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Food choices are a key determinant of dietary intake, with involved brain regions such as the mesolimbic and prefrontal cortex maturing at a differential rate from childhood to young adulthood. However, developmental changes in healthy and unhealthy food perception and preference remain poorly understood. We aimed to understand this gap by investigating whether perceptions and preferences for food vary as a function of age, and how specific food attributes (i.e., taste and health) impact these age-related changes. We hypothesized that there would be an inverted U-shaped relationship between age and preference for high-calorie foods. As well, we expected that both dietary self-control and the decision weight of the health attribute would increase with age. One hundred thirty-nine participants aged 8–23 years (79 males, 60 females) participated in this study. They completed computerized rating tasks to assess taste, health, and liking (or preference) of high-calorie and low-calorie foods, followed by 100 binary food choices based on each participant's individual ratings for taste and health. Among the 100 pairs, 75 were deemed challenge trials, where one food had a higher taste rating but a lower health rating than the other food item. Dietary self-control was considered successful when the healthier food cue in the challenge trial was chosen, and self-control success ratio (SCSR) was computed as the proportion of self-control success trials over the total number of choices. Results showed that high-calorie foods were rated as more tasty ($r = 0.32$, $p < 0.001$) and less healthy ($r = -0.22$, $p < 0.01$) with increasing age. As well, older participants wanted to eat high-calorie foods more than the younger participants ($r = 0.29$, $p = 0.001$). Furthermore, older age was associated with an increased decision weight of taste attribute on food preferences ($r = 0.26$, $p = 0.002$), suggesting that the taste attribute may contribute to the age-related increases in preference for high-calorie foods. Although participants rated low-calorie foods as less tasty ($r = -0.17$, $p = 0.04$) and less healthy ($r= -0.31$, $p < 0.001$) with increasing age, there was no significant association between age and preference for low-calorie foods. Participants made faster food choices with increasing age ($r= -0.31$, $p < 0.001$), which was driven by failed self-control choices ($r = -0.23$, $p = 0.006$). There was no significant association between age and SCSR ($p = 0.5$). Our results are consistent with other studies that demonstrate age-related increases in consumption of calorie-dense foods in youth, and suggest that age may be more relevant to preference for high-calorie than low-calorie foods. Future studies are merited to investigate the neurobiology underlying these developmental changes in food perceptions and preferences.

Adipose Tissue, Appetite, and Obesity
INTEGRATED PHYSIOLOGY OF OBESITY AND METABOLIC DISEASE

Diabetes and Insulin Resistance Show Association With Femoral Instead of Abdominal Adipocyte Size in Asian Indians

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Objectives: Energy intake exceeding expenditure results in adipogenesis, which consists of adipocyte hyperplasia and hypertrophy. Adipocyte hypertrophy is the pathological hallmark of 'sick fat' responsible for the development of insulin resistance and diabetes mellitus. In Asian Indians, who show a thin, fat phenotype, the association of adipocyte hypertrophy in various fat depots with insulin resistance and diabetes is not precisely known. The objective of this study is to find an association between adipocyte size of abdominal and thigh fat depot and certain parameters of diabetes mellitus. **Material & Methods:** In this cross-sectional analytical study, 172 patients were recruited. Abdominal subcutaneous and visceral fat samples were available of 100 patients (Non-diabetics: 56; Diabetics: 44), whereas thigh fat was analyzed in 72 patients (Non-diabetics: 40; Diabetics: 32). All participants had a BMI of less than 30 kg/m^2 to negate the effect of obesity on adipocyte size. Fasting glucose, insulin, HbA1c, lipid profile including triglycerides, and total cholesterol were measured in all participants, and HOMA-IR was calculated. Adipocyte size in biopsied tissue after fixation was measured with the help of Motic Panthera Moticam 5 trinocular microscope (BA210LED) and Adobe Photoshop CC image analysis tool. **Results:** Mean adipocyte size in abdominal visceral compartment in diabetics and non-diabetics were 16610.3 ± 889.5 um^2 and 16129.8 ± 878.5 um^2 respectively. Whereas, mean adipocyte size in abdominal subcutaneous fat in diabetics and non-diabetics were 15071.0 ± 1261.1 um^2 and 14356.8 ± 1004.7 um^2 respectively. Adipocyte size difference of both the abdominal compartments between diabetic and non-diabetic group was statistically non-significant ($p= 0.70$ & 0.65 in omental and abdominal subcutaneous compartments respectively). Mean adipocyte size of thigh in diabetics and non-diabetics were 13070.2 ± 1416.2 um^2 and 9020.1 ± 811.1 um^2 respectively and difference between adipocyte size between both groups was statistically significant ($p = 0.01$). Thigh Adipocyte size in diabetic subgroup was positively correlated with HOMA -IR ($r = 0.4$, $p = 0.02$), triglycerides ($r= 0.4$, $p = 0.03$), waist circumference ($r = 0.32$, $p = 0.03$). On multivariate linear regression analysis HOMA-IR ($\beta= 0.45$, $p=0.00$), triglycerides ($\beta=0.38$, $p=0.01$) and waist circumference ($\beta=0.35$, $p=0.02$) are predictor of increased adipocyte size. **Conclusion:** We found that thigh adipocyte size was significantly larger in diabetics in comparison to non-diabetics, whereas no such difference was found in the abdominal fat compartment. In diabetic patients' thigh, adipocyte size was positively correlated with HOMA-IR, waist circumference, and triglyceride levels, underlining the role of peripheral fat depots in the pathogenesis of diabetes type 2.

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Effect of Time-Restricted Feeding on Body Weight and Cardiometabolic Risks: A Systematic Review and Meta-Analysis of Randomized Controlled Trials