Fat Distribution after a Conditioning Programme in Males & Females

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Abstract

The purpose of this study was to examine the distribution of subcutaneous fat in young adult physically active males (N=50) and females (N=50) aged 18-24 years, before and after a 90 day's conditioning programme-consisting of exercises targeted to improve flexibility, strength, and cardiorespiratory endurance. The results show that the distribution pattern of subcutaneous fat in the form of skinfold thickness in males is subscapular (maximal) followed by calf, triceps, suprailiac, biceps (minimal) and in females suprailiac (maximal) followed by triceps, subscapular, calf and biceps (minimal). The subcutaneous skinfold thickness from the observed body sites significantly decreased (except subscapular in females) with the progression of a conditioning programme but it could not change the preconditioning distribution pattern of subcutaneous fat in both males and females. Whereas the body Fat% significantly decreased (before 23.87±3.20 & after 20.86±2.41) and the LBM% significantly increased (before 76.00±3.20 & after 79.14±2.80) only in females after a conditioning programme. These findings indicate that a conditioning programme on the one hand lowers the total body fat by mobilizing and using the subcutaneous fat and on the other hand increases the total lean body mass [LBM] both in males and females.

Key Words: **LBM, Subcutaneous Fat, Skinfolds, Bioelectrical Impedance**

Introduction:

Conditioning programme related changes in body composition are of increasing interest because they hold important implications for nutritional status, functional capacity, and risk for chronic diseases. Typically, there is an increase in body weight from ages 20 to 50 yr, followed by a modest decline after age 70 yrs *(Borkan et al., 1983 and Silver et al., 1993)*. Fat free body mass (or Lean Body Mass [LBM]) has been reported to decline by 25 to 30% between ages 30 and 70 yr *(Fleg and Lakatta, 1988; Flynn et al., 1989; Grimby and Saltin, 1983; Smith & Serfass, 1981)* in conjunction with an increase in fat mass. Decreases in work capacity *(Shock, 1962)* and muscular strength *(Flynn et al., 1989; Grimby and Saltin, 1983; Smith and Serfass, 1981)* with aging, associated with these changes in body composition, could affect the ability to perform daily activities such as walking *(Bassey et al., 1992)* and lifting *(Jette and Branch, 1981)*. Ultimately, these could result in decreased mobility and a decline in the health and physical performance capabilities of an individual.

The accumulation of body fat with aging tends to be distributed in a typical pattern for males *(Schwartz et al., 1990)* a large part of the increase occurs at the central sites, in the Omentum, and in the organs in which fat replaces parenchyma *(Kenney, 1985)*. Subcutaneous fat tends to be lost peripherally from the limbs but