



P20: ASSOCIATION OF OBESITY WITH INCREASED ENDOGENOUS OXALATE SYNTHESIS

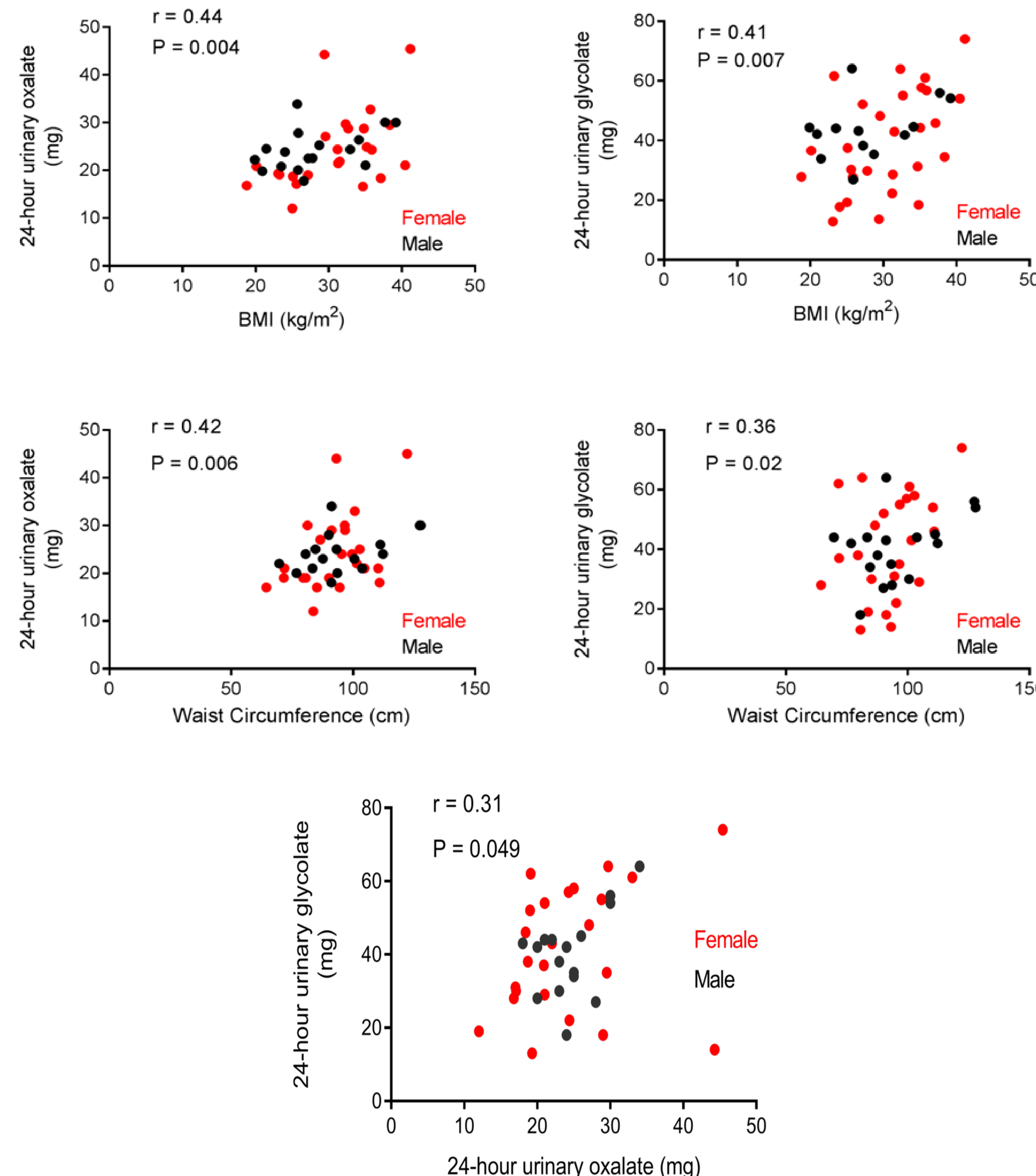
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Introduction

The urinary oxalate pool is derived from dietary oxalate and endogenous oxalate synthesis. Prior studies have demonstrated the positive correlation between weight/body mass index (BMI) and urinary oxalate excretion. Our objective was to determine if this association is secondary to increased endogenous oxalate synthesis.

