

The HHSAA had requesting funding to perform a study on wrestlers utilizing the Body Matrix Ultrasound (US), Tanita Bioelectrical Impedance (BIA), Lange skinfold calipers (SKF) and hydrostatic weighing. The goal of the study was to identify which method of body composition was the most reliable and valid when compared to the hydrostatic measure. The HHSAA had posed three questions to study:

1. Can the Body Matrix Ultrasound be utilized without determine an athlete's hydration level?
2. Is the Body Matrix Ultrasound valid and reliable when compared to Hydro static weighing?
3. Is the Tanita BIA valid and reliable when compared to Hydrostatic weighing?

We first compared US, BIA, and SKF during our normal weight monitoring program on 333 high school wrestlers, see abstract attached. All methods demonstrated high reliability however the standard error was 4% which clinically significant especially for wrestlers attempting to get to their lowest allowable weight.

To address questions, 2 & 3 we did a followed up study by comparing these same measures with Hydrostatic weighing at the University of Hawaii, Kinesiology Department. Unfortunately, we only got 16 subjects, see attached abstract. The results of this study indicated that US, BIA and SKF are valid measures to assess body composition.

Both of these abstracts were presented at the Far West Athletic Trainers Meeting.

Ultimately, athletic administrators, athletic trainers and coaches here are satisfied with keeping our current method of body composition, skin fold measurements. Athletic administrators and coaches had hope the new technology would have made body composition easier and more accurate to perform but as our limited research indicates no change is needed at this time. We would have liked to obtain a larger sample size to improve the statistical power and significance, however logical difficulties prohibited us from accomplishing this.