CANADIAN ACADEMY OF SPORTS NUTRITION

Let's Excel Together

Lecture 69:

Water and Food Pyramid

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Water:

- **Water is the most vital compound for any living organisms.**
- **It constitutes up to 70% of the body weight, depending on age, gender, and body composition.**
- **Water is the main component of all fluids in the body and involves almost in every functions of the body.**

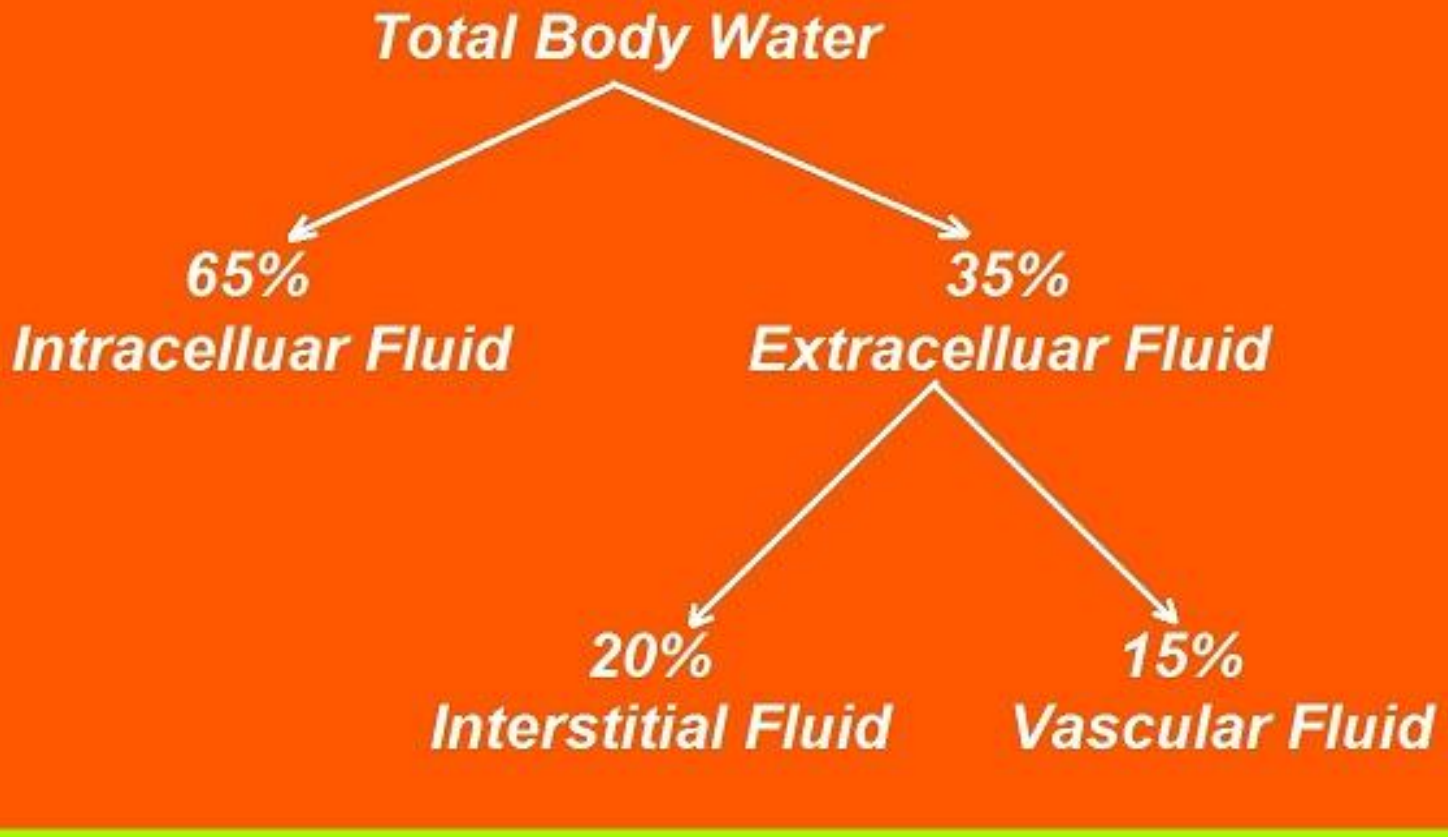
Body Composition:	
Water	60%
Proteins	18%
Fats	15%
Minerals	4%
Carbohydrates	2%
Vitamins	1%

