To evaluate the acute effects of evening (before sleep) consumption of whey and casein proteins in improving blood glucose, blood lipids, and resting metabolic rate in overweight and obese individuals.

**METHODS**

Participants: Twenty-nine (4 men; 25 women) overweight or obese individuals (Age, 27.6 ± 2.6; Height, 164.8 ± 7.0 cm; Weight, 83.8 ± 21.7 kg). Body Mass Index (BMI), 36.0 ± 6.0 kg/m²; % body fat, 46.0 ± 6.5%) participated in this double-blind, placebo-controlled study.

Study Design: Following baseline measures (see below), individuals were matched for BMI, sex, and % body fat and randomly assigned to 1 of 3 groups (Table 2). After ingestion of the supplement at night, participants returned to the lab the next morning to repeat baseline measures. Participants visited the lab (between 6 and 8 am) following an 8-10 hour fast. Measurements included:

- **Resting Metabolic Rate (RMR):** RMR was then measured using indirect calorimetry (ParvoMedics, Sandy, UT). This non-invasive test involves lying down on a padded table for 30-minutes while breathing into a ventilated tube.

Blood Measures: Twenty-milliliters of blood was drawn from a forearm vein and analyzed for glucose (GLU), total cholesterol (TC), triglycerides (TRG), TC/HDL ratio, high-density lipoprotein cholesterol (HDL), low-density lipoprotein cholesterol (LDL), and non-high-density lipoprotein (Non-HDL) utilizing the Cholestech LDX blood analysis system (Hayward, CA).

**SUPPLEMENT INTAKE:** Twenty-nine (4 men; 25 women) overweight or obese individuals (Age, 27.6 ± 2.6; Height, 164.8 ± 7.0 cm; Weight, 83.8 ± 21.7 kg). Body Mass Index (BMI), 36.0 ± 6.0 kg/m²; % body fat, 46.0 ± 6.5%) participated in this double-blind, placebo-controlled study.

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**REFERENCES**


