

Unit 7: Nutrition for Everyday Performance

Chapter 18
Nutrition and Healthy Eating

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Key Terms

- nutrition
- macronutrients (carbohydrates, proteins, and fats)
- micronutrients (vitamins and minerals)
- calorie
- energy balance equation
- Total Daily Caloric Need
- Harris Benedict formula
- Resting Metabolic Rate (RMR)
- vegetarianism
- dietary supplements
- Canada's Food Guide to Healthy Eating
- Canada's Physical Activity Guide to Healthy Active Living

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Chapter 18-2
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What Is Nutrition?

- The science behind how your body uses the components of food to grow, maintain, and repair itself
- Nutrients are the chemical elements and compounds essential to the growth and maintenance of life:
 - Carbohydrates
 - Fats
 - Proteins
 - Minerals
 - Vitamins
 - Water

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Macronutrients

- Carbohydrates:
 - Simple carbohydrates
 - Complex carbohydrates
 - Fibre
- Proteins:
 - High-quality protein sources
 - Low-quality protein sources
- Fats

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Micronutrients

- Vitamins:
 - Water-soluble vitamins
 - Fat-soluble vitamins
- Minerals:
 - Electrolytes
 - Sodium
 - Chloride
 - Potassium

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What Are Calories?

- The measurement of how much energy we get from carbohydrates, proteins, and fats
- Calorie counting:
 - A measure of the amount of energy that food will produce as it passes through the body
 - 1 gram of carbohydrate = 4 calories
 - 1 gram of protein = 4 calories
 - 1 gram of fat = 9 calories

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Substitute with a Healthier Choice

| Instead of ... | Try this ... |
|-------------------------------|--|
| Potato chips, taco chips | • Pretzels, baked crackers, popcorn (use small amounts of butter or margarine, and salt to season); raw vegetables and lower-fat dip |
| Pop, fruit drinks, slushes | • Water, 100% fruit juices, milk, chocolate milk, or soda water |
| French fries | • Tossed salad with the salad dressing on the side or a baked potato (use only small amounts of butter, margarine, or salad dressing to season) |
| Large hamburger | • Small hamburger or a chicken burger or turkey burger (order any special sauces "on the side;" use only small amounts of sauce) |
| Sugary cereals | • Whole grain cereals (use small amounts of sugar or dried fruits to sweeten) |
| Breaded, fried chicken burger | • Roasted chicken burger (order any special sauces "on the side;" use only small amounts of sauce) |
| Loaded meat pizza | • Thin-crust vegetarian pizza, whole-wheat crust, made with minimal oil and cheese |
| Deli meat submarine sandwich | • Ask for a whole-wheat bun; avoid sausage-type deli meats; choose leaner meats such as ham, roast beef, chicken or turkey; use mustard, relish, cranberry sauce, or salsa to season |

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The Energy Balance Equation

- **Neutral Energy Balance:**
 - When energy intake is equal to energy expenditure
 - Body weight does not change
- **Negative Energy Balance:**
 - Fewer calories taken in than is burned off
 - Results in weight loss
- **Positive Energy Balance:**
 - More food taken in than is balanced out
 - Results in weight gain

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Total Daily Caloric Need

- The amount of calories you need each day
- Influenced by:
 - Gender
 - Body size
 - Genetics
 - Age
 - Physical activity level

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The Harris Benedict Equation

The Harris Benedict Equation

For Mark (6ft tall, 68.4 kg in weight, and 34 years of age):

$$\begin{aligned}\text{Resting Metabolic Rate} &= 66.5 + (5 \times \text{height in centimeters}) + (5.3 \times \text{weight in kilograms}) - (4.8 \times \text{age in years}) \\ &= 66.5 + (5 \times 201) + (5.3 \times 68.4) - (4.8 \times 34) \\ &= 66.5 + 1005 + 362.52 - 163.2 \\ &= 1,271 \text{ calories/day}\end{aligned}$$

For Jillian (5ft tall, 55 kg in weight, and 35 years of age):

$$\begin{aligned}\text{Resting Metabolic Rate} &= 66.5 + (5 \times \text{height in centimeters}) + (5.3 \times \text{weight in kilograms}) - (4.8 \times \text{age in years}) \\ &= 66.5 + (5 \times 152) + (5.3 \times 55) - (4.8 \times 35) \\ &= 66.5 + 760 + 291.5 - 168 \\ &= 950 \text{ calories/day}\end{aligned}$$

To find Mark's and Jillian's Total Daily Caloric need, multiply his or her RMR by the appropriate activity factor.

Note: The terms "Resting Metabolic Rate" and "Basal Metabolic Rate" are often used interchangeably, so you may encounter both terms. "Basal Metabolic Rate" is generally the preferred term when a very precise measurement is attempted under strict laboratory conditions.

