

# Food and Nutrition in the Backcountry

Eating what's right for you and your expedition!

## Two Approaches to Menu

Precision versus Convenience

- The Cupboard Approach
  - ▶ “The Usual” Estimate
  - ▶ Rough Weight Test: 2-3 lbs per person per day / active
- The Calculation Approach
  - ▶ Caloric calculation based on activity
  - ▶ Calorie distribution based on averages
    - Generic-60% Carb/ 20-30% Fat/ 10-15% Protein
    - Metabolic Profile: distribution based on individual difference
  - ▶ Calorie total = weight total

## Calculation Approach

- Basal Metabolic Rate Formula
  - ▶ 1 Calorie per hour for each 2.2 lbs body mass
  - ▶ Ex:  $(165 \text{ lbs.} / 2.2 \text{ lbs}) \times 1 \text{ Calorie} \times 24 \text{ hrs} = 1800 \text{ C day}$
- Activity Metabolic Formulas
  - ▶ Light Activity: 80-100 C/hr. /e.g. Sit in camp, Cards
  - ▶ Moderate Activity: 160-250 C/hr /e.g. Walk, Food prep
  - ▶ Strenuous Activity: 250-350 C/hr/ e.g. Hiking with full pack, rock climbing, cross country skiing
- Calculate Normal Activity Pattern
  - ▶ Hours of different activity levels: work to sleeping

## An Example

- Basal rate:  $130 / 2.2 = 59 * 1C * 10 \text{ hrs} (24 \text{ hrs} - 14 \text{ activity hrs}) = 590$  (a little high on calories cuz sleep < basal)
- Campsite activity for 6 hrs =  $100 * 6 = 600$
- Backpacking for 8 hrs =  $250 * 8 = 2000$
- Total Daily Calorie Need = 3190

## Calculation Approach to Food

### ■ Final Formula

– Heavy work + Light work + BMR work = Total Calories

### ■ Special Considerations

- ▶ Winter Expedition demands may reach 5000-6000 C per day (due to heavy loads + long days)
- ▶ Emergency rations for expeditions
- ▶ Don't overestimate your work levels
  - 1 hour hiking <not equal> 40' hiking + 20' rest

## Tips and Trade-offs for Backcountry Foods

### ■ Who is carrying your weight?

- ▶ Oar Boat Rafters = Eat whatever you want
- ▶ Flat water canoeist = Eat whatever you need+
- ▶ Long Haul Hikers = Cut every corner worth cutting

### ■ What is the lightest food by food type?

- ▶ Fat = 9 calories per gram
- ▶ Carbohydrates & Proteins = 4 calories per gram
- ▶ Most foods are combinations of fats/ carbo/ proteins

## Tips and Trade-offs for Backcountry Foods II

- What is the lightest food by preservation process?
  - ▶ Canned Food - food + can (? oz) + water ( ? oz)
  - ▶ Dehydrated Food - 70-80% water removed
  - ▶ Freeze Dried Food - 98% water removed
- Saving costs
  - ▶ Dehydrate your own food
  - ▶ Buy dehydrated food that's mainstream grocery item
- Plan menu based on decreasing weights

## Tips and Trade-offs for Backcountry Foods III

- Taste is a matter of taste
  - ▶ Gourmet versus Minimalists
- Develop Variety in your menu
  - ▶ Top Ramean - What are your limits really?
- Select foods based on minimal 'Bulk Factor'
  - ▶ Ex: Puffed Rice/ Bread Rolls
- Spoilage Dangers
  - ▶ E.g. Mayo/ Meats/ Cheese ?/ Hard Salami/ Jerky

## Tips and Trade-offs for Backcountry Foods <sup>IV</sup>

- The Crush Factor
  - ▶ Fruits with tough skins: oranges/ apples
  - ▶ Breads: whole loaf/ pita/ tortillas/ bagels
  - ▶ Crackers: protected
- The Spill Factor
  - ▶ Food bottles: syrup/ oils/ jelly
  - ▶ Double bag with ziplocks
  - ▶ Overall food bag carried at top of pack