THE EFFECTS OF LOW ENERGY AVAILABILITY AND FAT FREE MASS LOSS AMONGST DI COLLEGIATE ATHLETES

Loss of Fat Free Mass is Consistent With LEA and Indicative of Health, Psychological, and Performance Decrements

[1]K. Barnes, [1]TM. Purdom, [2]G. Ryan, [1]S. Brothers, [1]D. Rice.

[1]North Carolina A&T State University, Greensboro, NC

[2]Piedmont University, Demorest Georgia

Introduction

- Preparatory training development outcomes include fat free mass (FFM), connective tissue, and body composition for enhanced athletic performance.
- FFM loss can occur due to low energy availability (LEA).
- LEA is defined as:

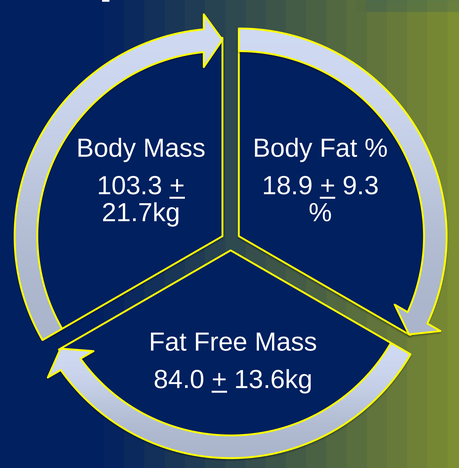
Energy deficit = Energy expenditure > Energy intake

Purpose

To investigate the effects of FFM changes across the preparatory period (April- Oct)

Participants

70 male football players tested after spring season and again after preparatory period (Oct)

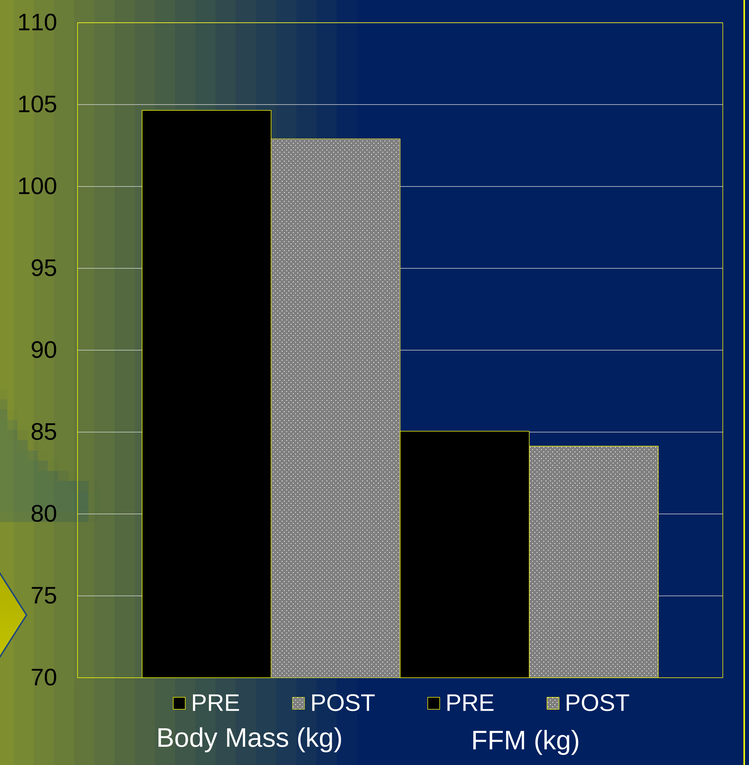


Methods

- Height → standiometer
- Body mass and composition were measured using multifrequency bioelectrical impedance for each player.
- A statistical analysis relied on paired t-tests, spearman correlation (R), and a 95% confidence interval (mean+SD).

Results/Discussion

- 41/70 (59%) lost/maintained body weight
  Those who lost (-1.73kg) deficit
- 27/70 (39%) lost or maintained FFM
  Those who lost (-1.95kg) deficit
- 23/41 (56%) who lost body weight lost FFM



Low Energy Availability (LEA)

LEA occurs when caloric intake is less than energy expenditure leading to an inadequate amount of energy to maintain physiological function.

LEA is also a precursor for various physiological, neuroendocrine, and psychological and performance limitations known as RED-S.

CONCLUSION

- Not maintaining the proper diet with competition training can lead to body weight and/or FFM loss.
- Ensuring proper nutrition can decrease risk of low energy availability and RED-S
- Ensuring adequate energy promotes performance, injury prevention, and maintaining optimal health.