

A photograph of three speed skaters in red and black suits racing on an ice track. The skaters are in a dynamic, forward-leaning posture, with their arms tucked and legs pushing off. The background is a blurred ice rink. The text "IMPROVING YOUR PERFORMANCE THROUGH NUTRITION" is overlaid in white, bold, italicized font at the top of the image.

***IMPROVING YOUR  
PERFORMANCE THROUGH  
NUTRITION***

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For the athlete, the  
saying  
« *you are what you  
eat* »

should be tailored to  
read,

« *you compete how  
you eat!* »

**Athletes just don't eat. They eat and drink to fuel, build and hydrate. What athletes eat, and when they consume it, in relation to training and competition is important to athletic performance.**

**The optimal composition of the athletes diet will depend on:**

- the sport they engage in**
- the amount of training they undertake**
- their need to manipulate their body weight or body composition**

**Nutrition is a key role for all athletes. It is one of the most important factors for improving performance.**

**Unfortunately, many athletes are too busy training, working, etc. to be able to just prepare whatever they want, whenever they want for themselves.**

- **So how do YOU eat ?**
- **Where do you get your nutrition information?**
- **Is it the BEST you can do?**
- **Do you want to learn more and improve your performance?**

**Meeting energy needs is  
a top priority for any  
athlete!**

**SO...  
where do we get the  
energy that  
we require????**

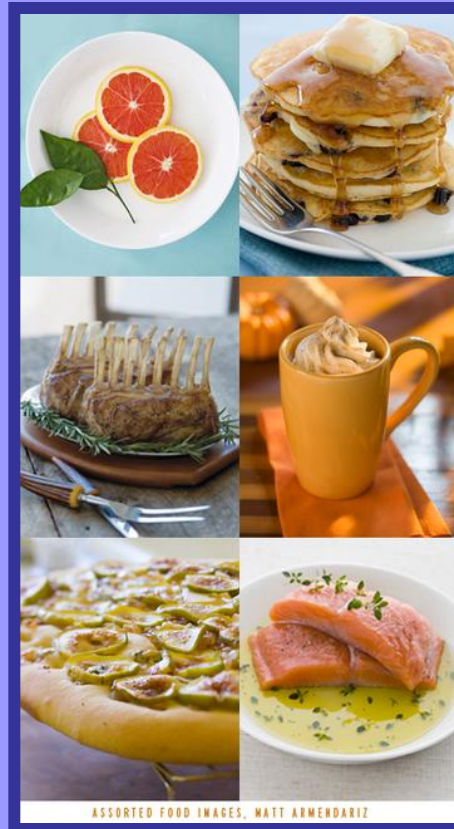


# FROM FOOD !!!

## MACRONUTRIENTS

(energy and function)

- CARBOHYDRATE
- PROTEIN
- FAT



## MICRONUTRIENTS

(function)

- VITAMINS (Vit A, C, Bs, D etc)
- MINERALS (Iron, calcium, potassium, zinc etc.)

