



# Vitamin D Status and Anaerobic Performance in Division III Basketball Players

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## Introduction

- Vitamin D deficiency is prevalent among athletes especially during the winter months in the northern hemisphere
- In a previous study with male cross-country runners, Vitamin D levels were inadequate in December in 40% of runners and by February 100% were deficient

## Purpose

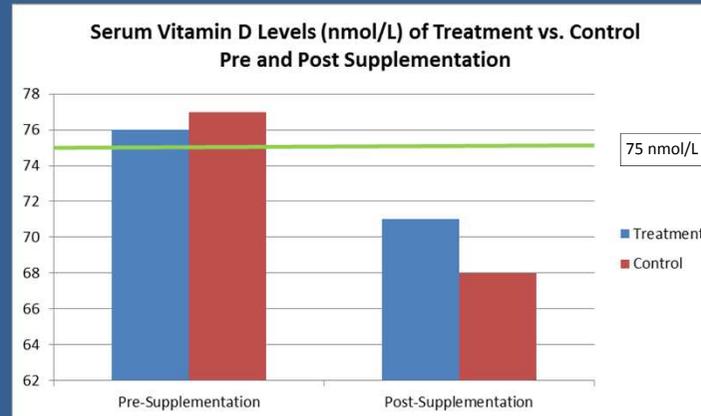
- Determine if a supplement of 2000 IUs/day of vitamin D from October to January [ 90 days] was sufficient to maintain optimal serum D3 status ( $> 75 \mu\text{mol/L}$ ) in male basketball players
- Determine if D3 status correlated with anaerobic performance

## Methods

- IRB approval and informed consent were obtained
- Twenty male basketball players participated
- Blood collections and anaerobic performance tests [vertical jump and an agility T-test] were conducted in October and January
- 25(OH)D3 was measured using an ELISA kit (ALPCO)
- Subjects were assigned to either vitamin D or thiamin (as placebo) and supplement pills were given out one month at a time for a total of 90 days
- Data were analyzed using repeated measures ANOVA
- Surveys completed pre and post-study to assess supplement use, tanning, and compliance

## Acknowledgements

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	Initial treatment Mean $\pm$ sd [42-129]	Final treatment Mean $\pm$ sd [18-140]	Initial control Mean $\pm$ sd [34-152]	Final control Mean $\pm$ sd [18-167]
Vitamin D, $\mu\text{mol/L}$	76 $\pm$ 26	71 $\pm$ 31	77 $\pm$ 32	68 $\pm$ 42
Vertical Jump, cm	67.2 $\pm$ 7.1	71.4 $\pm$ 8.5	67.9 $\pm$ 6	72.3 $\pm$ 8.2
Agility T-Test, seconds	11.02 $\pm$ 0.55	10.12 $\pm$ 0.36	11.01 $\pm$ 0.29	10.02 $\pm$ 0.45

## Results

- Overall, 10 players had less than optimal levels of serum D3 ( $< 75 \mu\text{mol/L}$ ) in October and 12 players in January
- Vitamin D levels between the groups were not statistically different
- All subjects improved their vertical jump and agility T-test scores after 90 days, but there was no difference between groups ( $p = 0.66$  for agility T-test and  $p = 0.95$  for vertical jump)
- No significant differences were obtained for any of the performance measures (vertical jump, agility T test) between the treatment and control groups
- Review of post-study surveys indicated that less than 15% of subjects reported taking the supplement 80-100% of time, and 45% reported taking the supplement  $< 40\%$  of the time
- Supplements including vitamin D, even taken irregularly, appear to have prevented the dramatic drop in serum D3 levels that typically occurs during the winter months
- Personal supplement use [ $n = 6$ ] and tanning [ $n = 3$ ] appears to help maintained Vitamin D levels during the winter months; however 2 players were seriously deficient in vitamin D



## Conclusions

- No differences were observed between initial and final D3 serum levels in the vitamin D supplement group due to poor compliance
- Measures to ensure compliance are essential to determine whether vitamin D status plays a role in anaerobic performance