

VITAMIN D STATUS IN DIVISION III MALE CROSS COUNTRY RUNNERS: A FOLLOW-UP STUDY

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Introduction

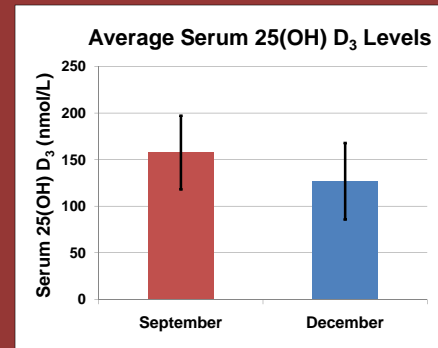
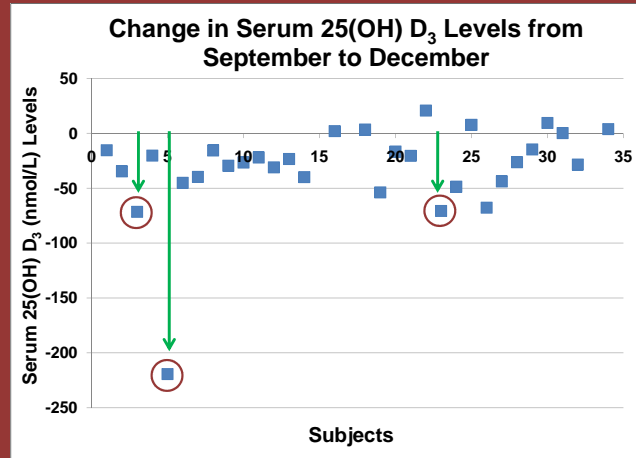
- Vitamin D deficiency is more prevalent in athletes than previously thought.
- Dietary recommendations for vitamin D [AI = 5µg] are inadequate during the winter months when there is limited exposure to UVB sunlight.

Purpose

The purpose of the research was to repeat the study in 2008 that identified sub-optimal vitamin D₃ levels in 38% of Division III cross country runners by December.

Materials & Methods

- Study was approved by the Institutional Review Board of the College.
- Participation was voluntary, and informed consent was obtained by all participants.
- The study began with 35 participants (ages 18-22); complete data is available for 17 runners and partial data is available for 18 runners.
- Serum 25(OH) D₃ (25-hydroxyvitamin D₃) levels were tested in September and December and analyzed using an ALPCO ELISA assay.
- Athletes kept a three day diet record during the collection period; diets were analyzed using Diet Analysis Plus 9.0 software.
- Athletes completed an online questionnaire that elicited information about various practices that may affect vitamin D status.
- Athletes were provided with their lab values and dietary feedback after each collection.



	Average Dietary Vitamin D Intake (µg)	Range of Dietary Vitamin D Intake (µg)	Average Serum 25(OH) D ₃ (nmol/L)	Range of Serum 25(OH) D ₃ (nmol/L)
September	7 ± 3	3-16	158 ± 40	72-229
December	6 ± 3	3-13	127 ± 41	10-178

Results

- The majority of athletes had serum 25(OH) D₃ levels within the optimal range (>75nmol/L) during both collection periods.
- On average, serum 25(OH) D₃ levels decreased from September to December, but the decrease was not significant.
- There was little correlation between vitamin D intake and serum vitamin D levels, but the correlation was slightly higher in December.
- In September, eight athletes reported using a dietary supplement containing vitamin D; ten reported supplement use in December.

Summary & Conclusions

- In December 2008, 38% of athletes had lower than optimal serum 25(OH) D₃ levels despite adequate dietary vitamin D intake on average.
- This year only one athlete had a level below 75nmol/L in December.
- There was little correlation between vitamin D intake and serum 25(OH) D₃ levels.
- Vitamin D intake may be more important for maintaining serum 25(OH) D₃ levels in December when exposure from UVB light is decreased.
- Improved vitamin D status is likely due to a combination of:
 - Milder temperatures through December which permitted athletes to run outside and obtain more sunlight exposure AND
 - Changes in diet and supplement use in response to individualized feedback given last year.

Acknowledgements

- The CSB/SJU Undergraduate Research Program.
- Tim Miles and the Saint John's University cross country team for their participation.
- SJU Athletics photographers Dawid Chabowski and John Biasi.