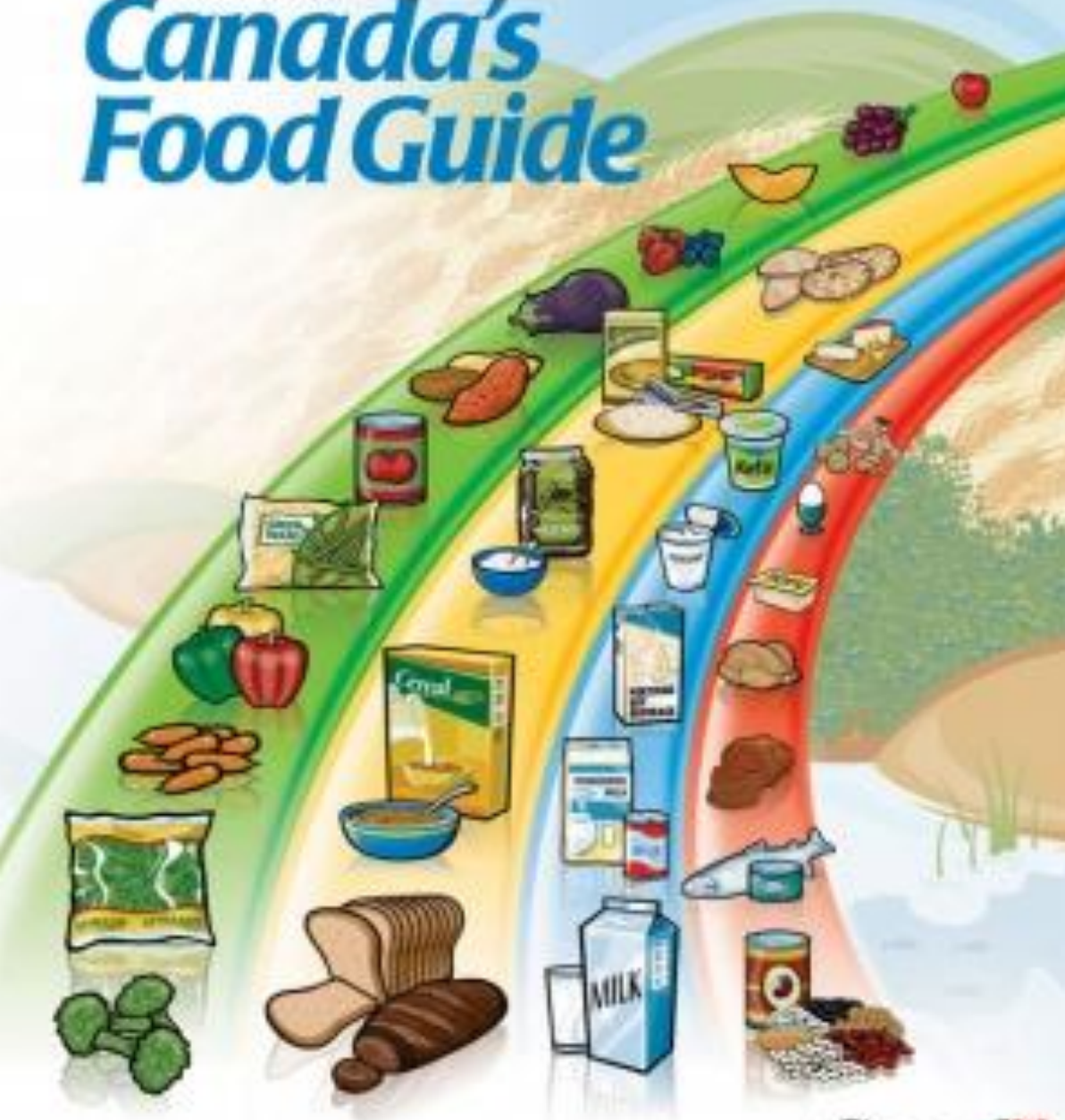
# **Your body needs more than 50 different nutrients every day.**

- **No one food or food group contains all of these nutrients: you get them all by enjoying a variety of foods.**

# ***THE BASIS ROAD MAP TO SUCCESS***



Eating  
Well with  
**Canada's  
Food Guide**



**The four food groups work as a team – foods are divided into these groups according to the nutrients they provide.**

- **Grains**

- Protein
- Fat
- Carbohydrate
- Vitamins B
- Calcium
- Iron
- Fibre

- **Milk and Milk Products**

- Protein
- Fat
- Carbohydrate
- Vitamins B
- Calcium
- Vitamin B12
- Vitamin C
- Vitamin A
- Vitamin D

