Body Composition In Body Builders

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Introduction

Body builders strive to achieve shockingly low body fat percentages when training for a competition. Percent body fat by definition is the amount of fat mass in the body divided by the entire mass of the body. It can be found in a variety of ways including skinfold measurements, bioelectrical impedance analysis (BIA), or a BodPod. The week before the show in bodybuilding participants do "contest prep" which is strictly focused on dramatically reducing body fat as quickly as possible to enhance muscular appearance.

Purpose

The purpose of this study was to determine if there was a significant difference in body fat percentage found in body builders after preparing for a show.

Methods

A. Subjects

There were 5 total subjects who started and finished the project. All participation was voluntary and consent forms were signed. All 5 subjects were adult male body builders between the ages of 18-30 years who had a competition coming up soon in the month of April. There were 2 African American subjects, 2 Caucasian subjects, and 1 Hispanic. The subjects' demographic information is listed in Table 1.

Table 1: Subject Data

	Mean	SD	Max	Min
Height (cm)	175.4	± 6.99	183	168
Starting Weight (kg)	86.36	± 5.99	93.4	80.6
Age (yrs)	25.4	± 2.30	28	23

Methods (cont'd)

B. Protocol

The study consisted of two visits. The first day a 7 site skinfold was taken on each subject using skinfold calipers. These 7 sites included tricep, subscapular, chest/pectoral, midaxillary, suprailiac, abdomen, and thigh. From the skinfold measurements taken, calculations were then done to find body fat percentage. This number was recorded. Then, participants input their personal data (age, height, weight, etc.) in a scale (Image 1) for bioelectrical impedance analysis. Men removed shoes and socks and stood on the scale. Body fat percentage was recorded again.

Image 1: Bioelectrical Impedance Analysis Scale

Image 2: Subject Tested Inside BodPod

Lastly, personal data was entered into a BodPod (Image 2) just as the BIA, and the men wore only approved compression shorts and cap. Body fat was recorded. The subjects then trained for their body building competition and came back for their second visit about a week later. The second visit was a repeat of day 1 and body fat percentage was recorded again.

Results

On the first visit BMI was 28.14 ± 2.53, skinfold measurements body fat percentage was 11.04 ± 3.10, BIA body fat percentage was 16.2 ± 3.90, and body fat as measured by the BodPod was 16.94 ± 4.24.

During the second visit BMI was 27.81 ± 2.44, skinfold measurements body fat percentage was 10.54 ± 3.31, BIA body fat percentage was 15.8 ± 3.49, and body fat as measured by the BodPod was 15.08 ± 4.83.

Results (cont'd)

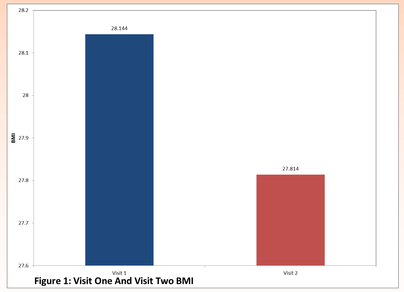

Figure 1: Visit One And Visit Two BMI

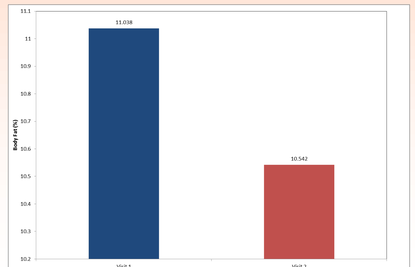

Figure 2: Visit One And Visit Two Body Fat Percentages As Given By Skinfold Measurements

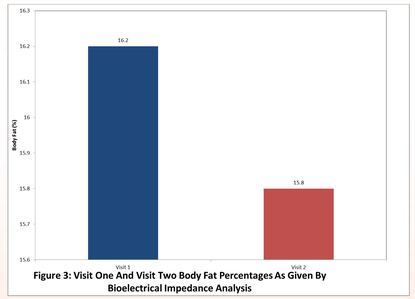

Figure 3: Visit One And Visit Two Body Fat Percentages As Given By Bioelectrical Impedance Analysis

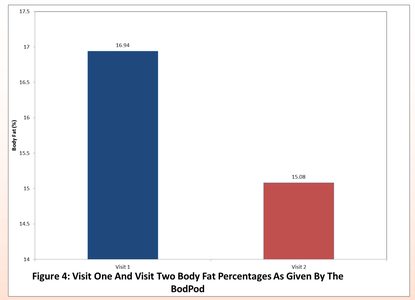

Figure 4: Visit One And Visit Two Body Fat Percentages As Given By The BodPod

Statistical analysis through t tests indicated the differences from the first visit to the second visit for BMI ($p = 0.05$), percent body fat found by skinfolds ($p = 0.01$), and percent body fat found by the BodPod ($p = 0.04$).

Conclusions

There was a significant difference in male body builders body fat percentage after training during the week prior to a competition found by BMI, skinfold measurements, and using the BodPod ($p \leq 0.05$).