Blame your parents for where you put your fat?

Obesity is a global epidemic, but the consequences of excess adipose tissue are not uniform. In particular, the distribution of body fat in the trunk (mostly intraabdominal) has much to do with cardiometabolic comorbidities such as metabolic syndrome, type 2 diabetes and cardiovascular disease even when estimates of body fat by body mass index (BMI) are not in the range of obesity (≥ 30 kg/m²). In this recent paper in *Nature Communications* (*Nat Commun*, 2019 Jan 21;10(1):339. doi: 10.1038/s41467-018-08000-4), genome-wide association was utilized to show a high degree of sex-heterogeneity that was much stronger in females compared to males. In females, genes related to mesenchyme-derived tissues and cell types as well as endocrine tissues appeared important to predicting body fat distribution.

Fig. 1

**Fig. 1** Segmental body impedance analyses. This method uses bio-electrical impedance to estimate body composition: fat mass, muscle mass, etc. In this study, adipose tissue mass was estimated using the Tanita BC-418MA body composition analyzer (a). This machine uses an eight-electrode method, which allows for five measurements of impedance. Electrical current is supplied to the front of both feet and the fingertips of both hands. Voltage is measured on either heel or thenar portion of the palms. Body composition is derived from a regression formula for each body part. The formula is derived from regression analysis using height, weight, age and impedance for each body part as predictors for composition of each body part as assessed by DXA (b). GWAS for AFR, LFR, and TFR were conducted in the UK Biobank cohort and revealed associations with loci that have not previously been associated with standard anthropometric traits. c A manhattan plot with combined results for association studies of body fat ratios in combined and sex-stratified analyses. Overall, 135 independent associations with at least one of the body fat ratios were observed in the discovery analyses. Out of the initial 135 associations, 98 replicated; of which 30 replicated for AFR, 44 for LFR and 66 for TFR. Loci that have not previously been associated with an anthropomorphic trait are highlighted in red (N = 29).
Marcelo Coca Perraillon, PhD, is an assistant professor in the Department of Health, Systems, Management & Policy at the Colorado School of Public Health. He obtained his doctoral degree in health economics and biostatistics at University of Chicago and was a researcher at the National Bureau of Economic Research (NBER). His research examines the role of health policy on costs, outcomes, and quality of health care. Much of his research incorporates a theoretical perspective from economics applied to quasi-experimental designs to analyze observational data.

One of his research areas is focused on the role of public reporting of quality information in the nursing home sector. Public reporting of quality information through provider report cards or ratings is often regarded as a potentially powerful tool to address information asymmetry—situations in which providers and consumers do not have the same information—and to enable consumers to choose providers of better quality. Although compelling and intuitively appealing, the empirical evidence on public reporting effects on consumer and provider behavior has been mixed, particularly due to the challenge of establishing causal effects. His research has used quasi-experimental designs to show that residents, their families, and nursing homes respond to quality ratings, although some nursing homes and residents are often constrained by low Medicaid reimbursement rates.

Other areas of current research include the use of electronic health records combined with administrative data to more accurately estimate the actual cost of nursing care in hospitals, as well as costs studies showing saving from initiatives such as the provision of free long-acting reversible contraceptives in Colorado and system-wide smoking cessation programs. Dr. Perraillon teaches economic evaluation and cost-effectiveness to Masters in Public Health students and statistical methods for health services research to doctoral students.