

Method: The UK Biobank is a prospective cohort study of ~500,000 participants whose height, weight, BMI, waist circumference, hip circumference, waist:hip ratio (WHR), total fat mass, fat-free mass, body-fat percentage, and percentage truncal fat were measured at enrolment with linkage to medical records. ICD-10 and OPCS codes identified individuals with a new diagnosis of nephrolithiasis from 2006-2010. Individuals with a history of kidney stones or incomplete data were excluded. Multivariate Cox-proportional hazard models were used to assess associations between anthropometric measures and incident kidney stones.

Results: From the UK Biobank, 493,410 individuals were identified for inclusion; 3,466 developed a kidney stone during the study period. Increasing weight, BMI, waist, and hip circumferences, WHR, and body and truncal fat were all associated with increased risk of incident kidney stone disease. However, after adjustment for BMI, only waist circumference and WHR remained significantly associated with risk of nephrolithiasis. In overweight patients, high (men 94-102cm, women 80-88cm) waist circumference or WHR (men >0.9, women >0.85) conferred >40% increased risk of stone formation.

Conclusions: This study indicates that android fat distribution is independently associated with increased risk of developing nephrolithiasis. Kidney stone disease is known to be associated with hypertension, cardiovascular disease, and diabetes, all of which have been linked to android body shape. Our findings provide insight into anthropometric risk factors for stone disease, will facilitate identification of patients at greatest risk of stone recurrence, and will inform prevention strategies.

323 Association of Increased Body Mass Index and Waist to Hip Ratio with Kidney Stone Disease: a Prospective Analysis of 493,410 UK Biobank participants

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Aim: To investigate the relationship between measures of adiposity and risk of incident kidney stone disease.