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Calculation of a Hispanic Obesity Index for Workplace Wellness Programs

JS Spahr (1) presenting, Ty Kau (1)

NIOSH, DSR, Morgantown, WV, United States (1)

The Body Mass Index (BMI) is used as an indicator of adiposity because it is simple, requires no technical equipment or special training, and is generally not affected by observer bias. Nutritionists consider BMI ($\text{weight}/(\text{height})^2$) as the international standard because it has been shown to have an acceptable, but not perfect, correlation with hydrostatic and skin-fold measurements, and to correlate with mortality risk. BMI is not universally successful in gauging an individual's fat-mass because it is influenced by body proportion (relative leg length or trunk length) and can over-estimate body weight by as much as 5 percent in short-legged individuals, and under-estimate weight in those with taller stature. It is affected by the location and degree of fat deposits in women. When applied to Hispanic body composition, BMI is influenced by their short stature, short-leg length, long torso, large waist-to-hip ratios, and the location and distribution of upper body and lower body fat layers. The result is that the traditional BMI index may consistently over-estimate actual body fat weight among Hispanics in both genders.

Due to the increasing numbers of Hispanics in the US workforce, their relatively high injury/fatality rates, the increasing prevalence of obesity, and its associated disease and mortality risk, having an indicator of adiposity specific to Hispanics is important in occupational health and clinical practice. The purpose of this research was to provide a body composition calculation specific for Hispanic workers that includes Mexican, Cuban and Puerto Rican Americans.

To make assessment as accurate as possible, an "adjusted" weight-to-height index method is presented based on the method of RT Benn - the Obesity Index ($\text{weight}/(\text{height})^P$) where "P" is the regression coefficient of the log (weight in kg) regressed against by the log(height in cm) of data observed for a given population and gender. The P (power) index is thought to be better than standard BMI since it is more independent of height. Using adult body measurements from the Hispanic Health and Nutrition Examination Survey, "P" values were determined for: Mexican (male:2.04 & female:1.38); Cuban (male:1.79 & female:1.63); and Puerto Rican (male:1.70 & female:1.35) Americans. Other tables are presented which describe the changing trend in BMI levels among Hispanics. Lastly a table describing body composition measurements, their application in the workplace, and their outcome value for workplace wellness programs is presented.

Abstracts

By studying different populations it is possible to generate different “P” values that better reflect the variations in racial/ethnic body-fat distribution, body-segment length, height, weight, gender, and age groups - including occupational groups. This research presents for the first time an alternate obesity index for Hispanic occupational groups, which is specific for both genders. This information will be beneficial in wellness-at-work programs provided where Hispanics compose a high proportion of the workforce. Industries with high percentage of Hispanic workers include: Agriculture (20%), Construction (16%), and Manufacturing (Food processing 25%, Apparel manufacturing 25%). Better precision in estimating adiposity may reduce the onset of costs associated with obesity treatment and aid wellness programs in conducting fitness-for-work determinations.

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