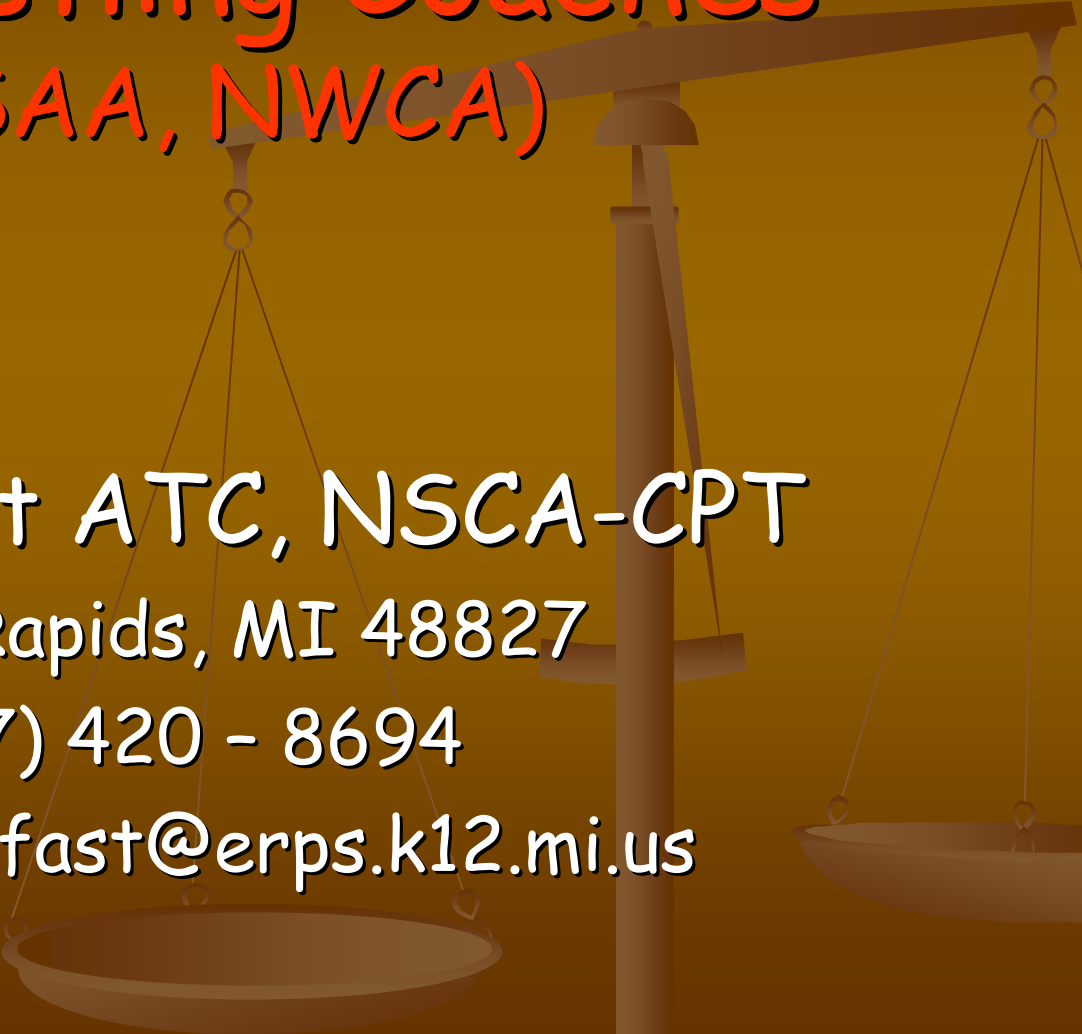


Nutritional Education for Wrestling Coaches (MHSAA, NWCA)