Understanding Vegetarian Eating

Common Vegetarian Eating Styles

| Type | Foods Selected | Foods Avoided |
|----------------------|---|--|
| Semi-vegetarian | Vegetables and fruit, grain products, milk and milk products, poultry, fish, shellfish, eggs, and meat alternatives (tofu, legumes, nuts) | Red meat |
| Lacto-ovo vegetarian | Vegetables and fruit, grain products, milk and milk products, eggs, and meat alternatives (tofu, legumes, nuts) | Meat, fish, poultry, and shellfish |
| Ovo vegetarian | Vegetables and fruit, grain products, eggs, and meat alternatives (tofu, legumes, nuts) | Meat, fish, poultry, shellfish, and milk and milk products |
| Lacto-vegetarian | Vegetables and fruit, grain products, milk and milk products, and meat alternatives (tofu, legumes, nuts) | Meat, fish, poultry, shellfish, and eggs |
| Vegan | Vegetables and fruit, grain products, and meat alternatives (tofu, legumes, nuts) | Milk and milk products, meat, fish, poultry, shellfish, and eggs |

Going Green

- Vegetarian diets may reduce the risk of:
 - Obesity and being overweight
 - Heart disease
 - Some types of cancer
- Poorly planned or overly restrictive vegetarian diets can lead to nutritional deficiencies:
 - Shortages of iron, calcium, and zinc
- Visit a Registered Dietitian

What Are Dietary Supplements?

- Products you take by mouth that contain a “dietary ingredient” to supplement foods you eat:
 - Vitamins
 - Minerals
 - Herbs or other botanicals
 - Amino acids
 - Enzymes, organ tissues, glandulars, and metabolites
- Regulated as foods, not drugs

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Buyer Beware

- Research the product before buying
- Don't believe everything you read
- Read labels
- Don't buy into phrases like, “miracle product,” “latest breakthrough,” or “clinically proven”
- Tell your doctor and pharmacist exactly what you plan to take before you take it
- Don't take more than the recommended dose
- Talk to your coach or team doctor if you are a competitive athlete and interested in trying a dietary supplement
- Report any side effects to your doctor immediately

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Energy Drinks

- Meant to provide mental and physical stimulation for a short period of time
- Chemical mix includes:
 - Caffeine
 - Taurine
 - Glucuronolactone
- Dangerous when mixed with alcohol or when used during intense activity

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Energy Drinks: Buyer Beware!

- Health Canada advises caution, and to be aware of the following:
 - Do not drink excessive amounts
 - Do not mix with alcohol
 - Drink enough water to rehydrate your system
 - The safety of such drinks may not have been evaluated by Health Canada
 - Report any adverse reactions

Canada's Food Guide to Healthy Eating

- A simple tool to help people plan their food choices on a daily basis
- Categorizes foods into four groups:
 - Vegetables and Fruit
 - Grain Products
 - Milk and Alternatives
 - Meats and Alternatives

The New Version of Canada's Food Guide to Healthy Eating

- In February of 2007, Health Canada unveiled new version of Canada's Food Guide to Healthy Eating, the first revision guide since 1992
- Recommended number of servings now distinguishes between:
 - Age in Years
 - Sex
- More ethnic foods are included in each category (e.g., lychee, couscous, kefir)

Using the Food Guide

- Use the guide to learn about foods to emphasize, portion sizes, and how many servings of each kind of food needed each day
- Use the following tips to get started:
 - Create a food record
 - Check and compare
 - Set a healthy eating goal
 - Do a progress check
 - Repeat the goal setting

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Canada's Physical Activity Guide to Healthy Active Living

- Guidelines about how much activity we should strive for every day
- Defines three main types of physical activities:
 - Aerobic activities
 - Flexibility activities
 - Strength activities
- Analyze your current activity level to compare with the Physical Activity Guide

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Get Up, Get Out, Get Active!

- Walk more and walk more often
- Use a pedometer or step counter
- Plan an active getaway with friends
- Dance, dance—whoever you may be
- Step away from the box
- Try something new

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Chapter 18-21
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The Fats of Life

Measuring Up: Fats and Their Effect on Blood Cholesterol

All fats are not created equal. There are four types of dietary fat.

| Type | Function | Form | Found in |
|-----------------|---------------------------|--|---|
| Polyunsaturated | Helps lower LDL | Liquid at room temperature | Corn, soybean, sunflower, safflower, sesame oils, soft margarines |
| Monounsaturated | Lowers LDL and raises HDL | Usually liquid at room temperature | Canola, olive, peanut oil, soft margarines containing these oils, seeds, and nuts |
| Saturated | Usually raises LDL | Solid at room temperature | Lard, meat, poultry, butter, cheese, palm oil, coconut oil, hard margarines |
| Trans fat | Raises LDL | Formed through the process of hydrogenation of shortenings | Baked goods, cookies, crackers, chips, some margarines, hydrogenated oils |

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