Mason University and the Frank Pettrone Center for Sports Performance