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Brief Reports

POTENTIAL FOR CONFOUNDING OF PHYSICAL ACTIVITY RISK ASSESSMENT BY BODY WEIGHT AND FATNESS

DEMETRIUS ALBANES¹

Increased risk of colon cancer among men employed in sedentary occupations has been demonstrated in three recent reports (1-3). Garabrant et al. (3) were the first of these investigators to suggest that diminished stimulation of colon peristalsis (and the resulting increase in fecal-mucosal contact) among the occupationally least active individuals might explain the observed association. However, overweight is a known risk factor for cancer of the colon in men (4, 5) and women (5), and may have confounded each of the above occupational studies since overweight may also be related to activity level and was not assessed.

For this reason, the association between relative body weight and fatness (as assessed by the body mass index, weight/height², and triceps skinfold thickness) and physical activity was evaluated in a large sample of the United States population.

MATERIALS AND METHODS

Cross-sectional data from the second National Health and Nutrition Examination Survey (NHANES II), conducted by the National Center for Health Statistics between 1976 and 1980, were used for these analyses. All men and women 20-64 years of age were included for whom information concerning physical activity was available. The self-reported activity categories were "quite inactive", "moderately active", and "very active" for nonrecreational physical activity; "little or no exercise", "moderate

exercise", and "much exercise" for recreational activity.

Weight, height, and triceps skinfold thickness were measured according to standard methods previously reported (6). Linear regression was used to estimate the least-squares mean body mass index and skinfold thickness, adjusted for age (as a continuous variable), for each activity category.

RESULTS

Individuals reporting the lowest level of nonrecreational physical activity demonstrated higher mean body mass index (due to increased body weight) and triceps skinfold thickness than persons reporting greater activity (table 1). Both anthropometric parameters decreased steadily with increasing activity. This association was evident for both men and women, although the body mass index differences among men were not statistically significant. An inverse association was also seen for recreational activity and fatness (table 1). Further adjustment for smoking status (known to be related to relative body weight) and caloric intake did not alter these findings. Although not shown, similar results were obtained for the subscapular skinfold.

DISCUSSION

Although these data are based on self-reports, lack specificity concerning occupations, and make the assumption that nonrecreational physical activity is synonymous with occupational activity, they suggest that relative body weight and body fatness are potential confounders of risk assessment analyses concerning occupational (or nonoccupational) physical activity. Reanalysis of prior reports, where pos-

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¹Cancer Prevention Studies Branch, National Cancer Institute, NIH, Blair Building, Room 6A09, 9000 Rockville Pike, Bethesda, MD 20892-4200. (Send reprint requests to Dr. Demetrius Albanes at this address.)

TABLE 1

Mean age-adjusted body mass index (BMI) (weight/height²) and triceps skinfold thickness (TSF), according to sex and level of physical activity: US men and women 20-64 years of age surveyed in NHANES II, 1976-1980

Type of physical activity and level	Men			Women		
	No.	BMI (kg/m ²)	TSF (mm)	No.	BMI (kg/m ²)	TSF (mm)
Nonrecreational						
Low	622	25.72 (25.41-26.03)*	14.9 (14.4-15.4)	644	26.99 (26.56-27.42)	28.2 (27.4-29.0)
Moderate	2,042	25.50 (25.32-25.68)	13.3 (13.0-13.6)	2,693	25.19 (24.97-25.41)	25.7 (25.3-26.1)
High	1,735	25.43 (25.23-25.63)	12.2 (11.9-12.5)	1,501	24.71 (24.44-24.98)	24.4 (23.9-24.9)
Recreational						
Low	1,247	26.17 (25.95-26.39)	14.3 (13.9-14.7)	2,004	26.30 (26.06-26.54)	27.2 (26.7-27.7)
Moderate	2,050	25.41 (25.23-25.59)	13.0 (12.7-13.3)	2,195	24.62 (24.38-24.86)	24.8 (24.4-25.2)
High	1,102	24.93 (24.69-25.17)	11.8 (11.4-12.2)	639	24.34 (23.89-24.79)	23.6 (22.8-24.4)

* 95 per cent confidence interval in parentheses.

sible, and consideration of body weight or fatness in similar future investigations are indicated.

SUMMARY

Cross-sectional data from the second National Health and Nutrition Examination Survey (1976-1980) were used to study the association between body weight and fatness (assessed by body mass index, weight/height², and triceps skinfold thickness) and physical activity. It is concluded that relative body weight and fatness may be potential confounders of risk assessment analyses of physical activity.

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