Assignment Goal
Help you become more aware of your diet and whether or not you are providing yourself with good nutrition.

Assignment Objectives
• Keep detailed track of your diet for 5 days.
• Compute your average daily nutritional inputs (e.g., Calories and nutrients).

Assignment Objectives
• Compare the inputs to your specific nutritional requirements.
• Summarize your results in the form of a nutrition report.

Aspects of Nutrition to Consider
• Energy Sources for Metabolism
• Specific Nutrients (e.g., proteins, carbs, fats, vitamins, minerals)

Energy
The Calorie
1 calorie (cal) = energy required to raise the temperature of 1 gram of water by 1°C
Energy yield of foods usually presented in terms of the “big” Calorie, technically kilocalories (kcal). 1 kcal = 1000 cal (“little” calories.)
Energy Yield of Foods

Carbohydrates: 4 Cal/gram
Proteins: 4 Cal/gram
Fats: 9 Cal/gram

Remember: 1 Cal = 1 kcal = 1000 cal

Calculating Energy Needs

Resting Metabolic Rate (RMR)
Thermic Effect of Exercise (TEE)
Thermic Effect of Food (TEF)

Resting Metabolic Rate (RMR)

Use Body Weight (in kg, kilograms) in formula from appropriate RMR Table)

Body Weight in Kilograms

Body Weight in Pounds ÷ 2.2

For example, a person weighing 154 lbs. weighs 70 kg (154/2.2 = 70).

RMR Equations For Males

<table>
<thead>
<tr>
<th>Age Range (years)</th>
<th>Equation for RMR (Calories/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>(60.9 x weight) - 54</td>
</tr>
<tr>
<td>3-10</td>
<td>(22.7 x weight) + 495</td>
</tr>
<tr>
<td>10-18</td>
<td>(17.5 x weight) + 651</td>
</tr>
<tr>
<td>18-30</td>
<td>(15.3 x weight) + 679</td>
</tr>
<tr>
<td>30-60</td>
<td>(11.6 x weight) + 879</td>
</tr>
<tr>
<td>&gt;60</td>
<td>(13.5 x weight) + 487</td>
</tr>
</tbody>
</table>

RMR Equations For Females

<table>
<thead>
<tr>
<th>Age Range (years)</th>
<th>Equation for RMR (Calories/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>(61.0 x weight) - 51</td>
</tr>
<tr>
<td>3-10</td>
<td>(22.5 x weight) + 499</td>
</tr>
<tr>
<td>10-18</td>
<td>(12.2 x weight) + 746</td>
</tr>
<tr>
<td>18-30</td>
<td>(14.7 x weight) + 496</td>
</tr>
<tr>
<td>30-60</td>
<td>(8.7 x weight) + 829</td>
</tr>
<tr>
<td>&gt;60</td>
<td>(10.5 x weight) + 596</td>
</tr>
</tbody>
</table>
Example: 32 Year-Old Female Weighing 154 Pounds

Body Weight in kg = 154/2.2 = 70
RMR = (8.7 x weight) + 829
= (8.7 x 70) + 829
= 1438 Cal/day

Thermic Effect of Exercise (TEE)

Sedentary
Lightly Active
Moderately Active
Very Active
Extremely Active

Sedentary

Sometimes under the care of someone else; involved in minimal activities, e.g. playing cards, watching TV, reading, etc.

Lightly Active

Most students, office workers, and professionals; lawyers, doctors, shop workers, teachers, drivers, lab workers, playing a musical instrument, housewives/househusbands with mechanical appliances, unemployed persons.

Lightly Active

This includes eight hours sleep and 16 hours of sitting or standing. Three of the 16 hours must include light activity (walking, laundry, golf, ping pong) and one hour must be moderate activity (tennis, dancing, walking briskly, aerobics, etc.).

Moderately Active

Most persons in light industry, electrical, carpentry and building trades (excluding heavy laborers), many farm workers, soldiers not in active service, commercial fishermen, housewives/househusbands without mechanical appliances.
If you have an office or driving occupation (see Lightly Active category), you may have to average 1.5 to 2 hours of exercise per day (like jogging 5 to 6 miles/day) to be “Moderately Active.”

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**Very Active**

Full time athletes, unskilled laborers, some agricultural workers (especially peasant farming), forestry workers, army recruits and soldiers in active service, mine workers, steel workers.

**Very Active**

This level requires moderate intensity activity for most of the work day or exercise comparable to running 9 to 13 miles/day.

**Extremely Active**

Lumberjacks, blacksmiths, female construction workers, heavy manual digging, rickshaw pullers, and coal mining. Moderate to high level of physical activity for most of the work day or exercise comparable to running 14 to 17 miles/day.