Methods

Healthy subjects, between 18 and 65 years old, with variable BMI were recruited. Subjects consumed a low oxalate controlled diet containing 16% protein, 30% fat, 54% carbohydrate, 1000 mg calcium, and 30 mg oxalate which was void of vitamin C and calcium supplements. This diet virtually eliminates any contribution of dietary oxalate to the urinary oxalate pool. Subjects remained on this diet for 3 days. 24-hour urine collections were performed on the last two days. Urinary oxalate and glycolate were measured by ion chromatography coupled with mass spectroscopy. Statistical analysis included Chi-squared, correlation and linear regression analysis, and student t-test.



Results

There were 41 subjects recruited with various BMIs (19-42). Urinary oxalate excretion (mg/day) was positively correlated with BMI ($r=0.44$, $p=0.004$) and waist circumference ($r=0.42$, $p=0.006$). Similar correlations were seen with urinary glycolate excretion (mg/day) with BMI ($r=0.41$, $p=0.007$) and waist circumference ($r=0.36$, $p=0.02$). Urinary oxalate and glycolate (an oxalate precursor) excretion was positively correlated ($r=0.31$, $p=0.049$).

Discussion

These results demonstrate a positive correlation between urinary oxalate derived from endogenous oxalate synthesis and BMI as well as other measures of obesity. This also provides an explanation for the association between stone risk and obesity.