James Fast ATC, NSCA-CPT

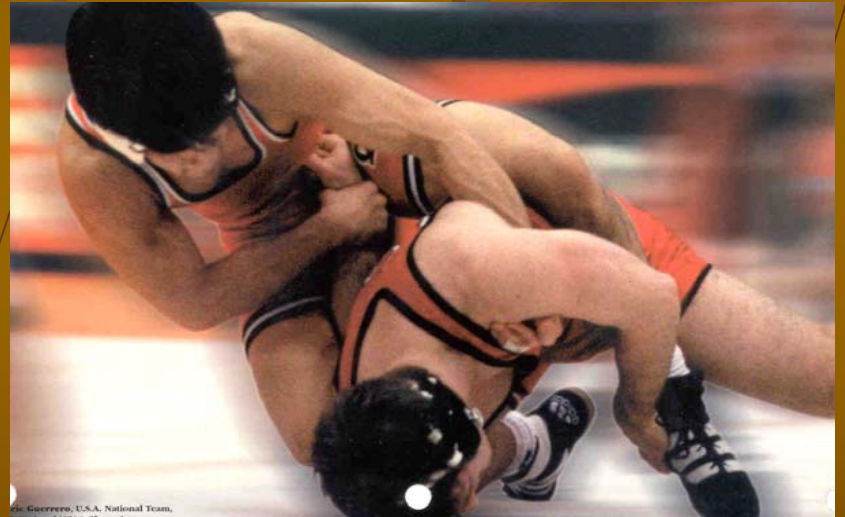
Eaton Rapids, MI 48827

(517) 420 - 8694

E-mail - jfast@erps.k12.mi.us

Program Goal

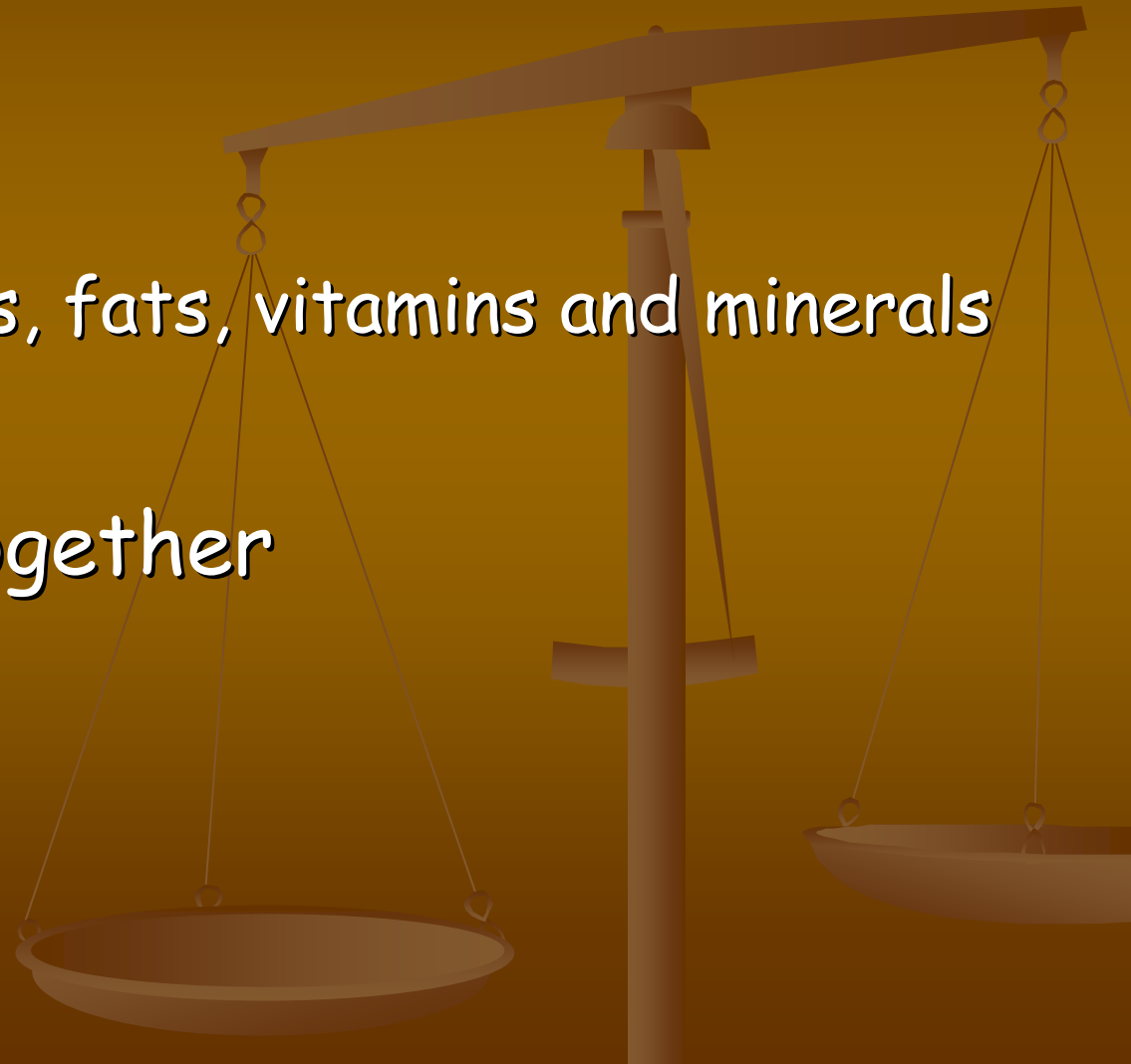
- To educate and inform wrestling coaches
- Help coaches to develop a resource on nutrition
- To promote optimum performance for wrestlers through safe and healthy nutrition.