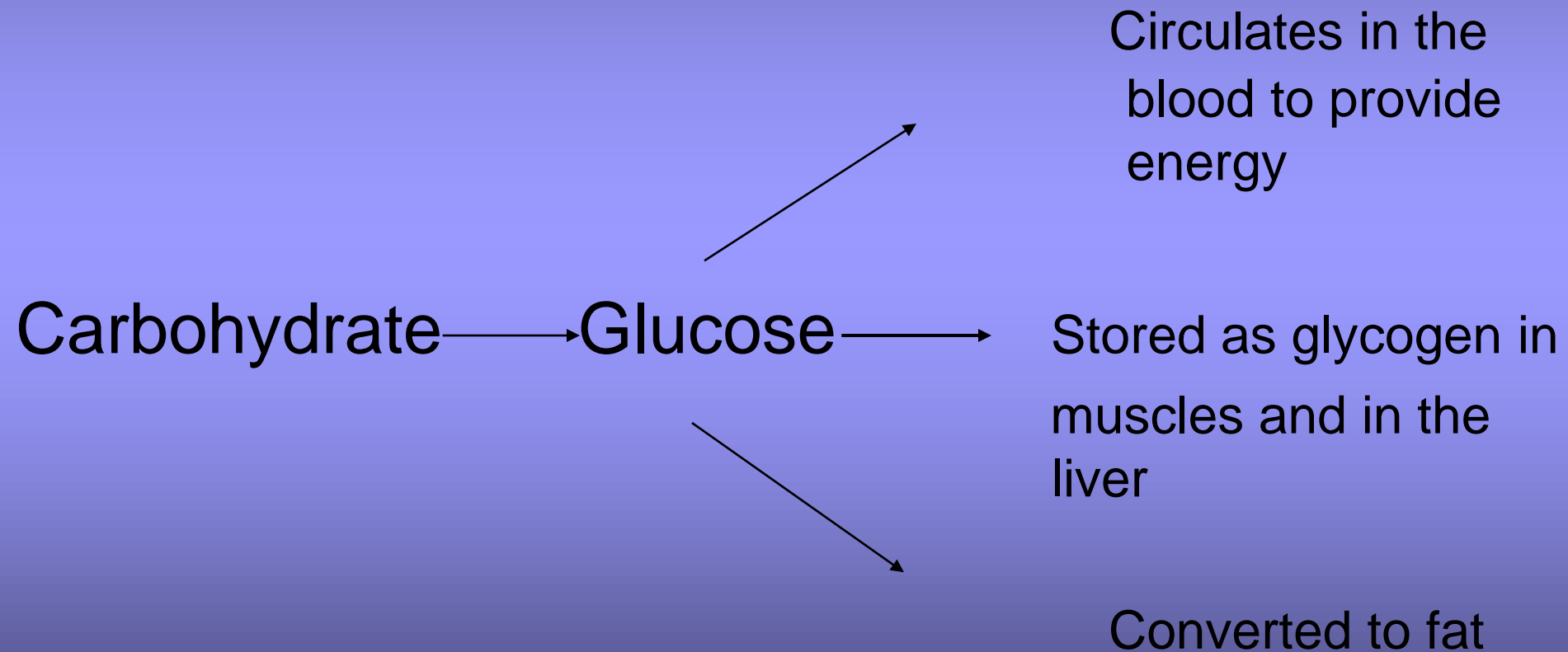
- **Vegetable and Fruit**

- Protein
- Fat
- Carbohydrate
- Vitamins B
- Vitamin C
- Vitamin A
- Calcium
- Iron
- Fibre

- **Protein and Alternates**

- Protein
- Fat
- Carbohydrate
- Vitamins B
- Calcium
- Vitamin B12
- Vitamin C
- Vitamin A
- Calcium
- Iron
- Fibre

# The main fuel used by the body during exercise is carbohydrate



# The best choices of CHO are:

- Complex carbohydrates – bread, potato, pasta, rice, cereal, legumes, starchy vegetables and fruit



# To maximize glycogen stores:

- ***After intense exercise*** muscle glycogen stores take 24-48 hours to refill completely. Include rest days after hard training and prior to competition, with adequate CHO intake, to ensure maximum filling of muscle energy sites.
- ***Before competition*** – modified CHO load. Tapering activity and consuming a high CHO diet a few days prior to the event.

