

The association between water intake, body composition and cardiometabolic factors among children - The Cuenca study

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Introduction: Beverage consumption and its possible association with current obesity epidemic and metabolic syndrome is under investigation in recent years, however water intake is probably the most underestimated of all beverages and could play an important role. **Objective:** The aim of this study was to examine the association between water intake, body composition and cardiometabolic factors in a sample of Spanish children. **Methods:** A cross-sectional study was conducted in 366 schoolchildren (53.5% girls) aged 9-11 years from the province of Cuenca in Spain. Data of anthropometrics, body composition, cardiometabolic risk factors and cardiorespiratory fitness variables were collected. Beverage consumption was assessed using two non-consecutive 24 h dietary recalls. **Results:** We found an inverse association between the consumption of water (ml)/kg per weight with BMI, body fat, fat-free mass, waist circumference, insulin levels, HOMA-IR ($p < 0.001$), and with arterial pressure parameters, systolic ($p < 0.010$) and diastolic blood pressure ($p < 0.028$), and mean arterial pressure ($p < 0.012$), as well as direct associations with HDL cholesterol ($p < 0.001$). In ANCOVA analyses, children who drank less water (ml)/kg per weight, had higher levels of LDL cholesterol ($p < 0.050$) and lower levels of HDL cholesterol ($p < 0.042$), and overweight-obesity subjects drank less water (ml)/kg per weight than normal peers ($p < 0.011$). Besides, children with lower levels of HDL cholesterol and higher levels of triglycerides and blood

pressure had less water intake as a beverage. Finally, children who drank less water from beverages had high levels of LDL cholesterol. Conclusions: Higher consumption of water (ml)/kg per weight was negatively associated with BMI, body fat, fat-free mass, waist circumference, insulin levels, HOMA-IR, and positively with HDL cholesterol in children independently of age, sex and cardiorespiratory fitness. In addition, overweight-obese children drank less water (ml)/kg per weight than normoweight ones. Therefore, water consumption is associated with numerous health benefits and its adequate intake could contribute to prevent obesity and metabolic syndrome in childhood. © 2016, Grupo Aula Medica S.A. All rights reserved.

Body composition

Insulin resistance

Serum lipids

Water consumption

body composition

body water

Cardiovascular Diseases

child

cross-sectional study

drinking

female

human

male

Metabolic Diseases

physiology

Spain

Body Composition

Body Water

Cardiovascular Diseases

Child

Cross-Sectional Studies

Drinking

Female

Humans

Male

Metabolic Diseases

Spain