Body Composition Changes in Starters vs. Non-Starters Across a Division I Basketball Season

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ABSTRACT

Body composition has been shown to be an important component of fitness and sport performance. However, changes in body composition in basketball players over the course of a season has not been thoroughly investigated. PURPOSE: The purpose of this study was to examine changes in body composition in starters vs. non-starters over a competitive basketball season. METHODS: Eleven male basketball players (Age=21.1±1.7 yr; starters: n=6 vs non-starters: n=7) completed routine body composition testing throughout the competitive season. Initial measurements were taken immediately prior to the first official practice (T1), T2 occurring one day prior to the first game, and T3-T4 in one-month intervals following the previous timepoint. Body mass and percent body fat (%BF) were assessed using bioelectrical impedance analysis (BIA). All measurements were completed at the same time of day to account for changes in hydration status and food intake. Player statistics were compiled to categorize starter vs. non-starter and total minutes played. A repeated measures ANOVA was used to compare timepoints (T1 vs. T2 vs. T3 vs. T4) and starting status (starter vs. non-starter). Statistical significance was set a $p<0.05$. RESULTS: There was a significant decrease in %BF in non-starters from T1 to T2 (20.8±7.6 vs. 18.2±4.8%, $p=0.051$), that was sustained at T3 (17.5±4.2%, $p=0.032$) and T4 (17.6±4.3%, $p=0.032$). There were no significant changes to %BF in starters across any timepoint. CONCLUSIONS: Overall changes in %BF in these athletes were small, with the only statistically significant changes occurring in non-starters. This may be due to influence from coaching to improve body composition in non-starters and positively impact the overall team's performance level. PRACTICAL APPLICATIONS: Routine body composition testing can be a beneficial tool in assessing a player's fitness and providing coaches with information regarding team management and workloads. Further research should investigate the changes during a full calendar year to assess off-season and the correlation of these changes with sport-specific metrics.

BACKGROUND

- Body composition is an important component of fitness and sport performance
- Changes in body composition in basketball players over the course of a season has not been thoroughly investigated
- The purpose of this study was to examine changes in body composition in starters vs. non-starters over a competitive basketball season

RESULTS

- There was a significant decrease in %BF in non-starters from T1 to T2 (20.8 ± 7.6 vs. 18.2 ± 4.8%, $p = 0.051$), that was sustained at T3 (17.5 ± 4.2%, $p = 0.032$) and T4 (17.6 ± 4.3%, $p = 0.032$)
- There were no significant changes to %BF in starters across any timepoint