## ***Pre-workout examples***

<b>Meal</b> (2 - 3 H <)	<b>Large Snack</b> (1 - 2 H <)	<b>Small snack</b> (20 - 60 min <)
French toast with fruit and yoghurt	Hard cooked egg or cheese with crackers	shredded wheat with raisins and almonds
Grilled chicken and veggie kabobs on rice	Low fat yoghurt with granola	Granola bar with a fruit juice or fresh fruit and water
Low fibre cereal with fresh fruit and milk, toast with peanut butter and banana	Fresh fruit with cottage cheese	A few crackers with fruit/vegetable juices, water

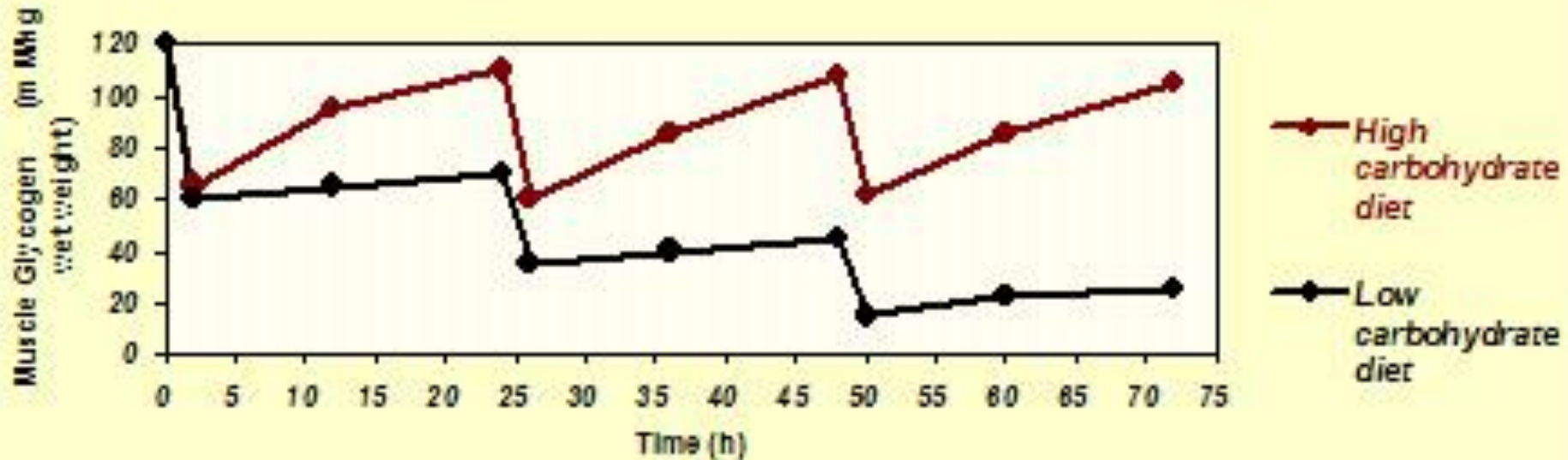
- ***After competition*** – eat or drink high CHO foods immediately after exercise, within 15 minutes. Eating small frequent snacks within the 2-4 hours after the activity is best to replace muscle energy.
  - *Recent studies indicate CHO-protein combo increases the absorption of CHO and replenishment of glycogen stores*

# *Optimal Recovery*

- Replacing what you've lost during exercise;
  - moving from a “catabolic” state into an “anabolic” state.
- Can train at a higher level without illness/injury or risk of overtraining.
- **Train hard – Recover fully – Repeat.**

# REPLENISHING GLYCOGEN FOR MULTIPLE DAY EVENTS

The effects of diet on muscle glycogen



Costill, D.L., Miller, J.M. Nutrition for endurance sport: Carbohydrate and fluid balance. *Int. J. Sports Med.* 1:2-14, 1980.

# Protein

## Muscle Building Nutrition on the Cutting Edge

The ultimate goal of training is to improve in your sport or event. As an athlete, muscle is definitely important. For sports or events where strength and power are critical, building muscle is the objective. As it's the contraction of your muscles that drives the activity.

