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On the Definition of Obesity and Leanness

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Various methods are employed for defining obesity and leanness, but the three major methods most widely used at present are those using standard weight, skinfold thickness and somatic indices (Rohrer index, Ponderal index, etc.).

Somatic indices do not give the ratio between the fat mass and the lean body mass which would reveal the body composition, and these indices can be varied depending on the height. For these reasons somatic indices can not be judged superior to a method relying on the standard weight.

Although skinfold thickness is directly proportional to the body fat mass, the error in the measuring process is usually large. Besides it is not always easy to determine its relation to the body weight. Consequently it would be impractical to rely solely on the skinfold thickness either for the definition of obesity (leanness) or an assessment of therapeutic effects.

In practice, therefore, it is advised to make a due comparison with the standard weight method before conclusions are drawn.

A method relying on the standard weight would be more useful if it requires no further considerations into which the size of the frame is taken, or if it can be used for all adults regardless of age differences. In the standard weight method, a person is judged obese if his or her weight exceeds the standard value by certain prescribed percentage, usually 10 or more. Likewise a person is judged lean if the person's weight is less than the standard by 10 or more percent. However such percentages are arbitrary figures assigned merely for research purposes. Other than these purposes, the figures have no absolute significance.

Table (1) showing the standard weights for different heights of male and female is currently in use for our research. If the measured weight is compared

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with the standard with a difference no greater than $\pm 10\%$, the person is considered normal. A person is considered obese if the difference exceeds $+10\%$, lean if the difference is greater than -10% .

Undoubtedly the definition would be more precise, if the size of the frame and the skinfold thickness are also measured and studied at the same time.

Table 1 Standard weight of adult (kg)

Height (cm)	Male	Female	Height (cm)	Male	Female
148		49.7	165	59.8	58.9
149		50.1	166	60.5	59.6
150		50.5	167	61.2	60.3
151		51.0	168	61.9	61.0
152		51.5	169	62.6	61.7
153		52.0	170	63.3	62.4
154		52.5	171	64.0	
155	54.0	53.0	172	64.7	
156	54.5	53.5	173	65.4	
157	55.0	54.1	174	66.1	
158	55.5	54.7	175	66.9	
159	56.1	55.3	176	67.7	
160	56.7	55.9	177	68.5	
161	57.3	56.5	178	69.3	
162	57.9	57.1	179	70.1	
163	58.5	57.7	180	70.9	
164	59.1	58.3			

(from Matsuki)