

C. MAIOLI¹, R. PARONI¹,
G. CIGHETTI²

Comment on JVGA Durnin and J. Womersley article

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¹Department of Health Science,
University of Milan
San Paolo Hospital
Via di Rudini, 8
20142 Milan- Italy

²Department of Biomedical and Clinical
Science, University of Milan
Luigi Sacco Hospital
Via G.B.Grassi, 74
20157 Milan- Italy

Address for correspondence:
E-mail: claudio.maioli@unimi.it
E-mail: rita.paroni@unimi.it

JVGA Durnin and J. Womersley in their article of 1974 (1) entitled: "Body fat assessed from total body density and its estimation from skinfold thickness: measurements on 481 men and women aged from 16 to 72 years" proposed a Table (Table 9 of the paper) to evaluate the equivalent fat content, as a % of body-weight, for a range of values for the sum of 4 skinfolds (biceps, triceps, subscapular and supra-Iliac) of males and females of different ages.

The sum of skinfold reported in this Table, which are still used today, are summarized in 5 mm intervals, causing inaccuracy if this table is used to estimate % body fat from an experimental skinfold measure.

Therefore we have plotted in Figure 1 (see below) the numbers reported in Table 9 of the paper, and from these graphs we have derived the following mathematical functions (Table 1) with the correspon-

Figure 1 - Equivalent fat content as a percentage of body-weight for Males (M) and Females (F) of different class age

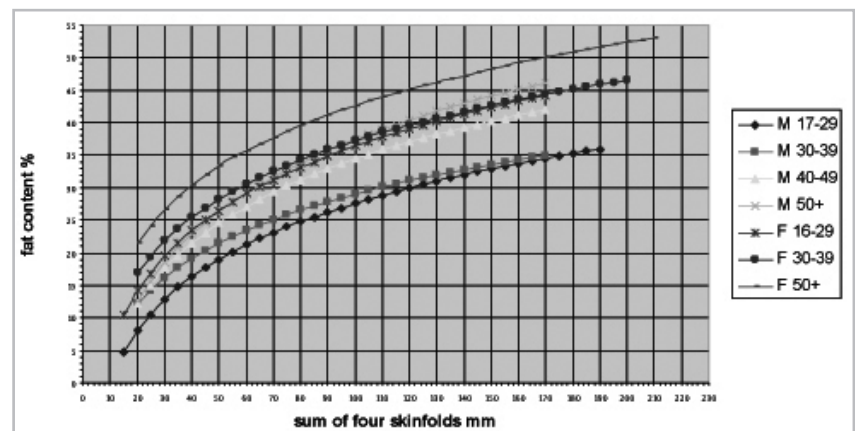


Table 1 - Correlation equations for the curves reported in Figure 1

| | | | | | | | |
|---------|-------------------------------|--------------|------------|---------|-------------------------------|--------------|------------|
| M 17-29 | $Y=12,408\text{LN}(X)-29,392$ | $R^2=0,9997$ | $15<X<190$ | F 16-29 | $Y=14,072\text{LN}(X)-28,364$ | $R^2=0,9995$ | $15<X<170$ |
| M 30-39 | $Y=10,752\text{LN}(X)-20,446$ | $R^2=0,9996$ | $20<X<170$ | F 30-39 | $Y=13,007\text{LN}(X)-22,559$ | $R^2=0,9996$ | $20<X<200$ |
| M 40-49 | $Y=14,077\text{LN}(X)-30,384$ | $R^2=0,9998$ | $20<X<170$ | F 40-49 | $Y=12,75\text{LN}(X)-18,931$ | $R^2=0,9996$ | $20<X<210$ |
| M 50+ | $Y=15,866\text{LN}(X)-35,55$ | $R^2=0,9996$ | $20<X<170$ | F 50+ | $Y=13,565\text{LN}(X)-19,731$ | $R^2=0,9997$ | $20<X<210$ |

ding correlation coefficients of Pearson, R2.

We propose that these equations can be easily used in a spreadsheet program and integrated in the database of individual patients.

References

1. Durnin JVGA, Womersley J (1974) Body fat assessed from total body density and its estimation from skinfold thickness: measurements on 481 men and women aged from 16 to 72 years. *Br J Nutr* 32,77-97.