

Energy Expenditure

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Faculty Disclosure Information

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- I do not intend to discuss an unapproved/investigative use of a commercial product/device in my presentation.

Learning Objectives

1. Define the components of Energy Expenditure
2. Distinguish the difference that age and various nutrition and medical states make to energy expenditure
3. Cite ways to increase energy expenditure

Energy Expenditure

$$TEE = BMR + AEE + TEF$$

BMR= Basal Metabolic Rate

AEE= Active Energy Expenditure (Physical Activity)

TEF= Thermic effect of feeding

Calculating BMR

- Directly Measuring BMR: Many techniques, very difficult
- Estimating BMR: Easier but less accurate. > 100 equations exist to estimate or predict BMR

Calculating BMR

- Harris-Benedict
- Mifflin St. Jeor
- Cunningham

**Active Energy Expenditure
(AEE)**

Activity	Level	110 lb	150 lb	210
Bike	10 mph	315	430	602
	>20 mph	840	1146	1604
Run	5 mph 12min/mi	420	573	802
	7.5 mph 8 min/mi	656	895	1253
	11 mph 5.5 min/mi	945	1289	1805
Walk	<2 mph	105	143	201
	4.5 mph 13 min/mi	331	451	632

From RMR to Calorie Budget:

RMR x "lifestyle factor" + exercise
calories = Total Energy Expenditure

Then... add or subtract calories (wt.
change) +/- (500/day = 1lb/wk)
= Calorie Budget