Water Distribution:

- **The body contains two fluid compartments: intracellular (fluid inside the cells) and extracellular (fluid outside the cells).**

- **Extracellular fluid includes interstitial fluid (the fluid within the spaces between cells, lymph, saliva, fluid in the eyes and joints, fluid secreted by the glands and digestive system) and vascular fluid (blood plasma).**

Water Distribution in the Body:



- **Of the total body water, about 65% makes up intracellular water, and about 35% represents extracellular water.**

- **Vascular fluid accounts for approximately 15% of the extracellular fluid.**

- **A normal vascular volume is about 4 – 5 liters.**

Water Loss:

- **An average person with little or no exercise loses about 2200 ml (2.2 L) of water daily.**

Water Requirements:

Several factors affect daily water intake. They include:

- **size of the body.**
- **activity level.**
- **diets.**
- **environmental temperature.**
- **health conditions such as fever, diarrhea, and kidney diseases.**

- **Even though an average person loses 2.2 L of water daily, he requires only 2 L of water daily.**

- **The body produces about 200 ml of water daily. It is called "metabolic water", which comes from the catabolism of macronutrients and chemical reactions taken place in the body.**

- **A simple formula to calculate your daily water intake is 1 glass (250 ml) for every 16 lbs of your body weight.**

- **For example, if you are 145 lbs, you would need 9 glasses (145 divide by 16) daily.**

- **The three sources of water are liquids, foods, and metabolic water.**

- **Milk and juices contain considerable water, but they do not count as the same volume of water.**

- **Not only do not alcoholic beverages and caffeine – containing drinks such as coffee, tea, and sodas count as water, but also they require an increase in water intake, because they act as diuretics.**

- **As a rule of thumb, for every 60 mg of caffeine you consume, you would need an extra glass of water.**

As a result:

- **One cup of tea → one extra glass of water**
- **One cup of coffee → two extra glasses of water**

- **Foods especially fruits and vegetables contain substantial amounts of water.**

- **For water contents of fruits and vegetables, check our website.**

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Dynamics of Water During Exercise:

- **The ratios of water in different compartments of the body change during exercise.**
- **The percentage of water in intracellular compartment increases as more water shifts to the working muscles.**
- **Besides, there is a fluid shift from vascular compartment to intercellular and interstitial compartments.**

- **To maintain water balance in the body during exercise, it is highly important to drink sufficient amounts of water before, during, and after exercise.**

- **Water loss increases during exercise. The loss of body water during exercise largely occurs through the skin and lungs, which is called "insensible loss".**

- **Insensible water loss during exercise is determined by the intensity of exercise, humidity, and temperature of the environment.**

- **To evaluate water loss during exercise, a simple way is to monitor any changes in body weight.**

- **One pound loss of body weight represents the loss of about 500 ml of water.**

Drinking water while exercising is highly important.
Image: Copyright©Depositphotos.com/Aleksandr Markin

Daily Water Loss During High Intensity Exercise In A Hot and Humid Environment:

Urine	10%	600 ml
Skin	75%	4500 ml
Lungs	13%	800 ml
Feces	2%	100 ml
Total	100%	6000 ml

Food Guide Pyramid:

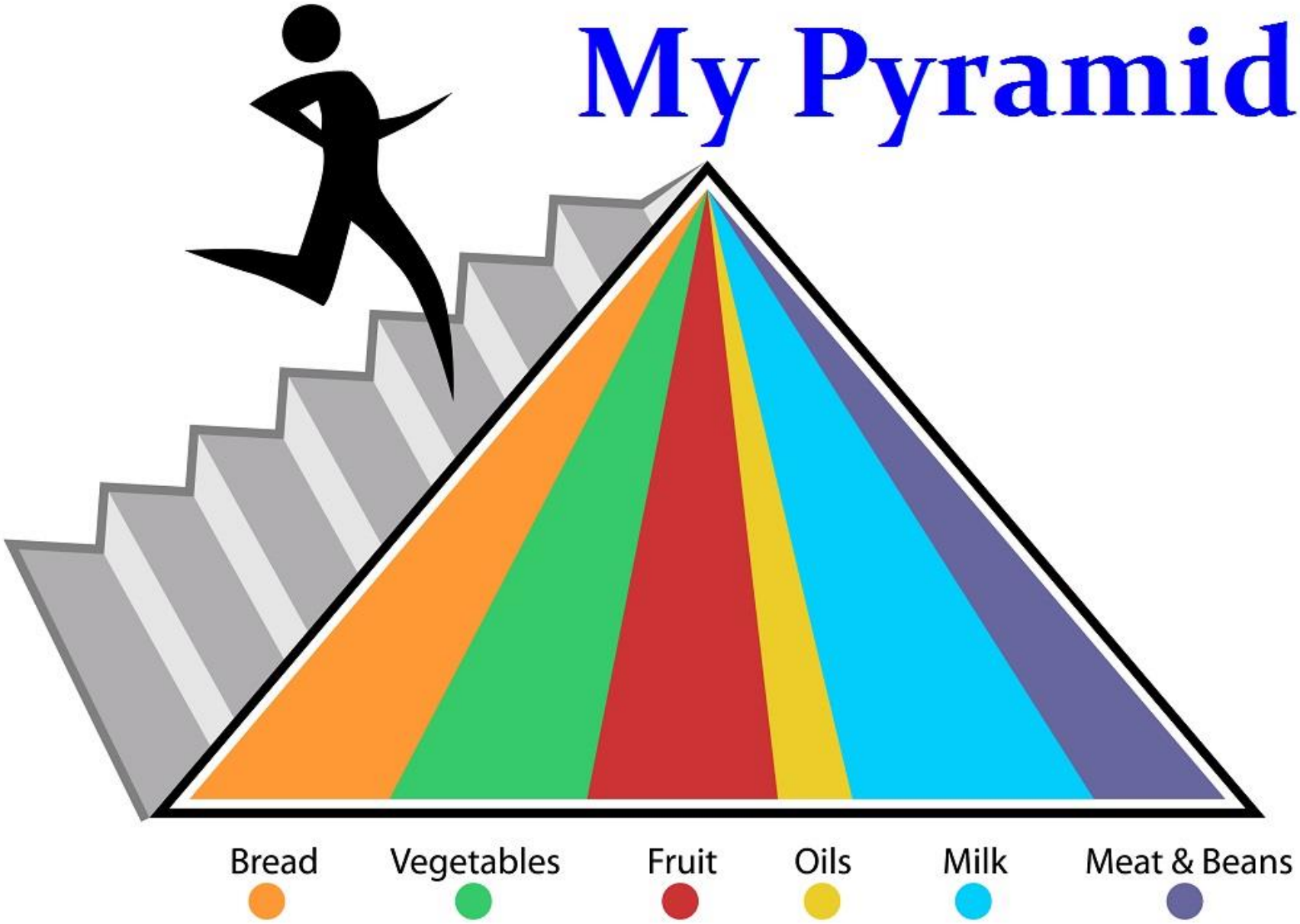
- **It was introduced by USDA in 1992.**
- **It is a pyramid-shaped diagram representing the optimal number of servings of basic food groups that everybody should eat.**


0 - 1 Serving
2 - 3 Servings
2 - 3 Servings
3 - 5 Servings
2 - 4 Servings
6 - 11 Servings

Problems with the Food Pyramid:

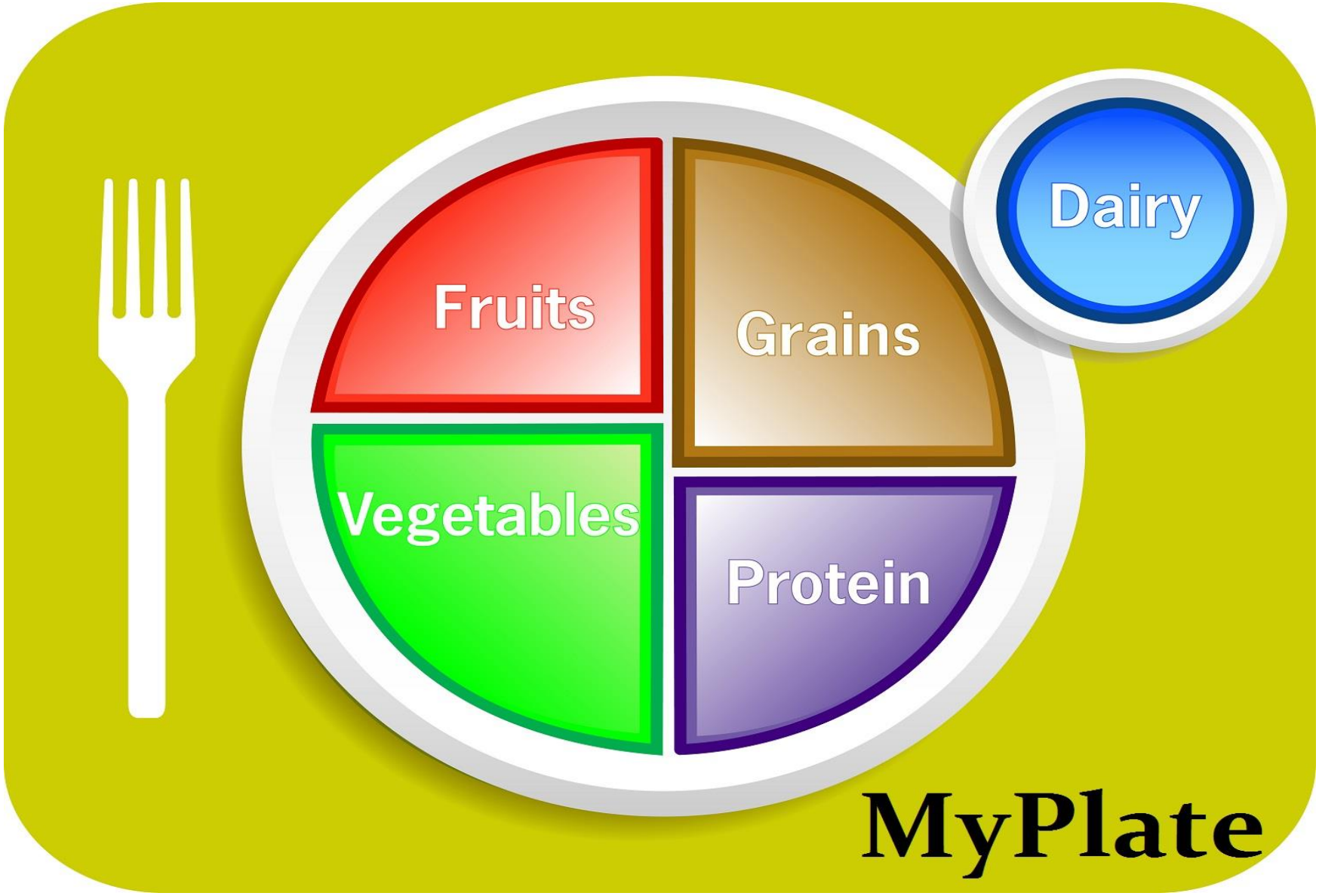
- **USDA was under the influence of food industry.**
- **The pyramid does not address individual differences and needs.**
- **USDA changed FGP to "My Pyramid" in 2005.**

My Pyramid



- **MyPlate is the current nutrition guide published by the United States Department of Agriculture.**

- **It replaced the USDA's MyPyramid guide on June 2, 2011.**


Fruits
Grains
Dairy
Vegetables
Protein
MyPlate

10 Components of a Healthy Diet:

- 1) Natural foods.
- 2) Seasonal foods.
- 3) Fresh foods.
- 4) Nutritious foods.
- 5) Clean foods.
- 6) Tasty and appealing foods.
- 7) Variety and rotation.
- 8) Food combining.
- 9) Moderation.
- 10) Balance.

Homework:

- **1) Describe water contents of different compartments of the body.**
- **2) Describe why you would need more water during exercise.**