Eric Guerrero, U.S.A. National Team.

Content

- Over view
- Hydration
- Nutrients
 - Carbs, proteins, fats, vitamins and minerals
- Supplements
- Putting it all together



What is involved?

Genetics

Training

Nutrition



Weight Control + Adolescent Athlete

ONE OF WRESTLER'S
GREATEST CHALLENGES!



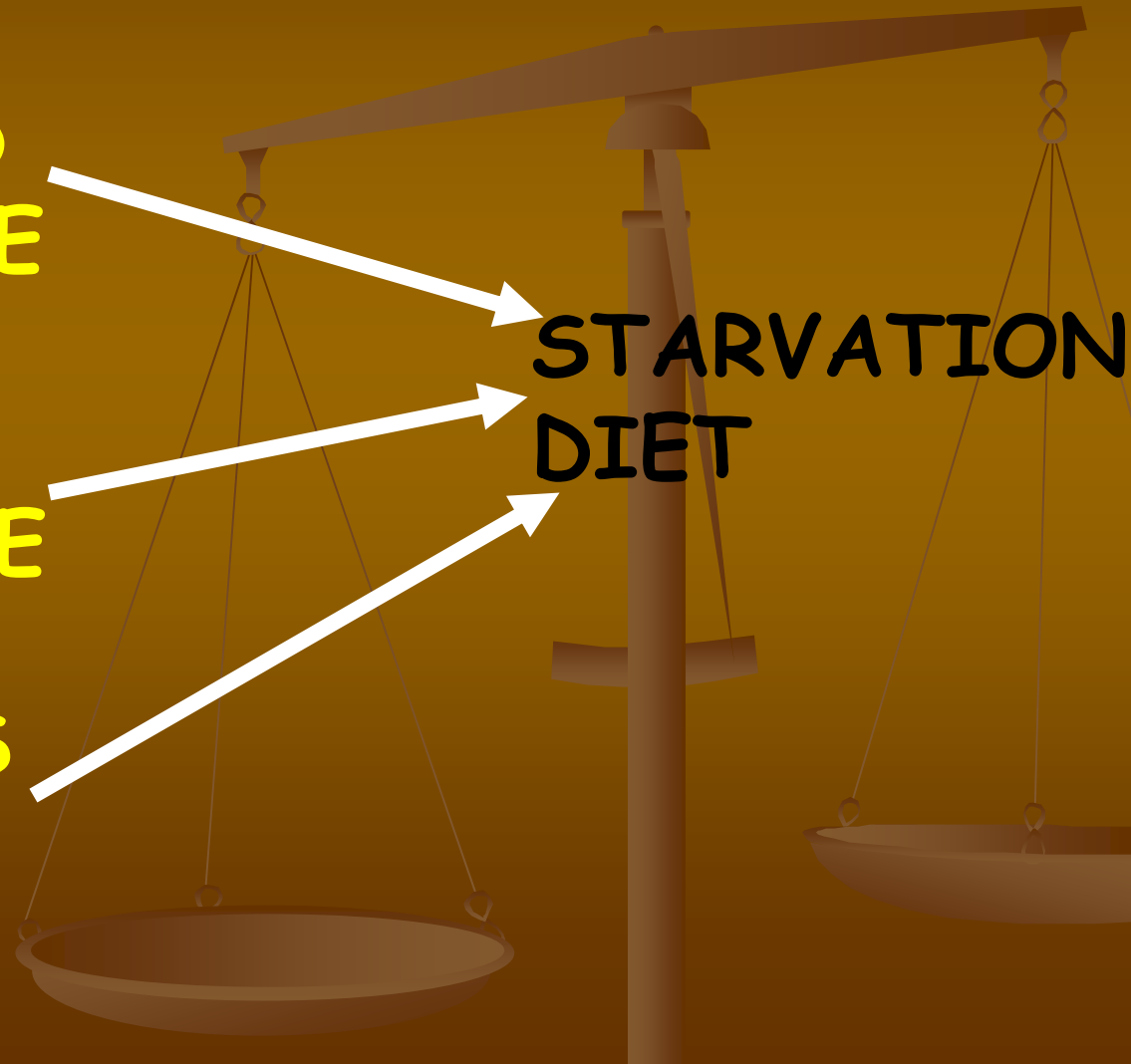
How have wrestlers initially made weight?