# PROTEIN – THE FACTS

- Protein is the basic substance of all body cells (muscle, connective tissue, skin, hair). 20 amino acids, 9 essential amino acids. No more essential than any other nutrient.
- Excessive quantities do not help performance.
- Balanced diet = adequate protein



- The effects of exercise on athlete's protein needs are minimal. No more than .4gm/day
- Iron is often found in foods that are rich in protein. Hgb is important in the transportation of O<sub>2</sub>
  - *1.2 – 1.4 gm/day – endurance sport*
  - *1.6 – 1.7 gm/day – strength sport*
  - *1.8 – 2.0 gm/day - teenagers*

Amino acids and protein powder supplements do not lead to muscle development

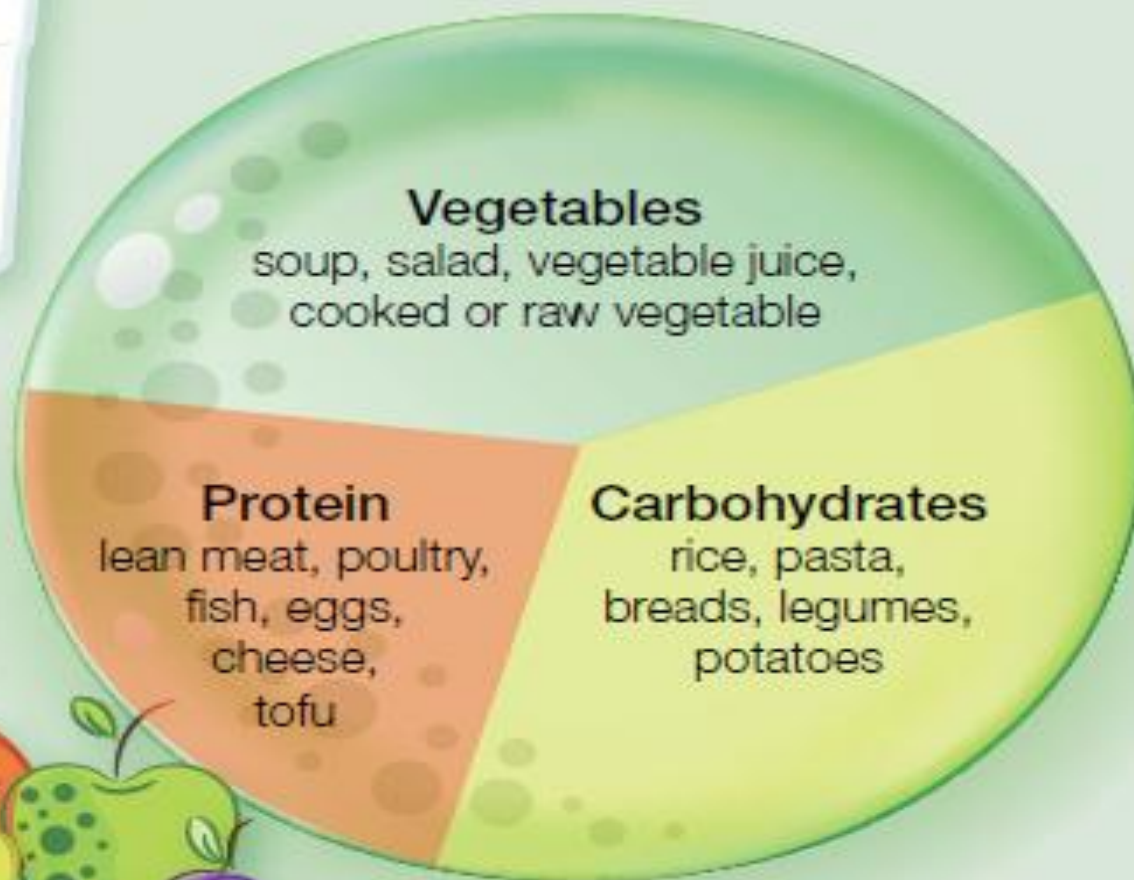
Protein beyond the body's requirements must be broken down for use as energy and stored as fat.

