Virtual Education Forum
Optimizing Nutrition for Bone Health

Presented by:
Andrea Miller MHSc, RD
Optimizing Nutrition for Bone Health

Outline:
- Principles of Healthy Eating
- Canada’s Food Guide - A Review
- Calcium Requirements
- Calcium in Food: how to meet the requirements
- Calcium Supplements
- Vitamin D Requirements
- Vitamin D in Food & Supplements
- Other important foods & nutrients: fruit & vegetables, protein, cholesterol
- Reading labels: a quick review
- Summary: Optimizing nutrition checklist
- Questions
Principles of Healthy Eating

Eat a balanced diet from all four food groups, each day, to help keep bones strong and prevent fractures.

Limit your alcohol consumption to two or fewer drinks per day.

Do not smoke; stop smoking.

Maintain a healthy weight for you.
Canada’s Food Guide

A government document that identifies and promotes a pattern of eating that meets nutrient needs and reduces the risk of nutrition-related chronic diseases including osteoporosis.
Canada's Food Guide

Health Canada: get your copy & "create my food guide"

Andrea Miller MHSc, RD Osteoporosis Canada, Sept, 2013
Adequacy, Balance and Variety
## Canada's Food Guide

<table>
<thead>
<tr>
<th>Food Group</th>
<th>Children</th>
<th>Teens</th>
<th>Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2-3</td>
<td>4-8</td>
<td>9-13</td>
</tr>
<tr>
<td>Vegetables and Fruit</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Grain Products</td>
<td>3</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Milk and Alternatives</td>
<td>2</td>
<td>2</td>
<td>3-4</td>
</tr>
<tr>
<td>Meat and Alternatives</td>
<td>1</td>
<td>1</td>
<td>1-2</td>
</tr>
</tbody>
</table>

*The eating pattern also includes a small amount (30 to 45 mL or about 2 to 3 tablespoons) of unsaturated fat each day.*
Canada’s Food Guide

CFG: your daily checklist-
- 3 meals each day: 3 food groups at each meal
- 2 snacks each day: 2 food groups at each snack
Calcium

Calcium is the most abundant mineral in the body.

99% of the body’s calcium is stored in the bones and teeth.

Calcium supports bone structure and function.

Our bones are constantly being remodelled - calcium is needed to form new bone.

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# Calcium Requirements

**Recommended Calcium Intake**

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
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</thead>
<tbody>
<tr>
<td>19–50 years</td>
<td>1,000 mg</td>
<td>1,000 mg</td>
</tr>
<tr>
<td>50+ years</td>
<td>1,200 mg</td>
<td>1,200 mg</td>
</tr>
<tr>
<td>18+ years, pregnant or lactating</td>
<td>1,000 mg</td>
<td>1,000 mg</td>
</tr>
</tbody>
</table>

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## Calcium in Food

<table>
<thead>
<tr>
<th>Food</th>
<th>Portion</th>
<th>Calcium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk, whole, 2%, 1%, skim, chocolate</td>
<td>1 cup (250ml)</td>
<td>300mg</td>
</tr>
<tr>
<td>Fortified soy, almond, rice beverage</td>
<td>1 cup(250ml)</td>
<td>300mg</td>
</tr>
<tr>
<td>Fortified orange juice</td>
<td>1 cup(250ml)</td>
<td>300mg</td>
</tr>
<tr>
<td>Yogurt</td>
<td>¾ cup (175ml)</td>
<td>300mg</td>
</tr>
<tr>
<td>Cheese</td>
<td>1.5oz (50gm)</td>
<td>300mg</td>
</tr>
<tr>
<td>Salmon, canned, with bones</td>
<td>2.5oz (75gm)</td>
<td>200mg</td>
</tr>
<tr>
<td>Tofu (calcium sulfate)</td>
<td>¾ cup (150g)</td>
<td>250mg</td>
</tr>
<tr>
<td>Almonds</td>
<td>¼ cup (60ml)</td>
<td>100mg</td>
</tr>
<tr>
<td>Broccoli</td>
<td>½ cup (125ml)</td>
<td>20mg</td>
</tr>
<tr>
<td>Kale</td>
<td>½ cup (125ml)</td>
<td>50mg</td>
</tr>
<tr>
<td>Cream cheese</td>
<td>1 tbsp (15ml)</td>
<td>14mg</td>
</tr>
</tbody>
</table>
Calcium: how to meet your requirements

- Try to have a calcium-rich food at every meal.
- Add grated cheese to soups, salads and vegetables.
- Make sauces and dressings with milk or yogurt.
- Make coffee with milk.
- Make hot cereal with milk.

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Calcium in Food

http://www.osteoporosis.ca/osteoporosis-and-you/nutrition/calculate-my-calciuim/

Use this resource to calculate your calcium intake.
Calcium Supplements

You may need a calcium supplement if:

- You dislike milk products
- You are allergic or intolerant to milk products
- You find it difficult to fit in three servings of milk products, daily

Always consult with your doctor and a registered dietitian prior to taking any supplements.

Note: too much of a good thing is not always better- do not take more calcium than is recommended.

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Calcium Supplements

Prior to taking a calcium supplement, calculate your average daily intake of calcium from food (include a baseline of 300mg as calcium is present in small amounts in many foods).

