

# Serum Vitamin D Status of Division III Football players

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## Introduction:

Athletes who train indoors are at a higher risk of vitamin D deficiency than those who engage in outdoor sports. Vitamin D inadequacy and deficiency in athletes increase risk for injury (1).

## Purpose:

Determine the serum vitamin D status of Division III football players (outdoor sport) in mid- November and assess dietary intake of vitamin D.

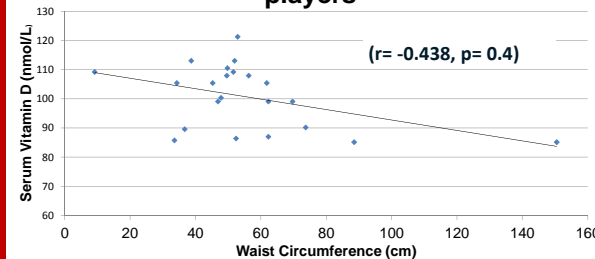
## Methods:

Football players (n=22) age 18-22.

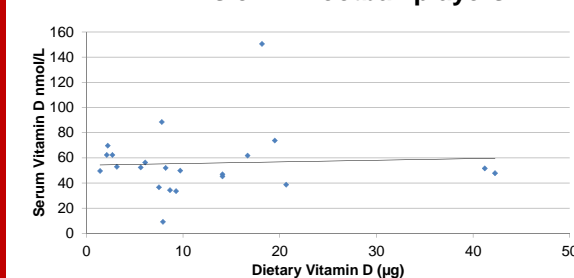
- Subjects completed a 3 day food log tracking food and beverage intake.
- Data collection recorded:
- weight, height, waist circumference, and blood pressure, blood samples were collected for 25-Hydroxy Vitamin D assay and lipid profiles.
- Subjects discussed food logs with student researcher and completed medical history questionnaires.
- Statistical procedures were conducted using Pearson Correlation and ANOVA.

	BMI	Serum Vitamin D
<b>Linemen</b>	<b>33</b>	<b>48.5 nmol/L</b>
<b>Non-linemen</b>	<b>27.5</b>	<b>71 nmol/L</b>
	<b>Optimal</b>	<b>&gt;75 nmol/L</b>
	<b>Inadequate</b>	<b>74-50 nmol/L</b>
	<b>Deficient</b>	<b>&lt;50 nmol/L</b>

## Serum Vitamin D vs. Waist Circumference in Division III Football players



## Serum Vitamin D vs. Dietary Vitamin D in Division III Football players



## Results: Serum Vitamin D

- 91% had less than optimal serum vitamin D levels (optimal > 75 nmol/L) (2).
- Only 9% (2/22) had optimal serum vitamin D levels.
  - 1 was taking a vitamin D supplement
- Average serum vitamin D was 56 ± 26 nmol/L
- 10 of 22 subjects were Vitamin D deficient (< 50 nmol/L)
- Serum vitamin D did not correlate with: TC, HDL, LDL, TG, weight, BMI, fasting blood glucose or blood pressure.
- Waist circumference was significantly correlated with serum vitamin D.

## Dietary Vitamin D

- Average intake 12 µg (±11 ug) (RDA of 15 µg for men age 18- 50).
- 27% met the RDA (6/22)
  - 3 of the 6 supplemented with a Multivitamin
- 73% failed to obtain the RDA
  - one had an optimal serum D.

## Conclusion:

- These "outdoor athletes" were deficient in vitamin D by mid-November.
- College football players on average did not consume enough dietary vitamin D to meet the recommendation.
- Dietary vitamin D did not correlate with serum vitamin D.
- Linemen have larger BMIs and lower serum vitamin D compared to non-linemen.
- Nutritional counseling may be advised to correct large waist circumference and low serum vitamin D during the winter months.
- To avoid becoming deficient these athletes should consider beginning a vitamin D supplement in the fall.



1. Peeling, P., Fulton, S. K., Goodman, C. (2013) Training environment and vitamin D status in athletes. International Journal of Sports Medicine. 34, 248-252. DOI: <http://dx.doi.org/10.1055/s-0032-1321894>.  
2. Galan, F., Ribas, J., Sanches-Martinez, P., Calero, T., Sanchez, A. (2012). Serum 25-hydroxyvitamin D in early autumn to ensure vitamin D sufficiency in mid-winter in professional football players. Clinical Nutrition, 31, 132-136. Doi: 10.1016/j.clnu.2011.07.008

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