**Thermic Effect of Exercise (TEE)**

TEE = RMR x activity factor

**Thermic Effect of Exercise Activity Factors**

<table>
<thead>
<tr>
<th>Level of Activity</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sedentary</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Lightly Active</td>
<td>0.6</td>
<td>0.5</td>
</tr>
<tr>
<td>Moderately Active</td>
<td>0.7</td>
<td>0.6</td>
</tr>
<tr>
<td>Very Active</td>
<td>1.1</td>
<td>0.9</td>
</tr>
<tr>
<td>Extremely Active</td>
<td>1.4</td>
<td>1.2</td>
</tr>
</tbody>
</table>
**Thermic Effect of Exercise (TEE)**

*Activity factor for a lightly active woman = 0.5*

\[ \text{TEE} = 1438 \times 0.5 = 719 \text{ Calories/day} \]

**Calorie Expenditures Accounting for RMR and Activity Level**

*Calorie Expenditures = RMR + TEE*

\[ 1438 + 719 = 2157 \text{ Calories/day} \]

**Thermic Effect of Food (TEF)**

\[ \text{TEF} = 0.1 \times (\text{RMR} + \text{TEE}) \]

\[ \text{TEF} = 0.1 \times 2157 = 215.7 \text{ Calories/day} \]

*Round off to 216 Calories/day*

**Total Daily Caloric Expenditure**

\[ \text{RMR} + \text{TEE} + \text{TEF} \]

\[ 1438 + 719 + 216 = 2373 \text{ Calories/day} \]

**Nutrients**

*Daily Values*

- Combines FDA-established Reference Daily Intakes (RDI) with Daily Reference Values (DRV).
- Usually presented as values based upon a 2000 Calorie diet.

**Nutrients to Consider**

- Protein
- Fat
- Fiber
- Vitamin C
- Iron
- Sodium
- Choose another vitamin
- Choose another mineral
Calculating Nutrient Requirements

Determine nutrient needs based upon your total daily Calorie expenditure.

Value Based Upon 2000 Calorie Diet

\[ \text{Value} = \frac{60 \text{ mg Vitamin C}}{2000} \times \frac{\text{Your Expenditure}}{2000} \]

Example of Vitamin C

Value Based Upon 2000 Calorie Diet

\[ 60 \times \frac{2373}{2000} = 71.19 \text{ mg} \]

Note: Carry out this calculation for all nutrients except cholesterol, sodium, & potassium.

Daily Values

- Daily Values often presented as “% Daily Values based upon a 2000 Calorie diet.
- But you need to present values in terms of absolute amounts (e.g., g, mg, g, or IU).

Assignment Specifics

- Determine your Total Daily Caloric Expenditure.
- Based upon this value determine your nutritional needs for the specified nutrients.

Assignment Specifics

- Maintain a detailed record of your food consumption for five days.
  - Choose five typical days.
  - Record the specific foods and their amounts on the Daily Charts (one for each day).
  - Don’t record items that do not provide calories (e.g., water & vitamin supplements).
Assignment Specifics

• **Calculate amounts of nutrients provided by each food type.**
  • Be sure to enter amounts (e.g., mg, g, or IU) rather than percents.
  • Keep a detailed record of your source of information used to determine the nutrient content of the different foods consumed.
  • Calculate daily totals for each.

Assignment Specifics

• **Compare daily averages to your nutritional requirements (Daily Values).**
  • Enter your Daily Value requirements in the row titled “Recommended Amounts” on your Summary chart.
  • Calculate the absolute difference between your daily average nutrient consumption with your Daily Values.

Assignment Specifics

• **Interpret your results.**
  • Compare your nutritional inputs to your nutritional needs, looking for deficiencies as well as excesses.
  • Address specifically those nutritional categories for which the % above recommended or the % below recommended exceeds 10%.

Assignment Specifics

• **Interpret your results.**
  • Comment on various strategies you could use to address and resolve deficiencies and excesses.
  • Provide a summary and conclusion about your diet.

Assignment Specifics

• **Calculate daily average of nutrients consumed.**
  • Use the Summary Chart (one chart for all five days).
  • Enter daily totals from the Daily Charts in the appropriate spaces on the Summary Chart.
  • Calculate a daily average for each nutrient and enter these values into the Summary Chart.

Assignment Specifics

• **Compare daily averages to your nutritional requirements (DailyValues).**
  • Calculate the this difference as a percentage of your Daily Values.
  • If your consumption exceeds your Daily Value enter it in the row “% above recommended”.
  • If your consumption is below your Daily Value enter it in the row “% below recommended”.

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Assignment Specifics

• Indicate sources of information.
  • Enter a reference or reference code for each food type listed in your data sheet.
  • Provide a detailed bibliography for these sources of information.