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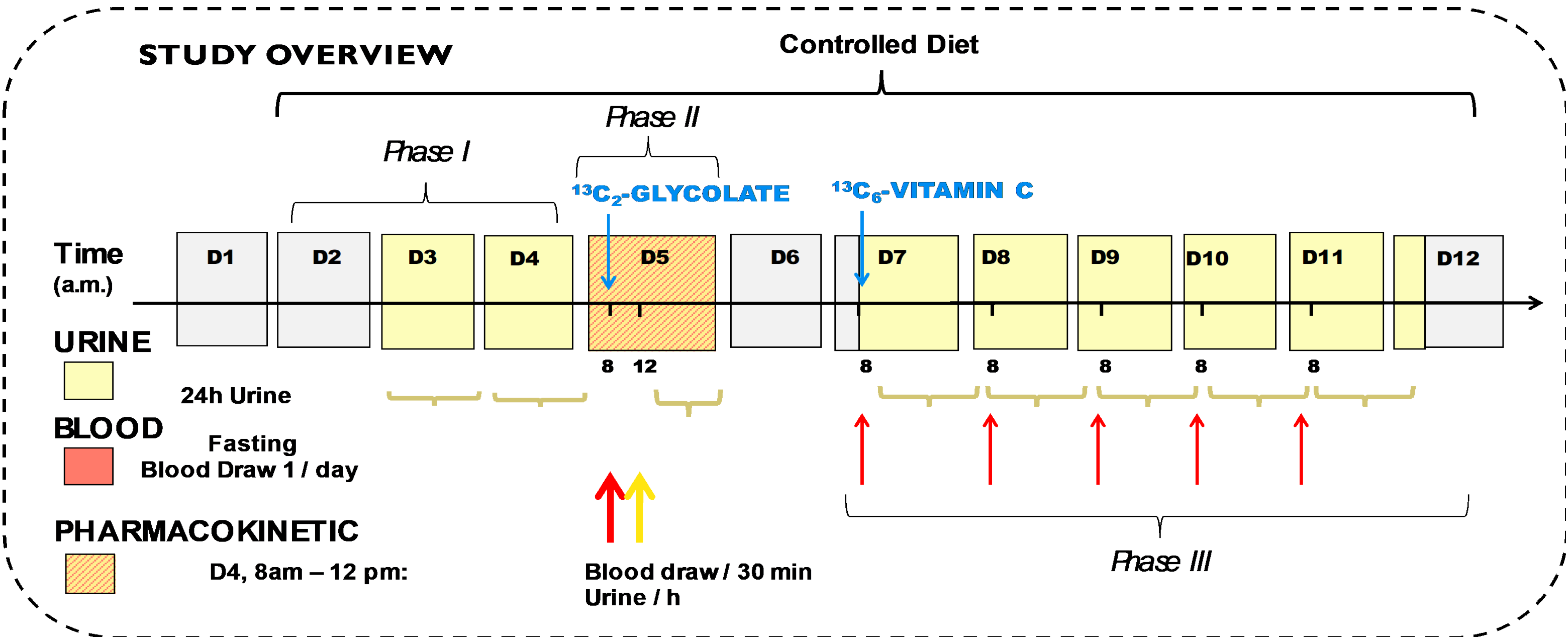
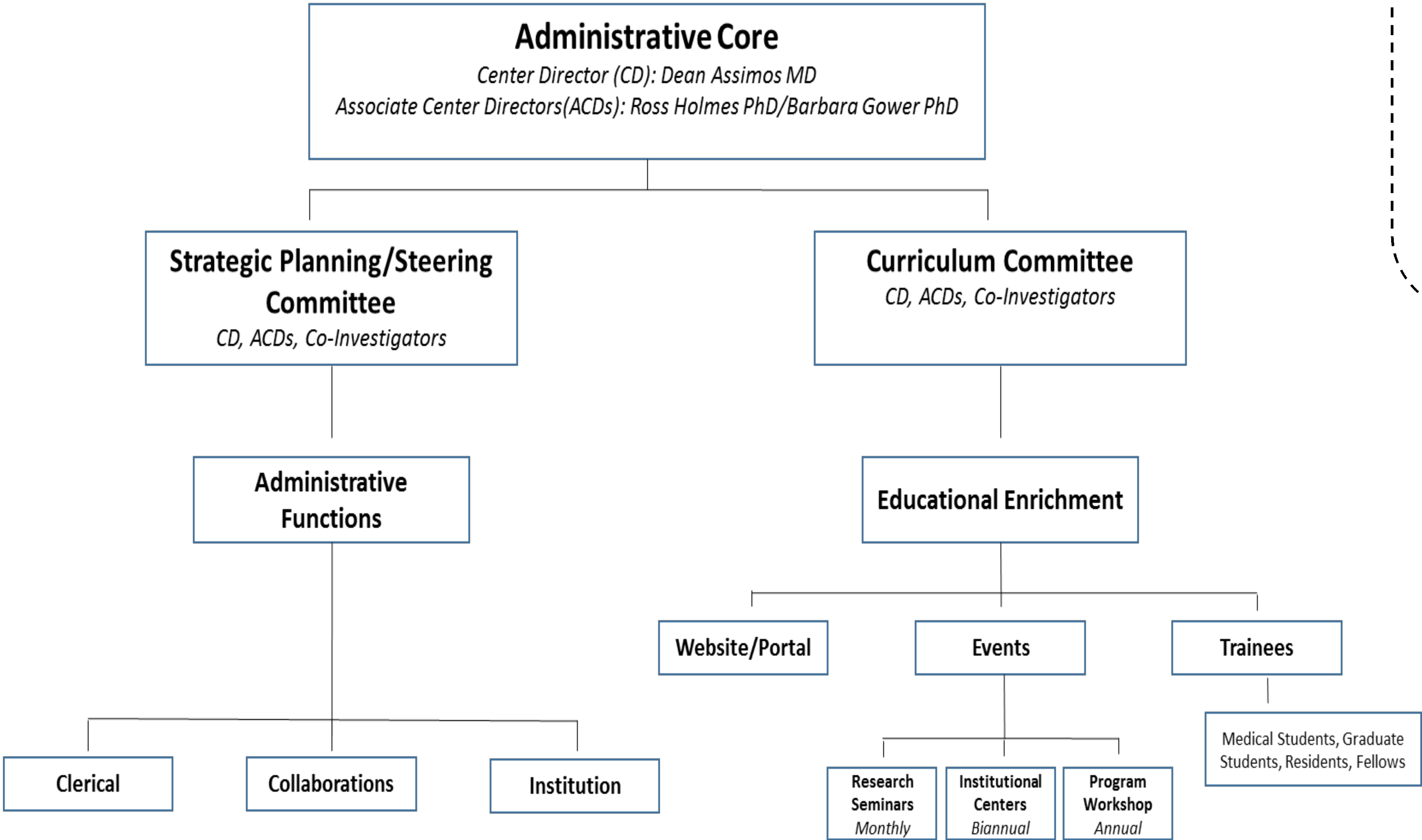
P20: INFLUENCE OF OBESITY ON ENDOGENOUS OXALATE SYNTHESIS

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University of Alabama: Department of Urology, Department of Nutrition, Nutrition and Obesity Research Center

COOKS (Center for research on Obesity and Oxalate Kidney Stones)

- Specific Aim 1:** To establish a broad based network of scientific expertise to elucidate the relationships between obesity and endogenous oxalate synthesis.
- Specific Aim 2:** To provide administrative and educational platforms to enhance expertise on this subject, attract others into this field of research, and promote intra/extra institutional collaborations.
- Specific Aim 3:** To conduct a research project that will illustrate the value of this interdisciplinary approach and provide critical preliminary data for a successful R01 or Program Project Grant submission.

Center for research on Obesity and Oxalate Kidney Stones
(COOKS)



Grant: NIH 1P20 DK119788-01
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Nutrition and Obesity Research Center
Center for Clinical and Translational Science