ASSESSMENT OF BODY COMPOSITION OF SCHOOLCHILDREN
AGED 6-12 YEARS

Aida C. Mallillin, Rosario S. Sagum, Ph.D., Amster Fei P. Baquiran,
James David S. Alcantara, Queency H. Alcantara,
Mark Ryan Q. Ibardaloza and Adorie D. Sabenecio

BACKGROUND

Body composition is an important indicator for health and nutritional status. Currently, there is scarce information on the body composition of children in the Philippines in terms of percent fat mass (%FM). Body mass index (BMI), waist circumference (WC) and waist-to-height ratio (WHtR) are commonly used to assess fatness. However, these are considered indirect measures of body composition, contrary to isotopic dilution technique which measures body fat from atomic to cellular level.

OBJECTIVE

This study determined the body composition of schoolchildren (6-12y) in Bicutan, Taguig City using anthropometric indices and isotope dilution technique and to test the correlation among measurements.

MATERIALS AND METHODS

Weight, height and WC were measured in 271 children, grouped as 6-9y.o. (n=135) and 10-12y.o. (n=136), and the corresponding BMI and WHtR were computed. Isotopic dilution technique was done by administering deuterium oxide to participants and saliva samples were collected before and then 3-hour and 4-hour after ingestion. Percent FM was estimated from total body water (TBW) which was computed from deuterium enrichment in saliva samples, analyzed using Fourier Transform Infrared spectroscopy.

RESULTS

There was no significant difference in %FM within age groups of the same sex. However, a significant difference between %FM of boys and of girls (p<0.05) was noted. In general, boys have lower %FM (22.7±0.9 for the 6-9y.o., 24.4±1.3 for the 10-12y.o.) than girls (27.1±0.9 for the 6-9y.o., 26.6±0.8 for the 10-12y.o.). A significant difference was also observed in WC between sexes (63.3±1.3cm in boys, 60.9±1.0cm in girls) in 10-12 years old (p<0.05). Correlation analysis showed that BMI, WC, and WHtR have better agreement with each other than with %FM. Percent FM tended to be more significantly correlated with BMI in boys and with WC in girls (p<0.05).

CONCLUSION AND RECOMMENDATION

BMI, WC and WHtR may not be an accurate measures of fatness for an individual, however, these correspond fairly well with percentage body fat within sex by age group. It is recommended that body composition assessment be done with wider age group and larger sample size to represent the Filipino population.