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Introduction

The rate of game related basketball injuries is 2xs greater in professionals than collegiate players and the most common injuries occur in the lower extremity. Arch mechanics are often cited as a related factor and the Arch Height Index Measurement System (AHIMS) is a reliable and valid system for quantifying mobility. However, normative or comparative values for basketball athletes have not been reported.

Purpose

The purpose of this article is to compare the arch height index (AHI) measures of NBA and collegiate basketball players.

Hypothesis

We hypothesize that AHI values will differ due to level of competition.

Subjects

115 healthy active male basketball players participated. Subjects were divided into 2 groups:

20 collegiate players

- age= 19.92 yrs +/- 1.38
- height = 1.97 m +/- .085
- weight = 93.29 kg +/- 12.06
- BMI = 24.08 +/- 2.00

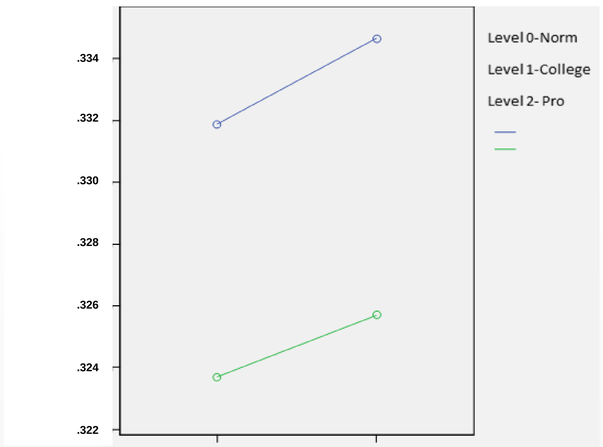
95 professional players

- age=25.5 yrs +/- 3.9
- height = 2.00 m +/- .079
- weight = 99.89 kg +/- 12.38
- BMI = 24.66 +/- 1.89

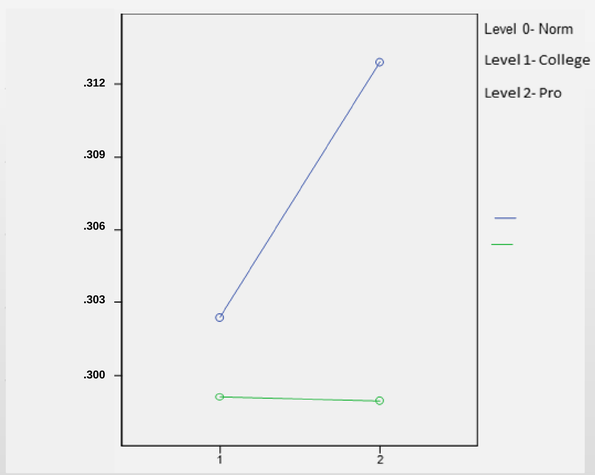
Materials

Arch Height Index Measurement System (AHIMS)

AHI Sitting



AHI Standing



Methods

Data was collected by a single rater during the pre-season of their first available season with their team. Inclusion criteria included active players who were cleared by their team physician. AHIM were taken in both sitting and standing. A 2-factor analysis of variance (ANOVA) was conducted comparing the main effects of the AHI with the interaction effect between athletic level of play.

Results

The results of the 2-factor ANOVA show that professional level basketball players have lower sitting and standing AHI scores than their collegiate counterparts. A main effect of level of play was seen (AHI sitting/standing F =1.567/ 1.467). Additional extrapolation indicates that there is a significant side to side asymmetry in AHI found in professional level basketball players (AHI Sitting M= 0.325±0.003) (AHI Standing M= 0.299±0.003) (respectively) when compared to collegiate level players (AHI Sitting M=0.333±0.006) (AHI Standing M= 0.308±0.006) p=0.018 (1 tail) p = 0.03 (2 tail) with an interaction between left and right AHI values and level of play.

Discussion

Injuries in elite basketball have also been associated with arch mobility issues. The AHIMS can be helpful in identifying potential structural factors that may predispose individuals to injury. While normative values have been reported in other populations, they have not been established in basketball players. We found that professional basketball players have a lower AHI as compared to collegiate counterparts. These findings may play a role in understanding why NBA players are more likely to be injured than collegiate players.

This project was completed in partial fulfillment of the requirements for the Doctor of Physical Therapy degree.