Muscle Mass and Metabolism

Muscle mass and function are keys to long term weight management and adult health.

**Benefits of a higher protein lower carbohydrate diet**

Healthy Aging: Sarcopenia

Obesity & Weight Management

Clinical Populations

Sports Nutrition

**Healthy Aging & Weight Management**

The more muscle you maintain as you age, the longer you can stay fit, firm and healthy.

High Protein Diets can help slow down Sarcopenia

**Sarcopenia**
- Age related loss of muscle mass, strength and function
- ~8% lean muscle mass loss per decade
- Leads to morbidity and mortality-6th leading cause of death-age 65+

**Body Weight and body composition change during adult life.**

<table>
<thead>
<tr>
<th>Age</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bodyweight (lbs)</td>
<td>126</td>
<td>136</td>
<td>146</td>
<td>156</td>
</tr>
<tr>
<td>Muscle (lbs)</td>
<td>45</td>
<td>40</td>
<td>35</td>
<td>30</td>
</tr>
<tr>
<td>Fat (lbs)</td>
<td>29</td>
<td>44</td>
<td>59</td>
<td>74</td>
</tr>
<tr>
<td>Percent Fat (%)</td>
<td>23%</td>
<td>32%</td>
<td>40%</td>
<td>47%</td>
</tr>
</tbody>
</table>

**Muscle accounts for a minimum of 35% of daily energy expenditure for sedentary individuals and over 50% of energy expenditure for active adults.**

**Resting Metabolic Rate**

Protein 30%

Fat 30%

Carbs 40%

**Daily Energy Expenditure**

Sedentary ~35%

Active ~50%

**Key Points regarding dietary protein and muscle synthesis**

1. **Protein Quantity**
2. **High Quality Protein (leucine)**
3. **Time of Consumption**

MPS only last for 3 hours after the meal.

**Thermic Effect of Food**

Protein ~20-30%

Carbs & Fat ~5-15%

**Inadequate Protein Distribution**

**Adequate Protein Distribution**

When you lose weight by reducing calories without sufficient protein intake, you lose lean muscle mass, resulting in a decreased Resting Metabolic Rate.


*Calories & quantity needed are determined by the purity of the powder.
Muscle Mass • Weight Management • Healthy Aging

For more information visit www.WheyofLife.org.
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