**RESTRICTED
FOOD INTAKE**

**DECREASED
FLUID INTAKE**

**STRENUOUS
EXERCISE**

**STARVATION
DIET**



Performance outcomes

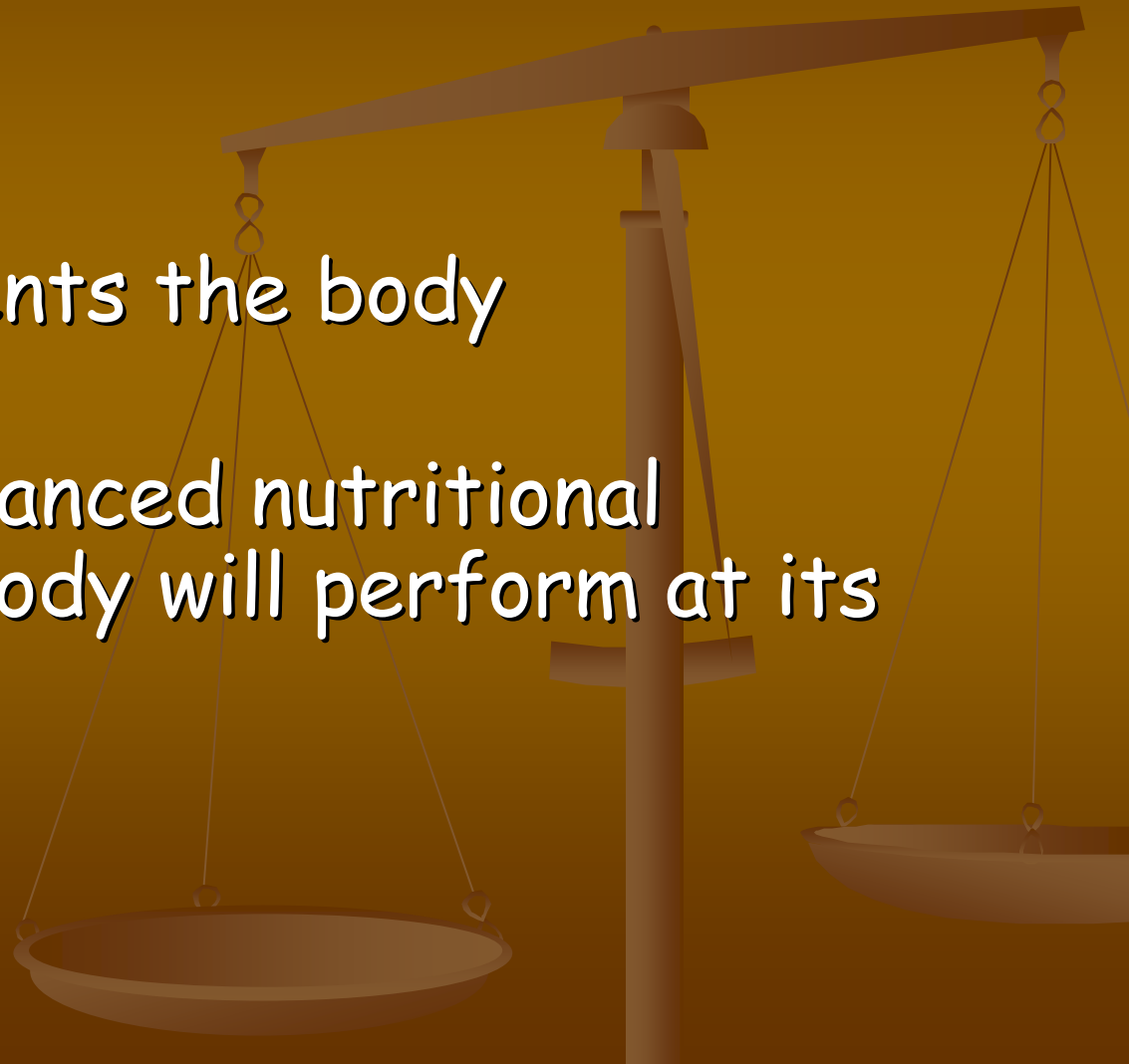


- WEAKNESS
- LETHARGY
- DECREASED
CONCENTRATION
