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**Reliability of the Omron HBF-500 Body Composition Monitor**

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*Int J Exerc Sci* 2(1): S11, 2009. The Omron HBF-500 incorporates both hand-to-hand and foot-to-foot electrical impedance technology. At this time, the authors are not aware of any studies examining the consistency of this monitor. **PURPOSE:** To assess the reliability of the Omron HBF-500 body composition monitor. **METHODS:** Twelve men and six women signed an informed consent and participated in the study ( $32.4 \pm 8.7$  years,  $169.9 \pm 7.5$  cm,  $81.4 \pm 15.9$  kg,  $28.2 \pm 5.5$  kg·m<sup>-2</sup>). Participants reported to the laboratory on three separate occasions separated by at least one day and within one week. Participants were asked to refrain from exercise and caffeine on the days of testing and, were asked to not eat a heavy meal three hours prior and to remain normally hydrated. For each trial, height was measured on a Seca 214 portable height rod (Hamburg, Germany) and weight on a Detecto DR 400 digital platform scale (Webb City, MO) without shoes or socks and with one layer of light clothing. Participants then had their body weight and body fat percent (BF%) assessed on the Omron HBF-500 body composition monitor. On the second day of testing, body BF% was also assessed using a Biodynamics 450 bioimpedance analyzer (Seattle, WA). **RESULTS:** There were no significant differences between the trials for weight assessed on the digital platform scale,  $F(2,17) = 1.2$ ,  $p = 0.308$ , and on the Omron HBF-500,  $F(2,17) = 2.6$ ,  $p = 0.086$  (Table 1). There were also no significant differences between the trials for body fat assessed on the Omron  $F(2,17) = 1.0$ ,  $p = 0.351$ . Reliability assessed with Cronbach's alpha was high between the trials of each of the measures (Digital scale (kg),  $\alpha = 0.999$ , Omron (kg),  $\alpha = 0.999$ , Omron (BF%),  $\alpha = 0.998$ ). A dependent *t*-test indicated a significant difference in BF% between the Omron and Biodynamics analyzer ( $34.2 \pm 9.6$  and  $38.8 \pm 12.8$ , respectively),  $t(15) = -2.9$ ,  $p = 0.011$ . Finally, dependent *t*-tests revealed body weight measured by the Omron was significantly greater than the Detecto scale in trial 2,  $t(17) = -6.9$ ,  $p = 0.001$ , and in trial 3,  $t(17) = -7.9$ ,  $p = 0.001$

Table 1. Body Weight and Body Composition Trials

	Trial 1	Trial 2	Trial 3
Detecto (kg)	81.4±15.9	81.3±15.7	81.7±15.4
Omron (kg)	81.7±15.9	81.8±15.8*	82.3±15.6**
Omron (BF%)	32.7±10.5	32.7±10.2	33.1±10.3

\*Significantly greater than Detecto (trial 2),  $p < .05$ \*\*Significantly greater than Detecto (trial 3),  $p < .05$ 

**CONCLUSIONS:** The Omron HBF-500 seems to consistently measure body weight and body composition. Although the HBF-500 can be questioned as an accurate measure of body composition, it seems to be a useful tool if one is interested in tracking changes in body weight and BF%.

