

## Seasonal anthropometry and body composition changes in professional basket and rugby players

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Anthropometry and body composition analysis of players is of use in sport science and coaching [1]. Identification of changes across the competitive season may be practical to training programming and prevention of injuries [2]. Seventy-two professional players playing basketball (n=45) or rugby (n=27) had anthropometry with a 3D body scanner and body composition analysis with Dual-energy X-ray absorptiometry (DXA) at four time points along the competitive season (pre-season, T1; end of pre-conditioning period, T2; midseason, T3; end-season, T4). Seasonal data were analyzed with repeated measures ANOVA and post-hoc test (Bonferroni correction) for point-to-point comparison. Results showed significant changes across the season (T1 through T4) for body weight ( $p<0.001$ ) and the arm ( $p<0.001$ ), waist ( $p<0.001$ ), hip ( $p<0.001$ ), and calf ( $p<0.001$ ) circumference as well as whole body fat-free soft tissue mass (FFSTM;  $p<0.007$ ), fat mass (FM;  $p<0.001$ ), and %fat mass (%FM;  $p<0.007$ ). No significant changes were found for bone mineral content and density. A significant effect of sport (basketball vs. rugby) was found for the waist ( $p<0.01$ ), hip ( $p<0.001$ ), and calf ( $p<0.001$ ) circumference, but not for whole body FM, %FM, and FFSTM. However, a sport effect was found for several regional (upper and lower limbs, trunk) body composition parameters, including mineral content. It is concluded that during a competitive season the proportion of fat and lean mass are especially subject to change in basketball and rugby professionals, the two sports differing for body composition changes at the regional level.

### References

- [1] Stewart (2001) Assessing body composition in athletes. *Nutrition* 17:694-695.
- [2] Gabbett and Jenkins Relationship between training load and injury in professional rugby league players (2011) *J Sci Med Sport* 14:204-209.

### Keywords

Body dimensions, fat mass, lean mass, mineral mass, sport, DXA.