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Low resting energy metabolism, higher fat, and greater fatigue in sedentary patients with rheumatoid arthritis

Objective(s): Rates of obesity are higher in people with RA than in the general population. Rheumatoid cachexia refers to the loss of muscle mass and increase in body fat (with no change in body weight) that is evident in up to 2/3 rds of people with RA. Because metabolism is directly related to lean tissue mass, we hypothesized resting energy expenditure (REE) would be lower than expected in people with RA.

Method(s): Data was drawn from the baseline visit of the first 10 sedentary individuals with RA enrolled who had been cleared to participate in a supervised strength training study.

We used whole body dual energy x-ray absorptiometry (DXA) scans to measure body composition and indirect calorimetry (SensorMedics) to measure REE. Results from indirect calorimetry were compared against predicted values using the Harris-Benedict equation. Physical function was measured using PROMIS-PF and fatigue severity using a 100 mm VAS.

Result(s): Participants were mostly female (n=9; 90%) and white (n=9; 90%) with mean (SD) age of 38 (22) years (range 19–65); 30% had ≤ high school education, and 40% had a history of smoking. Mean RA duration was 9 (4) years (range 1-15). Using WHO cut points for weight, 8 (80%) were classified as healthy weight (BMI 18.5-24.9), and 2 (20%) were overweight (BMI 25-29.9). Using proposed RA-specific cut points for obesity, 2 (20%) were classified as obese.

REE was lower than predicted in 7 (70%) of individuals. Strong positive correlations were evident between REE and total lean mass (r=0.68) and with appendicular lean mass (r=0.96). Physical function was significantly lower (.8 SD) than in age matched peers and patients reported moderate levels of fatigue.

Conclusion(s): We found that REE was low, and body fat and fatigue were high in sedentary adults with RA, potentially predisposing them to additional weight gain. Resistance exercise can not only increase muscle mass, but may also help increase REE and facilitate long-term weight management in people with RA.