Age (yrs)	Height (cm)	Weight (kg)
21.1 ± 1.7	196.0 ± 8.5	92.6 ± 16.4

Table 1. Athlete Demographics
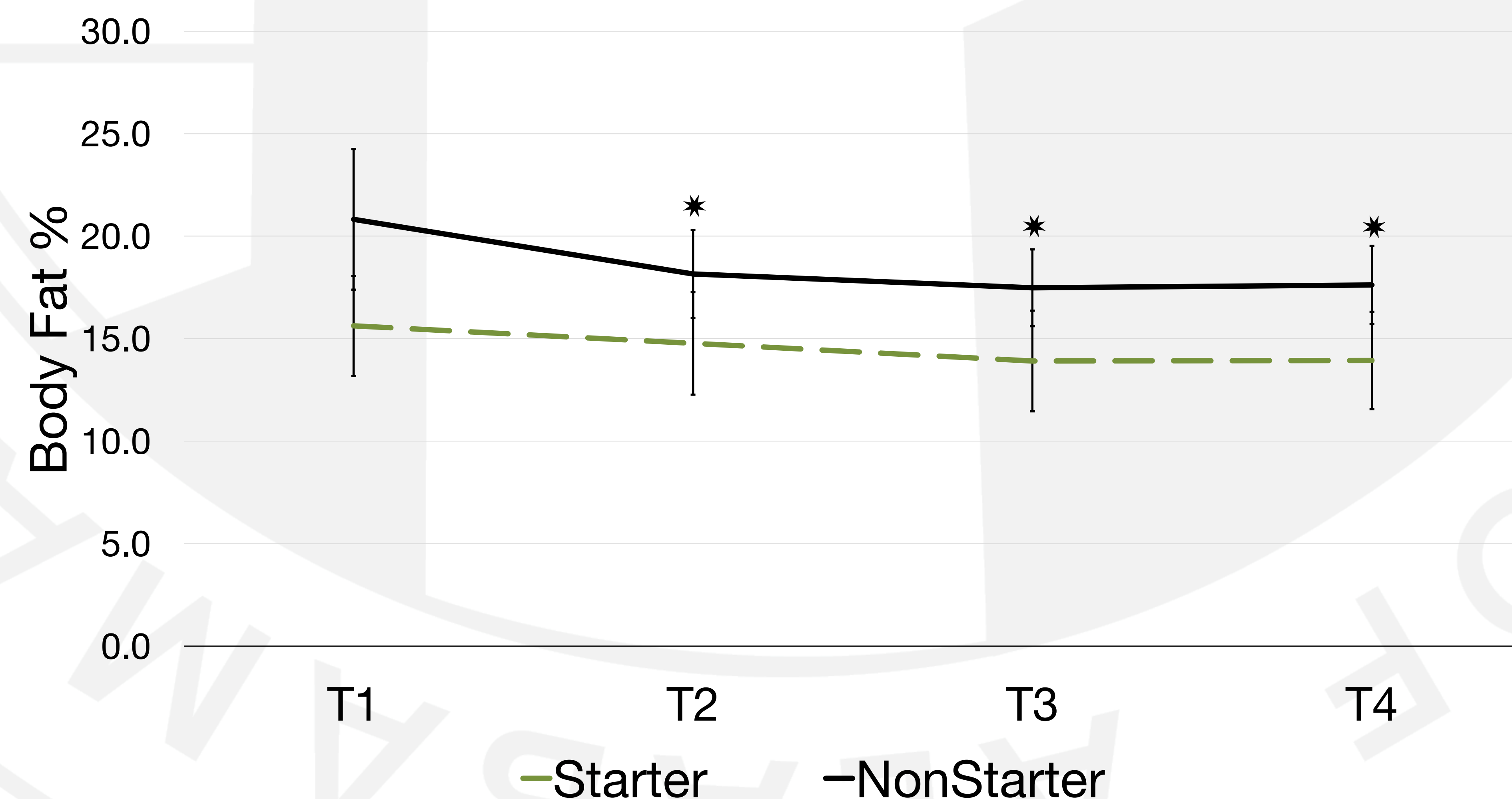

Figure 1. Timeline of %BF Testing

Figure 2. Changes in %BF   ✴ significant ($p < 0.05$) compared to T1 in Non-Starters

METHODS

- Eleven male basketball players were recruited for this study
- Body mass and percent body fat (%BF) were assessed using bioelectrical impedance analysis (BIA; OMRON)
- All measurements were completed between 8:00-10:00 am to account for changes in hydration status and food intake
- Player statistics were compiled to categorize starter (n = 6) vs. non-starter (n = 7) and total minutes played
- A repeated measures ANOVA was used to compare timepoints (T1 vs. T2 vs. T3 vs. T4) and starting status, with statistical significance was set at $p < 0.05$

CONCLUSIONS

- The significant decrease at T2 in the non-starters reflects increased conditioning and sport-specific training changes
- The small changes seen in non-starters may be due to coaching influence to improve body composition throughout the season
- Improvements in the non-starters approached the %BF of the starters, which may reflect an overall more fit team, and subsequently impact performance

PRACTICAL APPLICATIONS

- Incorporating routine body composition testing in athletes can provide coaches with information regarding team management and can be used to individualize athlete programs
- Further research should investigate the changes during a full calendar year to assess off-season changes in starters and non-starters
- Additional data may further demonstrate the correlation of these changes with sport-specific metrics