T3:PS.30

Capsaicin, a spicy component of hot peppers, attenuates obesity-induced inflammatory responses and insulin resistance.

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Adipokines are involved in the obesity-induced chronic inflammatory response that plays a crucial role in the development of obesity-related pathologies such as type II diabetes and atherosclerosis. We here demonstrate that capsaicin, a naturally occurring phytochemical, can suppress obesity-induced inflammation by modulating adipokine release from and macrophage behavior in obese mice adipose tissues. Capsaicin inhibited the expressions of IL-6 and MCP-1 mRNAs and protein release from the adipose tissues and adipocytes of obese mice, whereas it enhanced the expression of the adiponectin gene and protein. The action of capsaicin is associated with NF-κB inactivation and/or PPARγ activation. Moreover, capsaicin suppressed not only macrophage migration induced by the adipose tissue-conditioned medium, but also macrophage activation to reseed proinflammatory mediators. In vivo experiment, dietary supplement of capsaicin significantly decreased the expression levels of MCP-1 and IL-6, and macrophage accumulation and increased the expression of adiponectin in adipose tissue of the obese mice compared with those of the control. Moreover, capsaicin improved the impairment of glucose tolerance in the obese mice. Capsaicin may be a useful phytochemical for attenuating obesity-induced inflammation and obesity-related complications such as insulin resistance.

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Is epicardial fat an indicator of central adiposity in overweight children?

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Visceral adipose tissue is recognized as an independent risk factor for metabolic syndrome in adults. Estimation of abdominal obesity by anthropometry is frequently imprecise, particularly in children. The study aim was to estimate whether epicardial fat (EF) measured by transthoracic echocardiography correlates with waist circumference and metabolic syndrome components in overweight children. In 52 overweight children (23M, 29F) in the mean age 11.6 ± 2.87 years and in 61 normal weight healthy children (24M, 37F) in the mean age 13.4±2.13 years, measurements of EF thickness on the right ventricle were obtained by two-dimensional M-mode echocardiogram. In all children weight status was assessed according to IOTF criteria and their waist circumference was measured. Fasting total cholesterol (TCh), HDL-cholesterol (HDL), triglycerides (TG) and insulin (Ins) were measured, LDL-cholesterol (LDL) was calculated and systolic (SBP) and diastolic blood pressure (DPS) were measured in overweight children. In overweight children EF thickness was 5.52 mm (4.97-6.07 95%CI) vs 2.53 mm (2.32-2.74 95% CI) in non-overweight, the difference being statistically significant (p<0.0001). EF significantly correlated with weight, BMI, BMI z-score and waist circumference (p<0.0001). There was no correlation between EF and TCh, HDL, LDL, TG, Ins, SBP and DPS, in model adjusting for of weight, age and sex.

It is concluded that although epicardial fat in overweight children shows a strong correlation with BMI and waist circumference it does not seem to be independent predictor of metabolic syndrome in this age group.