- SEMISTARVATION



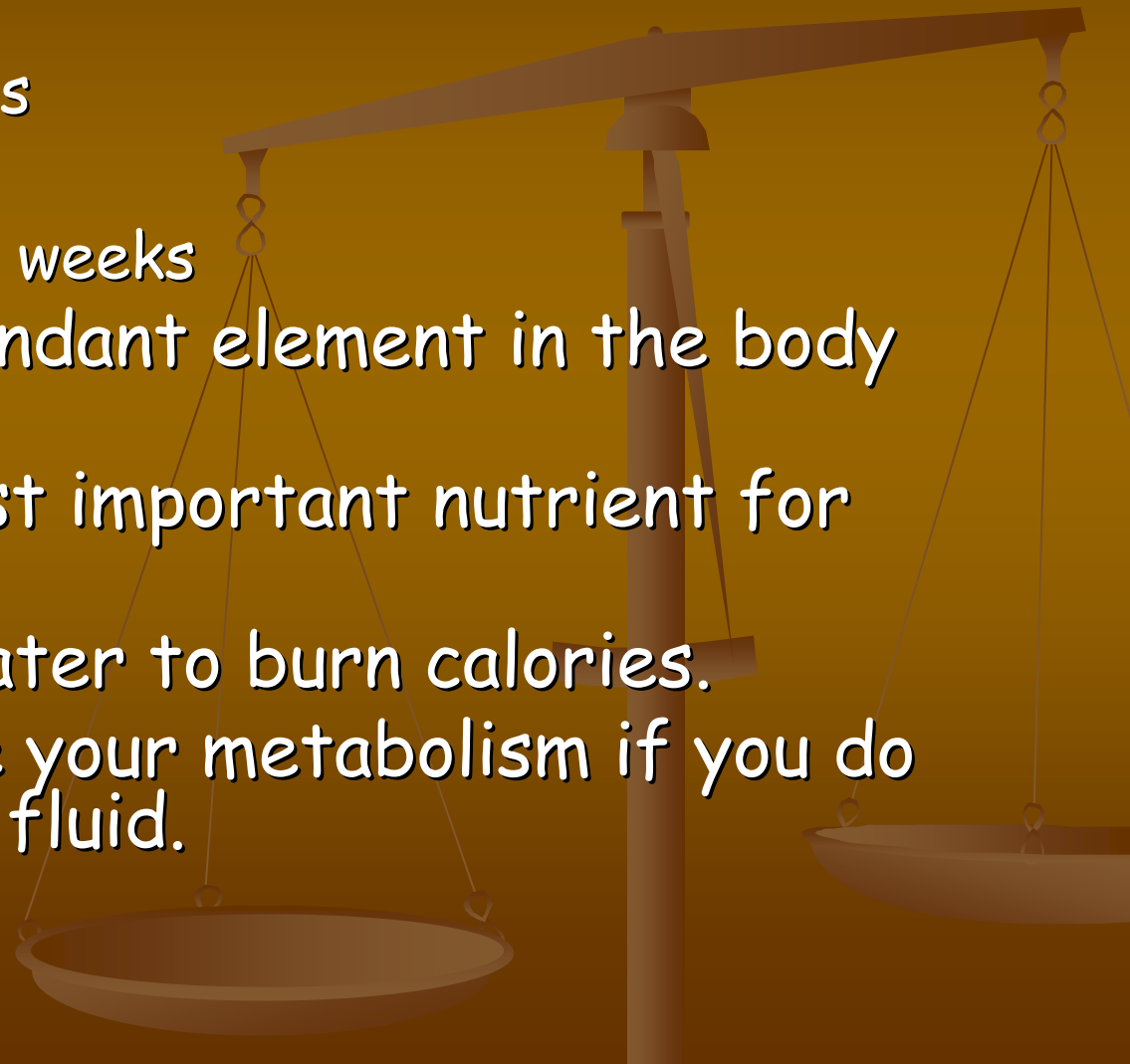
Nutrition and why is it important?

- Without nutrients the body malfunctions
- With a well balanced nutritional program, the body will perform at its best



