The Test Retest of Internal Reliability of the Bod Pod

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Introduction:

The Bod Pod System uses Air Displacement Plethysmography for determining fat and fat-free mass. The Bod Pod system has a 3% error rate when compared to a Magnetic resonance imaging (MRI) and Computed Tomography (CT). The purpose of this study was to assess the test retest of internal reliability of the Bod Pod on test over the days.

Experimental Approach to the Problem:

This study was to investigate the internal test re-test reliability of the Bod Pod System on body fat percentages. Researchers performed one test and one retest over the course of three days during the same appointment times every day. Two estimates of body fat percentages were given in a single day. To explore the internal test retest reliability of the Bod Pod

Subjects:

Twenty healthy college males and females aged 18-22 were invited to participate in our research study. The study consisted of nine females and thirteen males. The subjects training activity levels varied from sedentary to very active. These subjects' ethnicity varied from general population and African-American. Before the research test began, each participant was required to sign an informed consent form, and were briefed with the methods, purpose, and possible risks associated.

Table 1

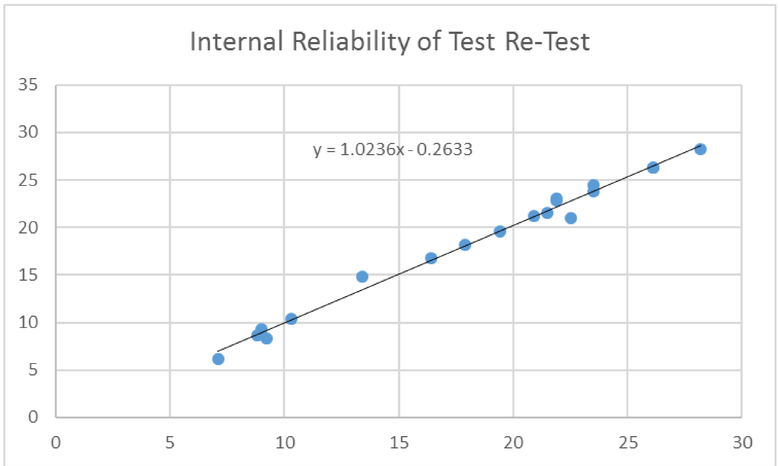

Table 2

Subject Initials	Test 1 % Fat	Re-Test % Fat
AB	8.8	8.7
AM	22.5	21
LM	21.9	23
JS	7.1	6.2
TG	9.2	8.3
ZR	9	9.3
CJ	23.5	24.4
SL	10.3	10.4
CF	17.9	18.2
EN	13.4	14.8
CL	26.1	26.3
HT	28.2	28.2
AE	23.5	23.8
BM	16.4	16.8
DT	21.5	21.5
CL	26.1	26.3
CS	20.9	21.2
CA	19.4	19.6
JC	21.9	22.8

Procedures:

The subjects were required to do a Bod Pod assessments three times, twice a day over the course of 5 days. Prior to the first appointment, subjects were required to sign a form of consent to participate in the study. All subjects were required to only wear a swim cap, compression shorts, and or a sports bra. All subjects refrained from eating and exercising two hours prior to testing. Researchers took the subjects height in centimeters prior to stepping into the Bod Pod. The Bod Pod system then weighed subjects and calculated body volume and body density. Subjects were required to remain quiet, still, and relaxed while in the Bod Pod. Researchers then performed the same Bod Pod analysis within two minutes after the first test was complete to ensure internal test retest reliability. Researchers analyzed individuals' percent body fat after each test was run. Data was exported to Microsoft Excel for a visual comparison of the results. Subjects were not compensated for their participation.

Results:

The test and retest internal reliability are presented in table 1. There is not a significance difference between genders for Bod Pod internal reliability. There was no significance difference that were found on the test retest internal reliability. Body density was higher on average for females. There was no significance difference between the percent body fat between any of the test on the same day. An ANOVA test was used to assess the between day to day differences by analyzing and comparing data from all our test. Correlations for percent body fat were high on each day. The measurement on day 1 had the lowest correlation (r=.980987), however the measurements on day 2 (r=.998184) and day 3 (r=.995573) were slightly higher. Correlations were higher on trials performed within the same day