

Skinfold measurements

A skinfold calliper is used to determine the thickness of a skinfold. Using the measured skinfolds, a prediction of total body fat mass can be done.

The measurements are based on the hypothesis that the body fat is equally distributed over the body and that the thickness of the skinfolds is a measure for subcutaneous fat.

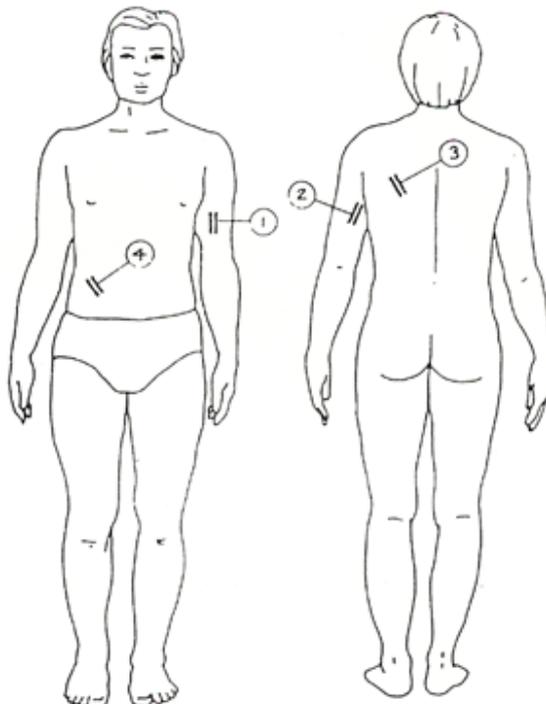


Reference tables can be used to estimate the fat mass and the fat free mass in the body. For this measurement the patient must be able to sit or stand in an upright position. Skinfold measurement are cheap, not very painful. They are easy to perform but need practice. Reproducibility is poor and is dependent upon the skill of the observer.

Sum of four skinfolds

To make an estimation of the total body fat, four skinfold are measured:

- Biceps skinfold (front side middle upperarm)
- Triceps skinfold (back side middle upperarm)
- Subscapular skinfold (under the lowest point of the shoulder blade)
- Supra-iliacale skinfold (above the upper bone of the hip)

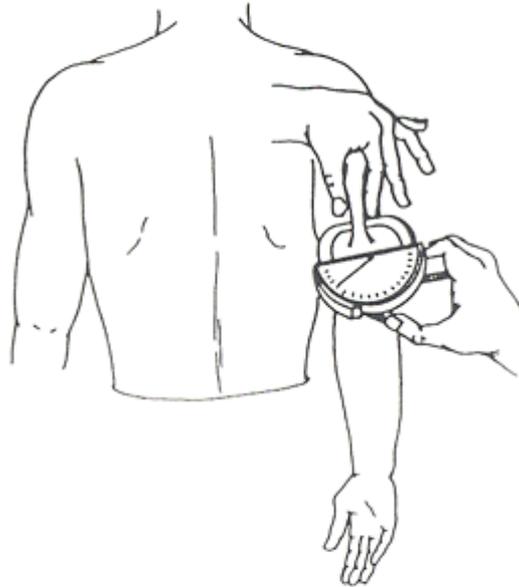


Using the table of Durnin en Womersly (1974) the percentage of body fat can be read by a given age and sex. This table contents data for people older than 17 years old.

Triceps skinfold

The triceps skinfold is necessary for calculation of the upperarm muscle circumference.

The triceps skinfold provides information about fat reserves of the body and the calculated muscle mass provides information the protein reserves. Frisancho published tables showing percentiles for the thickness of the triceps skinfold. Beneath P15 the patient is underfed. However it is better to compare the measured values and look at the changes. Repeated measurements give a good indication of changes in nutritional state and body fat mass.



Reliability

Of all skinfold measurements, the triceps skinfold is the most reliable one, because oedema is not often seen in the upperarm. In older people, the measurements are less reliable, because the skin and the muscles are weaker. There is a bigger chance that muscles are taken in the skinfold. Also in chronic muscle-diseases, dehydration and oedema can give unreliable values.

A trained person must perform the measurements. Reliability depends on the way the measurement is performed.