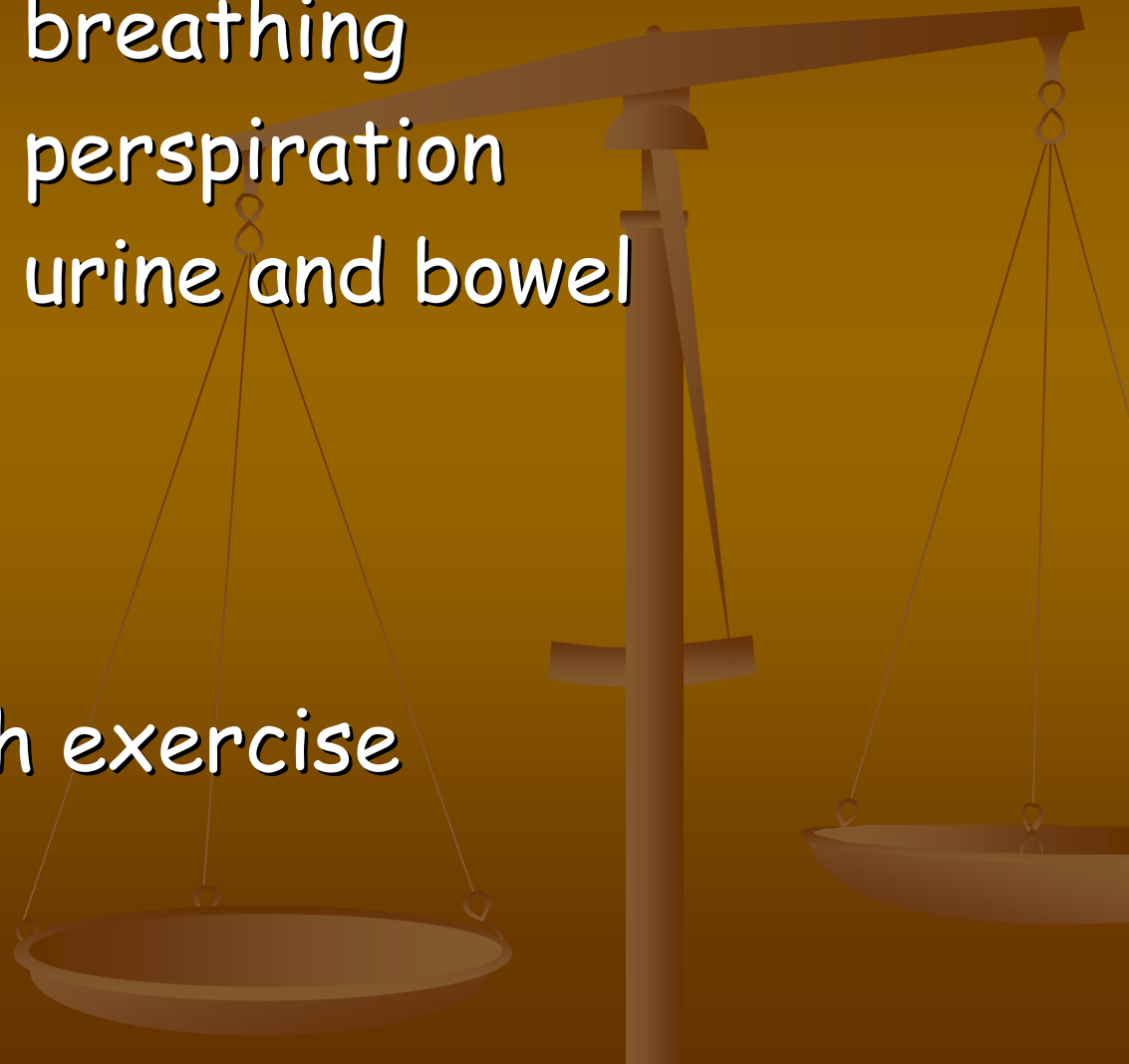
Hydration and why is it important?

- Without food?
 - About two months
- Without water?
 - Lucky to last two weeks
- Second most abundant element in the body next to carbon.
- Water is the most important nutrient for your body.
- You must have water to burn calories.
- You will decrease your metabolism if you do not drink enough fluid.