This process requires fluid and excessive consumption may lead to dehydration.

# FAT– Proceed with caution!

- The majority of Canadians eat too much fat!
- Fat is present in many foods.
- Fat supplies essential fatty acids and fat soluble vitamins (A,D,E&K)
- 25% of your calories should come from fat
- Fat is naturally present in many foods so be careful about the amount that you add to food
- The biggest step you can take toward a high CHO diet is to cut down on the fat content of your diet

# A Balanced Plate for an Active Person



\*Canadian Community Health Survey – Nutrition. Statistics Canada, 2006.

# FLUIDS

## Maintaining Hydration

- Water is the most important and often most neglected nutrient for athletes
- 70% of muscle and 60% body weight





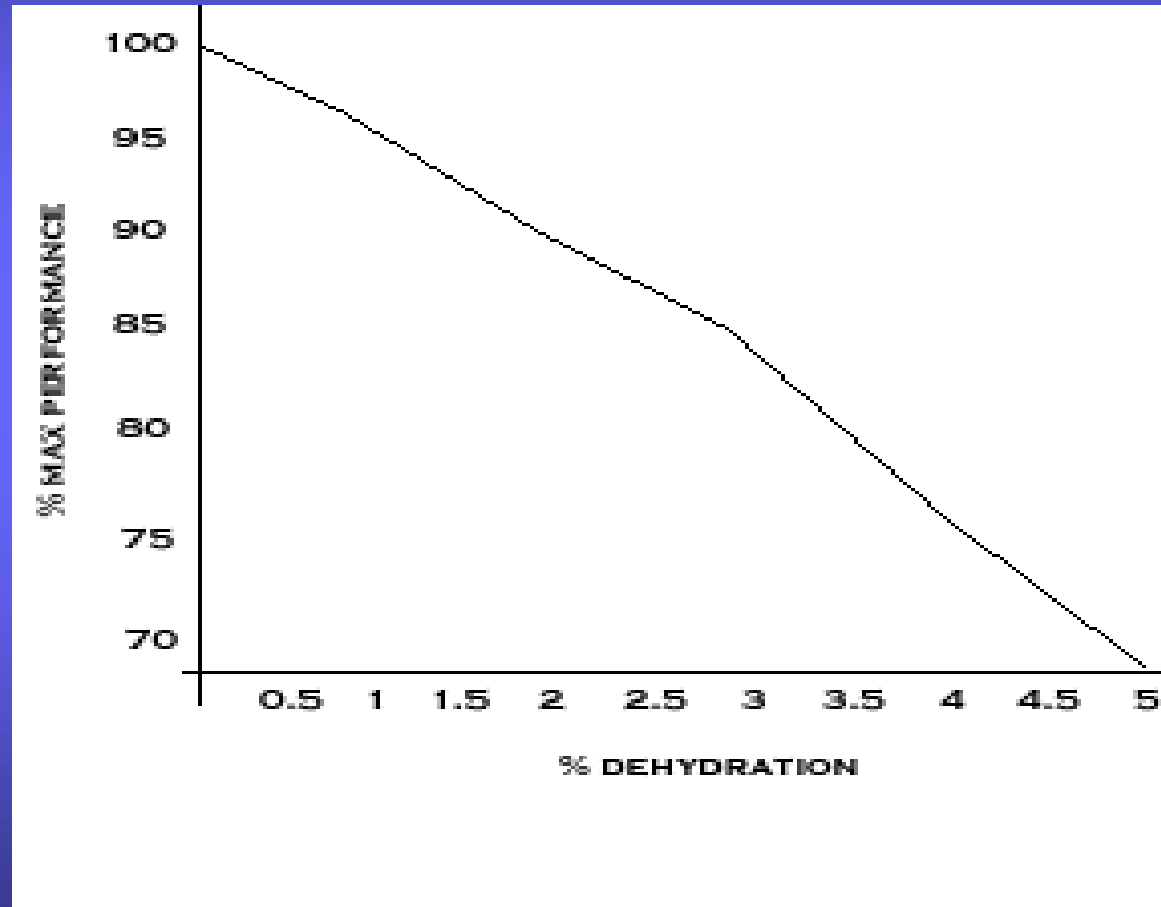
- **Transports nutrients to cells and detoxifies the body**
- **Most important activity is body temperature regulation – active muscles generate heat, evaporation of sweat is the most effective method**

