

# The HPI Osteo Caliper™ Method of Body Composition Assessment

**Find out Body Fat Percentage by using only 3 measurement sites: wrists and waist. Simple, non-invasive, fast, accurate, easy to learn.**

The HPI Osteo Caliper Method for assessing body composition has its roots in an established method that has been used in Sweden for more than 30 years. Seeing its value and simplicity, Health Profile Institute, Inc. decided to perform further research during 2010 and 2011, which led to the development of the HPI Osteo Caliper Method.

## The Method

The method is based on the idea that the composition of our body is directly related to certain physical characteristics, as well as to our exercise habits. The information required by this method in order to assess an individual's body composition is:

- Age
- Gender
- Height (cm)
- Weight (kg)
- Right wrist (mm)
- Left wrist (mm)
- Waist (cm)
- Resistance training in the past 6 months (Frequency, Intensity and Duration on a scale from 1 to 5 – see below)

<b>Frequency</b>	<b>1:</b> Never	<b>2:</b> Sometimes	<b>3:</b> 1-2 times/week	<b>4:</b> 3-5 times/week	<b>5:</b> 6 times/week or more
<b>Intensity</b>	<b>1:</b> Very Light	<b>2:</b> Light	<b>3:</b> Moderate	<b>4:</b> High	<b>5:</b> Very High
<b>Duration</b>	<b>1:</b> Less than 1 hr/week	<b>2:</b> 1 hr - 2 hrs 59 min/week	<b>3:</b> 3 hrs - 4 hrs 59 min/week	<b>4:</b> 5 hrs - 6 hrs 59 min/week	<b>5:</b> 7 hrs/week or more

## The Accuracy - Comparison with Hydrostatic Weighing, Bod Pod and BIA

A research study at The University of Las Vegas (UNLV) has been performed starting January 2011 to establish the accuracy, reliability, safety and speed of the HPI Osteo Caliper Method. The study compared the Osteo Caliper with the gold standard of Hydrostatic Weighing, Bod Pod and Bioelectrical Impedance (BIA). As of August 2011, preliminary statistical analysis reveals significant correlations between the percent fat determined from the Bod Pod, BIA, and the HPI Osteo Caliper Method formula when compared with hydrostatic weighing (.96, .83, & .93, respectively). Moreover, the percent fat determined from the HPI Osteo Caliper Method formula showed significant correlations with the Bod Pod, BIA, and hydrostatic weighing (.91, .83, & .93, respectively). In general, a correlation of .80 or higher is considered a strong correlation; a correlation of 1 is considered "perfect".

## Test-Retest Reliability – August 2011

The test-retest reliability of the HPI Osteo Caliper Method shows the following results:

- Experienced user measuring the same subjects twice: The average difference in Body Fat Percentage between the two measurements is 0.28%, with a maximum deviation of 0.5%.
- Two experienced users measuring the same subjects: The average difference in Body Fat Percentage between the two measurements is 0.58%, with a maximum deviation of 0.8%.
- One experienced and one novice user measuring the same subjects: The average difference in Body Fat Percentage between the two measurements is 0.88%, with a maximum deviation of 1.5%.

The research study is still in progress.

## Comparison of the HPI Osteo Caliper Method with Other Methods for Assessing Body Composition

	Accuracy	Speed	Safety	Test-retest reliability	Ease of operation	Ease of learning the method	Comfort for client (Non-invasiveness)
Osteo Caliper	***	****	*****	*****	*****	*****	*****
Underwater Weighing	*****	*	*	*****	*	*	*
BOD POD	*****	**	***	*****	**	***	*
Bioelectrical Impedance	**	*****	***	***	*****	*****	*****
Skinfold Calipers	**	***	*****	*	***	**	***

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 Poor ————— Excellent

### Necessary Equipment for HPI Osteo Caliper Method

Height rod, scale, measuring tape graded in centimeters, caliper graded in millimeters for measuring wrist diameters (preferable digital), and HPI Osteo Caliper Software.



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