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Seasonal Variation in 25(OH)D Concentration and Sprint Performance in Elite Athletes with a Spinal Cord Injury

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Abstract : Individuals a with spinal cord injuries have been suggested to be at risk for a 25(OH)D insufficiency. However, little is known regarding the relationship between seasonal Vitamin D status and performance in a spinally injured athletic population. Purpose: The purpose of this study was: 1) to examine the seasonal change in 25(OH)D concentrations and 2) to determine whether 25(OH)D status impacts athletic performance in US Paralympic athletes. Methods: 25 (OH)D concentrations were measured in 11 outdoor track athletes (5 men/6 females), between fall (October/November) and winter(February). Dietary intake and lifestyle habits were assessed via questionnaire, and performance measurements were assessed using a 20meter sprint test. 25(OH)D concentrations were assessed using a blood spot method (ZRT Laboratory). Results: There was no significant change in 25 (OH) D concentrations across seasons (P=0.505; 31 + 6.35 ng/mL, 29 + 8.72 ng/mL (mean + SD) for Fall and Winter, respectively. In the Fall,42% of the athletes had sufficient levels (>32ng/mL), and 58% were insufficient. (20ng/mL -31ng/mL) where as the winter levels dropped with 33% being sufficient and 58% being insufficient and 1% being deficient (<20ng/mL). There was a weak but significant correlation between a change in 25(OH)D concentrations, and change in 20m sprint time (p<0.05; r=0.408). Conclusion: A substantial proportion of elite athletes with an SCI have low vitamin D status. However, results suggest there was little seasonal variation in 25(OH)D status in elite track athletes with an SCI. Furthermore, any change that was observed demonstrated a very weak relationship with a change in performance.

Keywords : 25(oh)d, performance, spinal cord injuries, elite, sprint, concentration
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