

## Nutrition for Weight Management

- **Macronutrients**
  - Carbohydrates (CHO): 1 g = 4 kcal
  - Protein (PRO): 1 g = 4 kcal
  - Fat (FAT): 1 g = 9 kcal
  - Alcohol (ALC): 1 g = 7 kcal
  - \*incorporate all three in every meal
- **Goal for Fat Loss**
  - Create a calorie deficit
    - Goal should be to lose 0.5-1.0 lb/week
    - Daily fluctuations happen, so don't obsess over the scale.
      - Doesn't provide information on body composition
- **How to calculate dieting numbers? (Source: Sohee Lee)**
  - **Option 1:** Calculate estimated basal metabolic rate (BMR) and subtract 300-500 calories for daily caloric needs (*Mifflin-St. Jeor equation*)
    - Men:  $BMR = 10 \times \text{Body Weight (kg)} + 6.25 \times \text{Height (cm)} - 5 \times \text{Age} + 5$
    - Women:  $BMR = 10 \times \text{Body Weight (kg)} + 6.25 \times \text{Height (cm)} - 5 \times \text{Age} - 161$
  - **Option 2:** If you have an idea of what your percent body fat is, use this equation (*Source: Sohee Lee*)
    - \*\*Example scenario is using a 140-lb woman at 25% body fat who has a sedentary job and exercises 3 days per week
    - **Step 1:** Total Daily Calorie Intake
      - $\text{Calories} = \text{Body weight (lb)} \times 10-13$
      - If more sedentary, use 10, if more active use 13
      - Example:  $140 \text{ lb} \times 10 = 1400 \text{ kcal}$
    - **Step 2:** Determine Protein intake (1 g per 1 lb of *lean body mass*)
      - $\text{Protein intake (g)} = \text{Body weigh (lb)} \times \% \text{ lean body mass}$
      - Woman has 75% lean body mass and 25% o body fat
      - $140 \text{ lb} \times 0.75 = 105 \text{ g protein (or 420 kcals)}$
    - **Step 3:** Set carbs and fats to personal preference
      - $\text{Calories Left} = \text{Total calories} - \text{Protein calories}$
      - $1400 \text{ kcal} - 420 \text{ g PRO} = 980 \text{ left over kcals}$
      - See macronutrient gram to kcal equivalence above.
    - **\*\*Numbers may need to be adjusted if you start to lose weight too quickly OR if you don't see any changes\*\***
    - **Must remember that you should not diet for too long of a period due to the reduction in your metabolic rate**

- Healthy Weight Gain

- How to do this?

- Create a small calorie surplus (start small and gradually increase if weight does not increase)
    - Resistance training will assist with the weight gain to be healthy

- How to determine calorie consumption?

- Determine BMR
    - Add 300-500 kcals
    - Monitor weight and make adjustments as needed



10% vs 10%



15% vs 15%

- Weight Maintenance

- After fat loss: **SLOWLY** begin increasing calories and can start decreasing activity. This is important to go slow.

- Introducing more calories to the body slowly will help teach the body to utilize these calories for your benefit rather than ingesting and storing. (see picture below)

- After healthy weight gain: **SLOWLY** begin decreasing calories until you find no weight change



Female at 8-9% Body Fat



11%



15%



18%



20%



25%



30%



3-4%



6-7%



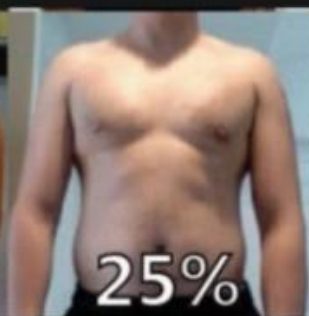
10%



15%



20%



25%



30%



40%

<b>Diet</b>	<b>Composition</b>	<b>Strengths</b>	<b>Limitations</b>
Low-energy diets (LED) Very low-energy diets (VLED)	LED: 800-1200 kcal/day VLED: 400-800 kcal/day	<ul style="list-style-type: none"> <li>- Rapid weight loss</li> <li>- Typically involves premade products to avoid cooking and meal planning</li> </ul>	<ul style="list-style-type: none"> <li>- VLED has had reported adverse side effects: headaches, dizziness, muscle cramps, fatigue, cold intolerance, hair loss</li> <li>- Cannot be implemented for long-term</li> </ul>
Low-fat diets (LFD) Very low-fat diets (VLFD)	LFD: 25-30% fat VLFD: 10-20% fat	<ul style="list-style-type: none"> <li>- Has been promoted by major health organizations since the '70s</li> </ul>	<ul style="list-style-type: none"> <li>- Adequate fat consumption is crucial for many bodily functions such as hormones</li> </ul>
Low-carbohydrate diets (LCD)	50-150g CHO, or <u>up to</u> 40% total kcals from CHO	<ul style="list-style-type: none"> <li>- Requires higher protein intake</li> <li>- Does not remove fat from diet</li> <li>- Flexible macronutrient range</li> </ul>	<ul style="list-style-type: none"> <li>- Upper limit of CHO allowance may falsely advertise as "losing body fat", when it's usually water loss at first</li> <li>- May be hard to maintain for long duration</li> </ul>
Ketogenic diets (KD)	Maximum of ~50 g CHO Maximum of ~10% CHO	<ul style="list-style-type: none"> <li>- Requires higher protein intake</li> <li>- Suppresses appetite</li> <li>- Causes spontaneous reductions in kcal intake under non-calorically restricted conditions</li> <li>- Simplifies diet planning and decision-making process</li> </ul>	<ul style="list-style-type: none"> <li>- Excludes/minimizes CHO, which is an important macronutrient</li> <li>- Can compromise high-intensity training</li> <li>- Has not been shown to have superior effects on body compared when compared to non-KD</li> <li>- Can lead to displacement of other macronutrients (especially CHO), which may result in suboptimal performance</li> </ul>
High-protein diets (HPD)	HPD: $\geq 25\%$ total kcals or 1.2-1.6 g/kg (or more) Super HPD: $> 3$ g/kg	<ul style="list-style-type: none"> <li>- Substantial evidence in improving body composition compared to RDA levels (0.8 g/kg).</li> </ul>	<ul style="list-style-type: none"> <li>- May cause spontaneous reductions in total energy intake</li> <li>- Can be an economical challenge</li> <li>- Can lead to displacement of other macronutrients (especially CHO), which may result in suboptimal performance</li> </ul>
Intermittent fasting (IF)  *ADF: Alternate-day feeding **WDF: Whole-day fasting ***TRF: Time-restricted feeding	ADF*: alternating 24-hr fast, 24-hr feed  WDF**: 1-2 complete days of fasting per week  TRF***: 16-20-hr fast, 4-8*-hr feed daily	<ul style="list-style-type: none"> <li>- Pretty strong evidence of IF outperforming daily caloric restriction for improving body composition</li> <li>- ADF and WDF do not involve precise tracking of intake</li> <li>- TRF combined with training has emerging evidence for resulting in fat loss while maintaining strength levels</li> </ul>	<ul style="list-style-type: none"> <li>- Unsure if IF could outperform daily linear or evenly distributed intakes for muscle strength and hypertrophy.</li> <li>- Warrants caution and careful planning gin programs that require optimal athletic performance</li> <li>- Can be hard to maintain AND to IF termination to begin "normal" eating</li> <li>- Should consult physician prior to start</li> </ul>