Concurrent Session 2: Obesity

Waist-height ratio is associated with blood pressure in 11 year old Aboriginal children

D Mackerras1,2,3, GR Singh1,2 SM Sayers1,2
1Menzies School of Health Research, Darwin, NT 0810
2Institute of Advanced Studies, Charles Darwin University, NT 0909
3Food Standards Australia New Zealand, Barton, 2610 ACT

Background – The use of body mass index (BMI) as a descriptor of overweight in children is complicated because the reference curves and cutoffs depend on age and sex. Age- and sex-specific BMI cutoffs for children have been defined by Cole and can also be derived from the 2000 US Centres of Disease Control (CDC) growth charts. However, the use of BMI to identify overweight in Australian Aboriginals has been criticised because this group has a relatively long leg length in relation to height. The waist-height ratio has been proposed as a better indicator of body fatness than other indices. A cutoff of >0.5 is proposed to be suitable irrespective of age, sex or race.

Objective - To examine the association between systolic blood pressure and three body size indicators - the waist-height ratio and BMI compared to the CDC or the Cole criteria - in Aboriginal children.

Design – Participants in the longitudinal Aboriginal Birth Cohort Study were followed-up at a mean age of 11 years. Height, weight, waist circumference and blood pressure were measured on 528 children. BMI was expressed as a z-score of the CDC curves using EpiInfo, and also dichotomised as < or ≥ the 85th centile. Children were classified as normal or overweight (including obese) using the Cole cutoffs. Waist-height ratio was dichotomised as < or >0.5.

Outcomes – The population was, on average, short and light for age. There were 72, 57 and 55 overweight children using the waist/height ratio, the CDC and the Cole cutoffs respectively; 49 were high by all three indices. In univariate analysis with systolic blood pressure as the outcome, the dichotomous overweight variable had adjusted r² of 12.4, 9.1 and 8.5 respectively for waist/height ratio, 85th centile of the CDC curve and by the Cole criteria. When used as continuous variables, waist/height ratio and BMI CDC z-score had adjusted r² of 11.3 and 14.0 respectively.

Conclusions – In this population, waist-height ratio explains a similar amount of the variance in systolic blood pressure as two other common body fatness indexes. When assessing individuals, the waist/height ratio would be simpler because it does not require comparison to age- and sex-specific charts for interpretation. From a research viewpoint, waist/height ratio and BMI z-scores have an advantage over the Cole definition because they can be used as continuous variables in the analysis.

A multi-dimensional model for the treatment of male obesity

GS Mendoza1, ME Barasi2, LD Sanders2, K Thirlaway2
1Institute of Food, Nutrition and Human Health, Massey University, Palmerston North, New Zealand
2Centre for Nutrition & Dietetics, University of Wales, Institute Cardiff, Wales

Background – Obesity is a major health challenge for New Zealand. The public health intelligence monitoring report “An Indication of New Zealanders’ Health 2005” puts levels of obese and overweight males at nearly 60% of the population. Reviewing weight loss initiatives reveals that most studies are undertaken on female subjects which may not take account of issues relevant to men.

Objective – To determine whether obese and overweight males go through set stages of behavioural change when trying to lose weight. To determine whether novice trainers can be trained to deliver an effective weight management programme.

Design – The study was a quasi-experimental intervention of longitudinal design producing quantitative data using repeated measures. Male subjects (n=61) were recruited by personal trainers, all subjects were either overweight or obese (BMI ≥25). A control group from a commercial slimming organisation was also recruited. The trainers delivered a 12 week weight management course to their subjects. At weeks 1, 4, 8 and 12 the following assessments were conducted – psychometric tests (Weight Efficacy life-style questionnaire, Decisional balance inventory, Stages of Change Algorithm, University of Rhode Island Change assessment Scale), anthropometric tests (weight, height, waist circumference, body fat %). Activity levels were assessed using pedometers and activity diaries.

Outcomes – Subjects achieved a mean weight loss of 4.65 kg (P<0.001) and mean waist circumference reduction of nearly 5cm (P<0.001). In addition, daily steps increased by 3947 (P<0.001) and energy intake decreased by 1318 kJ (P<0.05). Weight loss efficacy significantly increased (P<0.01) as did decisional balance difference (P<0.01). An increase in the level of efficacy correlated with reductions in waist measurement (P<0.05).

Conclusion – It is possible to train novice trainers to deliver an effective weight management course. Increases in self-efficacy and decisional balance were in line with transtheoretical model of change theory. It may be possible to use decisional balance and levels of efficacy as a screening tool to improve male weight loss programmes.

References