**Sweat is derived from plasma – the major portion of the blood. Therefore, excessive sweating without fluid replacement decreases blood volume.**

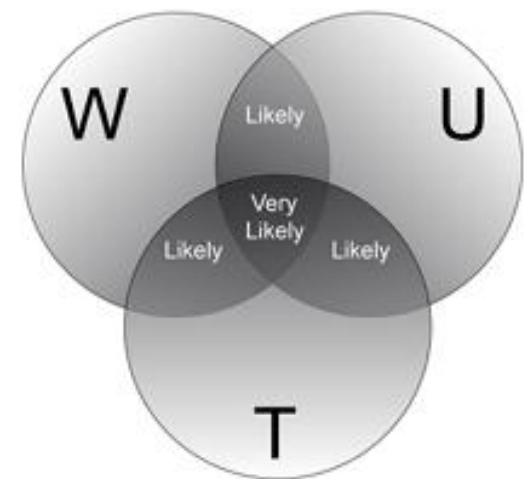
**This results in less blood to the heart and muscles, and therefore less oxygen is available for those exercising muscles.**

**RESULTING IN FATIGUE!!!!**

# THE EFFECTS



No marker by itself provides enough evidence of dehydration, but the combination of any two simple self-assessment markers means dehydration is likely. The presence of all three: weight loss, concentrated urine and thirst, makes dehydration very likely.



# To prevent dehydration:

1. Before exercise – throughout day 2L or 8 cups fluid
2. Prior to competition – drink water up to 2 hours prior to the event, then stop 5 – 10 minutes before the event begins, consume as much water as comfortable (2 cups)
3. During exercise/competition – drink 100 ml – 250 ml every 15 – 20 minutes
4. After exercise or competition – Quenching your thirst will not satisfy the body's need for water
  - Drink 1 L for every kg of weight loss through activity
  - Monitor urine colour
  - Limit the use of alcohol, tea, coffee and cola beverages

# What about sport's drinks?

- Plain cool water is sufficient for events lasting an hour or less
- Beverages containing 4-8% glucose are beneficial when activity is more than 1 hour.  
Try in training first
- The addition of a small amount of sodium enhances absorption.
  - ½ tsp salt
  - 1 ½ cups sugar
  - 2 cups unsweetened orange juice
  - 18 cups H<sub>2</sub>O

# SPORT'S DRINKS



- CONVENIENT
- EXPENSIVE
- CONTAIN ARTIFICIAL COLOURING
- TEST IN TRAINING, NOT COMPETITION

# Pre-competition meal its' purpose

- A relatively empty stomach but prevent you from feeling hungry before and during the event
- Prevent low BS and symptoms of fatigue, dizziness, blurred vision, indecisiveness.
- Provide nutrients that are easily digested in order to prevent stomach aches
- Provide adequate fluid balance
- Provide physical comfort and mental alertness
- Include familiar foods you enjoy eating.

# **Generally allow:**

- **3-4 hours for a large meal to digest**
- **2-3 hours for a smaller meal to digest**
- **1-2 hours for a blender meal or liquid meal**
- **less than an hour for a small snack**
- **Never consume sugary foods 45-60 minutes before you compete. Energy surge is a myth.**

**"A great diet cannot make an average athlete elite,  
but a poor diet can make an elite athlete average."**

Dave Costill, 1977

**A questionable small boost from  
several ergogenic aids**



**Established benefits  
from using CHO rich  
sport foods to fuel &  
refuel for training and  
competition**

**The foundation of healthy  
eating practices throughout  
the athlete's training and  
development**