Calculate how much more calcium you will need from a supplement.

Calcium supplements come in the form of tablets, capsules, liquids or chewables; choose the form that you are most likely to take.

More expensive does not necessarily mean better! Compare brands and prices.
Calcium Supplements

- Take calcium supplements with food.
- Take no more than 500-600mg at one time. If you are taking more than this, divide your supplements up over the day.
Vitamin D Requirements

Vitamin D:
Â Increases the absorption of calcium
Â Improves the function of muscles = increases balance = decreases risk of falls
Â Often called the sunshine vitamin - but we cannot make adequate Vitamin D from sunshine - a supplement is required.
As we age, we produce less Vitamin D in our skin.

Sunscreen inhibits Vitamin D production in our skin.

There are very few food sources of Vitamin D- it is impossible to meet our Vitamin D requirements from diet alone.
Vitamin D Requirements

Osteoporosis Canada recommends routine Vitamin D supplementation for all adults, year round.

Healthy adults age 19 to 50 years need 400-1,000 IU Vitamin D, daily.

If you are over 50 years of age, have or are at high risk for OP, you need 800-2,000 IU Vitamin D, daily.
Vitamin D Supplements

Ensure your Vitamin D supplement is in the form of **Vitamin D₃** since this is the most common type of Vitamin D found in supplements in Canada.

Supplements come in liquid and tablet forms, in 400-1,000 IU.

Most multivitamins contain 400-800 IU Vitamin D: check labels carefully.
Other Important Foods & Nutrients

Protein:
- Younger adults generally get adequate protein from food.
- Older adults often do not meet protein requirements.
- Try to include small portions of protein-rich foods in most meals and snacks.
- Protein: meat, fish, chicken, dried beans, lentils, eggs, cheese, milk, nuts, seeds, tofu.
Other Important Foods & Nutrients

Fruit and Vegetables:

Â Provide nutrients that are important for bone health.

Â Try to include fruit with each meal and vegetables with lunch and dinner, daily.

Â Choose one dark green (broccoli, kale, spinach) and one orange (oranges, sweet potato, canteloupe) fruit or vegetable, daily
Reading Nutrition Labels

• Nutrition Facts:

- INGREDIENTS: Whole wheat, wheat bran, sugar/glucose-fructose, salt, malt (corn flour, malted barley), vitamins (thiamine hydrochloride, pyridoxine hydrochloride, folic acid, d-calcium pantothenate), minerals (iron, zinc oxide).

• Nutrition Claims: “Good source of fibre”

• Health Claims: “A healthy diet...”
Reading Nutrition Labels

Nutrition Facts are based on a specific amount of food

Compare this to the amount you eat.

The specific amount is:

• listed under the Nutrition Facts title.

• listed in common measures you use at home and a metric unit.

• not necessarily a suggested quantity of food to consume.
Reading Nutrition Labels

The % Daily Value (% DV) is:

- used to determine whether there is a little or a lot of a nutrient in the amount of food.
- a benchmark to evaluate the nutrient content of foods.
- based on recommendations for a healthy diet.
Reading Nutrition Labels

How to use the % Daily Value

The % DV helps you see if a specific amount of food has a little or a lot of a nutrient.

5% DV or less is a LITTLE
15% DV or more is a LOT

<table>
<thead>
<tr>
<th>Nutrition Facts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per 1/2 cup (28 g)</td>
</tr>
<tr>
<td>Amount</td>
</tr>
<tr>
<td>Calories 120</td>
</tr>
<tr>
<td>Fat 1 g</td>
</tr>
<tr>
<td>Saturated Fat 0.2 g</td>
</tr>
<tr>
<td>+ Trans Fat 0 g</td>
</tr>
<tr>
<td>Cholesterol 0 mg</td>
</tr>
<tr>
<td>Sodium 170 mg</td>
</tr>
<tr>
<td>Carbohydrate 23 g</td>
</tr>
<tr>
<td>Fibre 7 g</td>
</tr>
<tr>
<td>Sugars 5 g</td>
</tr>
<tr>
<td>Protein 3 g</td>
</tr>
<tr>
<td>Vitamin A 0 %</td>
</tr>
<tr>
<td>Calcium 2 %</td>
</tr>
<tr>
<td>Vitamin C 0 %</td>
</tr>
<tr>
<td>Iron 30 %</td>
</tr>
</tbody>
</table>

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Reading Nutrition Labels

How to use the % Daily Value
Make a better choice for you. Here are some nutrients you may wanté

more of…
- Fibre
- Vitamin A
- Calcium
- Iron

less of…
- Fat
- Saturated and trans fats
- Sodium

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Summary: Optimizing Nutrition Checklist

- Use Canada’s Food Guide to help you plan healthy meals.
- Eat 3 meals - 3 groups; 2 snacks - 2 groups, daily.
- Aim for 1000-1200mg Calcium ideally from food; supplements only if necessary and after consulting with a healthcare professional.
- Aim for 400-2000IU Vitamin D daily, depending on your age and health status, from supplementation.
- Include protein-rich foods and fruit and vegetables, daily.
- Use nutrition labels to make healthy food choices: 5% & 15% DV.