

ORIGINAL RESEARCH COMMUNICATION

Effects of birth cohort and age on body composition in a sample of community-based elderly^{1,2,3}

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Background: The effect of the recent obesity epidemic on body composition remains unknown. Furthermore, age-related changes in body composition are still unclear.

Objective: The objective was to simultaneously examine the effects of birth cohort and age on body composition.

Design: A total of 1786 well-functioning, community-based whites and blacks (52% women and 35% blacks) aged 70–79 y from the Health, Aging, and Body Composition Study underwent dual-energy X-ray absorptiometry annually from 1997 to 2003.

Results: At baseline, mean \pm SD percentage body fat, fat mass, and lean mass (bone-free) were $28 \pm 5\%$, 24 ± 7 kg, and 56 ± 7 kg, respectively, for men and $39 \pm 6\%$, 28 ± 9 kg, and 40 ± 6 kg for women. Mixed models were used to assess the effects of cohort and age-related changes on body composition. Later cohorts in men had a greater percentage body fat (0.32% per birth year, $P < 0.0001$) than did earlier cohorts. This cohort effect was due to a greater increase in fat mass than in lean mass (0.45 kg and 0.17 kg/birth year, respectively). With increasing age, percentage body fat in men initially increased and then leveled off. This age-related change was due to an accelerated decrease in lean mass and an initial increase and a later decrease in fat mass. Similar but less extreme effects of cohort and age were observed in women.

Conclusions: The combination of effects of both birth cohort and age leads to bigger body size and less lean mass in the elderly.

Key Words: Birth cohort • age • body composition • elderly • fat • lean

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