

## Shape Up! Adults Study Measurements

<b>Questionnaire:</b> Age, Sex, Ethnicity, SES, BMI
<b>Physical Anthropometry:</b> Waist Circumference, Waist-to-Hip-Ratio (WHR), Mid-thigh Girth, Bicep Girth
<b>DXA Direct Adiposity Measures:</b> Fat mass (arms, legs, trunk, total), Lean mass (arms, legs, trunk, total), percent fat (arms, legs, trunk, total), Volumes (arms, legs, trunk, total), muscle mass (appendicular, total)
<b>DXA Derived Adiposity Measures and Indices:</b> Visceral Adipose Tissue (VAT), Subcutaneous Abdominal Adipose Tissue (SAT), Trunk fat to leg fat ratio, Trunk to leg volume ratio, fat mass index (FMI), fat-free mass index (FFMI)
DXA Bone Measures: Bone mass (arms, legs, lumbar spine, total), Bone Mineral Density (spine, total)
<b>Biochemical and Hormonal Markers in Fasting Blood</b>
Adipokines: leptin, HMW adiponectin, sLEPR, PAI1
Cytokines & Inflammation: TNF $\alpha$ , IL1 $\beta$ , IL2, IL4, IL5, IL6, IL8, IL10, interferon, GM-CSF, CRP, uric acid, MCP1, cortisol
Insulin Resistance & IGFs: glucose, insulin, HbA1C, IGF1, IGFBP1-3
Sex Steroid Hormones: total estradiol & estrone, total testosterone, SHBG (for free estradiol and free testosterone will be derived)
Lipid Profile & Lipid-soluble Micronutrients: TG, total cholesterol, HDLC, free fatty acids, lycopene, 25OH-vitamin D3, alpha-tocopherol, CoQ10
Liver Enzymes: ALT
Neuropeptides & Gut Hormones: ghrelin
<b>Questionnaire-based Behaviors on Dietary Intake, Physical Activity, and Cognitive Eating</b>
Dietary Intake (MEC Quantitative Food Frequency Questionnaire): nutrients, food items, food groups
Physical Activity (MEC Physical Activity Questionnaire): total METs, METs for moderate/vigorous activities
Cognitive/Psychological Eating Behaviors (Weight-Related Eating Questionnaire): <u>scores</u> for emotional eating, eating in response to external cues, eating with compensatory restraint (eating less before/after a big meal), eating with routine restraint (holding back at meals, counting calories, dieting)
Meal frequency and times
Weight cycling history and parental body shape information
<b>Strength Isokinetics and Isometrics:</b> peak torque, average peak torque, total work, average power, AGON/ANTAG ratio

## Shape Up! Kids Study Measurements

<b>Questionnaire:</b> Age, Sex, Ethnicity, SES, BMI-Z
<b>Physical Anthropometry:</b> Waist Circumference, Waist-to-Hip-Ratio (WHR), Mid-thigh girth, bicep girth, height, weight
<b>DXA Direct Adiposity Measures:</b> Fat mass (arms, legs, trunk, total), Lean mass (arms, legs, trunk, total), percent fat (arms, legs, trunk, total), Volumes (arms, legs, trunk, total), muscle mass (appendicular, total)
<b>DXA Derived Adiposity Measures and Indices:</b> Visceral Adipose Tissue (VAT)*, Subcutaneous Abdominal Adipose Tissue (SAT)*, Trunk fat to leg fat ratio, Trunk to leg volume ratio, fat mass index (FMI), fat-free mass index (FFMI)
<b>DXA Bone Measures:</b> Bone mass (arms, legs, lumbar spine, total), Bone Mineral Density (spine, total)
<b>MRI-Derived Measures:</b> VAT, muscle fat (arm, legs, trunk, total), muscle volume (arms, legs, trunk, total), SAT (arms, legs, trunk, total), liver (fat, volume)
<b>Biochemical and Hormonal Markers in Fasting Blood</b>
Adipokines: leptin, HMW adiponectin, sLEPR, PAI1
Cytokines & Inflammation: TNF $\alpha$ , IL1 $\beta$ , IL2, IL4, IL5, IL6, IL8, IL10, interferon, GM-CSF, CRP, uric acid, MCP1, cortisol
Insulin Resistance & IGFs: glucose, insulin, HbA1C, IGF1, IGFBP1-3
Sex Steroid Hormones: total estradiol & estrone, total testosterone, SHBG (for free estradiol and free testosterone will be derived)
Lipid Profile & Lipid-soluble Micronutrients: TG, total cholesterol, HDLC, free fatty acids, lycopene, 25OH-vitamin D3, alpha-tocopherol, CoQ10
Liver Enzymes: ALT
Neuropeptides & Gut Hormones: ghrelin
<b>Questionnaire-based Behaviors on Dietary Intake, Physical Activity, and Cognitive Eating</b>
Dietary Intake (MEC Quantitative Food Frequency Questionnaire): nutrients, food items, food groups
Physical Activity (Habitual Activity Patterns Questionnaire): total METs, METs for moderate/vigorous activities
Cognitive/Psychological Eating Behaviors (Weight-Related Eating Questionnaire): scores for emotional eating, eating in response to external cues, eating with compensatory restraint (eating less before/after a big meal), eating with routine restraint (holding back at meals, counting calories, dieting)
Meal frequency and times
Weight cycling history and parental body shape information
<b>Strength Isokinetics and Isometrics:</b> peak torque, average peak torque, total work, average power, AGON/ANTAG ratio