

Objective: Nutritional counseling is a critical component of healthcare for overweight and obese adolescents. To provide this counseling, clinicians rely on equations to calculate resting energy expenditure (REE), however, the data used to construct these equations was created from a database of normal-weight children using outpatient indirect calorimetry (IC). Our goal was to determine the accuracy of these equations and create a novel, more accurate REE equation. Methods: Secondary analysis of overweight and obese female participants who underwent monitored, inpatient REE. Ten predictive equations were used to calculate REE for each subject and performance was evaluated using mean absolute error. A Backward stepwise model was performed to create a new predictive equation for REE using multiple variables. Results: Data from 142 overweight and obese female adolescents was used to compare measured REE to REE predicted by 10 established equations. All but one of the equations overestimated REE. Our novel equation more accurately predicted REE. Conclusion: Previous predictive equations have been over-predicting REE in overweight and obese adolescent girls. Our novel equation will allow clinicians to more accurately estimate REE and aid in nutrition counseling and weight loss.