Calories! Calories! Calories! How Many Calories Do I Need?
How Many Calories Do I Need?

- Understanding Energy Balance
- Determining Calorie Needs
- Keeping Food Records
- Wanting To Lose Weight – Calorie Deficit
- Questions/Answers/Discussion
Understanding Energy Balance

*Energy Balance* – the relationship between the number of calories taken in (via food and beverages) and the number of calories used by the body to function

- Maintain Weight: energy in = energy out
- Gain Weight: energy in > energy out
- Lose Weight: energy in < energy out
Understanding Energy Balance

How much energy does my body use? What is my “energy out?”

Total Energy Expenditure (TEE)

- 1) Resting Metabolic Rate
- 2) Thermic Effect of Food
- 3) Physical Activity (lifestyle and purposeful)
Understanding Energy Balance

Total Energy Expenditure (TEE)

Resting Metabolic Rate
- Energy expended under restful conditions (laying down, relaxed, in a fasted state,…)
- 60-70% TEE

Thermic Effect of Food
- Energy needed for eating, digesting, absorbing, transporting, metabolizing, storing energy from food
- ~10% TEE (difficult to measure)

Physical Activity
- Most variable – people can be inactive, moderately active, very active,…
- Resulting influence on TEE can be small or significant
Understanding Energy Balance

What can I change?

Resting Metabolic Rate (RMR)
- Maybe… small changes only

Thermic Effect of Food (TEF)
- Not noticeably… but eating a lower fat diet wouldn’t hurt

Physical Activity (PA)
- YES!!!
Determining Calorie Needs

- *Doubly labeled water is the only way to fully determine free-living TEE*
  - Research only
  - Super expensive

- RMR is measured (indirect calorimetry) or estimated with an equation
- TEF is almost always estimated to be 10% or factored into the estimation equation
- PA is estimated with diaries, questionnaires, wearing monitors, based on occupation, etc.
Determining Calorie Needs

- The best equation to estimate RMR or resting energy expenditure (REE) in healthy normal weight, overweight, and obese adults is the Mifflin-St. Jeor (MSJ) equation.
- The MSJ equation estimates your RMR based on your weight, height, age, and gender.
- You then choose an activity factor to determine estimated TEE or daily calorie need.
  - We will help you choose an activity factor…

\[
\text{RMR \times activity factor} = \text{estimated daily calorie need}
\]
### Determining Calorie Needs

**Choosing an Activity Factor**

- **Be conservative!!**
- **1.2 – low active. Most adults.**
  - Computer programmer, Executive, Receptionist
- **1.4 – low to moderately active.**
  - Dentist, Airline agent, Homemaker, Cook, Hairdresser
- **1.6 – active**
  - Soldier, Mechanic, Janitor, Nurse, Mail carrier
- **2.0 – very active**
  - Construction, Landscaper, Mover, Coal Miner, Heavy Farm Labor
Determining Calorie Needs

Let’s give it a try....

- Before we start, choose an activity factor.
  - Be conservative.
  - You may want to do an activity range (e.g., 1.1-1.3).

- Remember, this is just an estimate.
Determining Calorie Needs

Using Mifflin St. Jeor Equations

1st convert your WEIGHT to kg:

1 pound = 2.2 kg  Your wt in lbs _____ / 2.2 = _______ kg

Next convert your HEIGHT to cm

1 inch = 2.54 cm  Your ht in inches _____ x 2.54 = _______ cm

FEMALES  weight  height  age
REE (kcal/d) = [10 x ______kg] + [6.25 x ______cm] - [5 x _____] – 161

MALES
REE (kcal/d) = [10 x ______kg] + [6.25 x ______cm] - [5 x _____] + 5

_________________ + __________________ - ________ -/+ (161 or 5) =

_______(kcal/d) x _______ activity factor = _______________ (kcal/d) needs
Determining Calorie Needs

What does this mean?

- This number is an estimate of how many calories you need per day to maintain your current body weight.
  - Remember, the RMR and the activity factor are both estimates…

- This number can be used to help you lose, maintain, or gain weight; however, some more work is needed on your part.
  - Knowing how many calories you expend means little if you can’t compare it to how many calories you take in.
Keeping Food Records

• Write down everything you eat and drink for 3 to 7 days. Include portion sizes (measure when able) and the way the food was prepared.

• Use food labels, calorie counting books, or websites to determine the calories in each food/beverage consumed.
  - http://www.calorieking.com

• It takes time and effort but the results can be powerful!!
# Keeping Food Records

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Food or Drink Item</th>
<th>Amount</th>
<th>Calories</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Keeping Food Records

An Extra Benefit

• Research has demonstrated consistently that self monitoring (e.g., using food and activity diaries to record caloric intake and portions) improves weight loss/weight management outcomes.

• Patients report that self monitoring is one of the most helpful weight management tools.
Wanting to Lose Weight

• If you’re trying to slim down, you will need to consume fewer calories — 500 per day fewer to lose one pound a week.

• 1000 per day fewer to lose two pounds a week.
Questions?
Answers!
Discussion!
Don’t Miss August Class Action!

Snacks – Who Needs Them?
Tuesday, Aug. 2 – 5:30-6:30 Light Hall 415A-D
Thursday, Aug. 4 – 11:30-12:30 Light Hall 415A-D