JEN Journal of Exercise and Nutrition

2018, Volume 1 (Issue 4) *OPEN ACCESS*

Training for the NFL Combine: Body Composition Changes

Research Brief

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Abstract

Introduction: The purpose of this investigation was to determine the effects of a 6-week training/preparation program on body composition in college football players vying for the NFL Combine.

Methods: Thirty-five collegiate football players (mean ± SD – age: 22.4 ± 0.9, height cm: 186.4 ± 8.4) participated in a 6-week training preparation program. Body composition was assessed via the Bod Pod. Total body water was assessed via bioimpedance spectroscopy (BIS). Pre vs post values were analyzed via paired samples t-tests.

Results: There was a significant increase in lean body mass (p=0.0014) (Pre 86.1 ± 10.1 vs Post 87.7 ± 9.9 kg), a significant decrease in fat mass (p=0.0327) (Pre 16.8 ± 8.6 vs Post 15.8 ± 8.2 kg), and a significant decrease in % body fat (p=0.0194) (Pre 15.7 ± 5.5 vs Post 14.8 ± 5.4 percent). There were no significant changes in body mass (Pre 102.9 ± 16.5 vs Post 103.6 ± 15.6) or total body water (Pre 64.5 ± 8.1 vs Post 64.5 ± 7.6 liters).

Conclusions: Our findings suggest that 6 weeks of training in preparation for the NFL Combine can produce significant and beneficial alterations in body composition vis a vis an increase in lean body mass with a concomitant decrease in fat mass and body fat percentage.

Key Words: football, DXA, BIA

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Introduction

The NFL Scouting Combine is a weeklong showcase whereby college football players perform a battery of physical and mental tasks.[1-3] NFL coaches, general managers and scouts use the Combine as a tool to assess the "performance" of the potential NFL football players. The purpose of this investigation was to assess the effect of a 6-week training program on body composition in former collegiate players vying for the NFL Combine.

Methods

Participants

Thirty-five collegiate football players (mean ± SD – age: 22.4 ± 0.9, height cm: 186.4 ± 8.4) participated in a 6-week training preparation program. Nova Southeastern University's Human Subjects Institutional Review Board approved all

procedures involving human subjects and written informed consent was obtained prior to participation.

Protocol

Body composition was assessed via the Bod Pod pre and post-training. In addition, hydration status (i.e., total body water) was assessed pre and post-training via BIS (Impedimed).

Athletes participated in a 6-week macrocycle that contained three different microcycles. The overall training breakdown as outlined below:

Drill Specificity:

- Training for the 40yd dash (with 10yd and 20yd splits)
- Pro-Shuttle Agility Drill
- 3-Cone L Agility Drill
- 60yd Shuttle Agility/ESD Drill

Position-Specificity:

- Position work and specific conditioning to prepare for the All-Star Football games
- Position script specific to that portion at the NFL Combine and/or College Pro-Days

The standard breakdown on a weekly basis for each of the 6-weeks was as follows:

- Two days a week of Linear Speed Development (focusing on the 40-yd dash)
- Two days a week of Agility Drill and Position-Specific work
- One day a week of Recovery-based Movement/Power training (typically done in a pool)

The primary focus regarding resistance training was drill specific (i.e., the vertical jump and broad jump). The 6-week standard breakdown in the weight room included:

- Two weeks of general preparatory phase (i.e., slower tempos to maximize basic strength)
- Two weeks of with the emphasis on speed-strength.
- One week of a strength/power split (i.e., to maximize power)
- One week taper

Statistical Analysis

Pre vs Post values were analyzed via a paired samples t-test. A $p \leq 0.05$ was considered statistically significant a priori. Values are expressed as the mean±SD.

Results

There was a significant increase in lean body mass ($p=0.0014$) (Pre 86.1 ± 10.1 vs Post 87.7 ± 9.9 kg), a significant decrease in fat mass ($p=0.0327$) (Pre 16.8 ± 8.6 vs Post 15.8 ± 8.2 kg), and a significant decrease in % body fat ($p=0.0194$) (Pre 15.7 ± 5.5 vs Post 14.8 ± 5.4 percent). There were no significant changes in body mass (Pre 102.9 ± 16.5 vs Post 103.6 ± 15.6) or total body water (Pre 64.5 ± 8.1 vs Post 64.5 ± 7.6 liters). See Table 1.

Table 1. Body composition alterations pre and post-training

	Pre (n=35)	Post (n = 35)	% Change (n =35)
Total Body Mass (kg)	102.9±16.5	103.6±15.6	+0.7%
Fat Mass (kg)	16.8±8.6	15.8±8.2*	-6.0%
Lean Body Mass (kg)	86.1±10.1	87.7±9.9*	+1.9%

% Body Fat	15.7±5.5	14.8±5.4*	-0.9%
Total Body Water (L)	64.5±8.1	64.5±7.6	0.0%

Data are mean±SD. *Significantly different pre vs post.

Discussion

The NFL Combine is a week-long showcase in which college football players undergo a series of physical and mental tests to assist coaches, general managers and owners in determining if a particular athlete is worth drafting for their professional football team.[4] A prior study found that combine data can be used to accurately predict draft status of running backs, defensive backs and wide receivers.[5] Though not quite as good, the combine can also provide valuable data for other positions.[5] Draft status is also a strong predictor of the initial salary given to newly drafted NFL players. Thus, there is a strong financial incentive to perform well in the NFL Combine. On the other hand, Kuzmits and Adams found no statistical relationship between the combine performance tests and professional football performance; however, a notable exception was with the sprint tests for running backs.[4]

According to the current study, even elite athletes (i.e., college football players) can make substantial gains in lean body mass as well as decrement in fat mass. Although body composition itself is not a predictor of football performance, it stands to reason that a leaner and more muscular athlete would perform better in a power-endurance sport such as football. Thus, despite the improvement in body composition, one must be cautious at interpreting these measures as predictive of performance at the elite level.

Media-Friendly Summary

Training geared towards performance in the NFL Combine will result in a substantial improvement in body composition. Even well-trained young males can increase lean body mass but perhaps more impressively, decrease fat mass as a result of 6 weeks of training.

Acknowledgements

We would also like to thank Crystal Jacques and Victoria Burgess for data support.

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