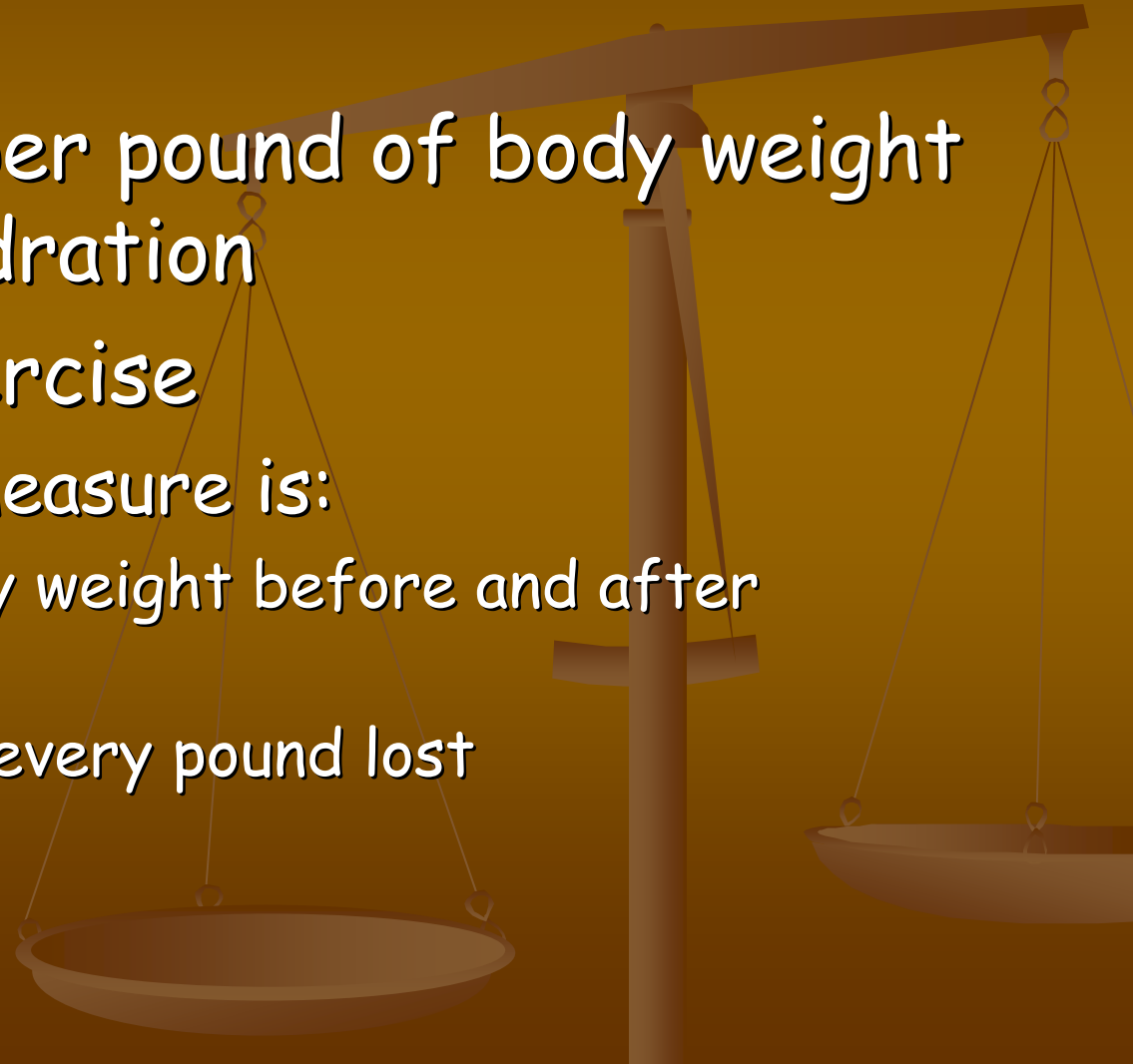
Water lost

- 2 cups through breathing
- 2 cups through perspiration
- 6 cups through urine and bowel movement
- 10 cups through exercise



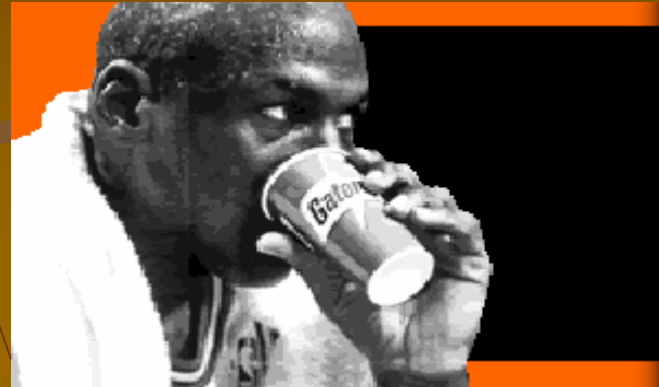
How much water?

- .6 - .7 ounces per pound of body weight to maintain hydration
- Extra with exercise
 - Ideal way to measure is:
 - Change in body weight before and after practice.
 - 16 - 20oz for every pound lost



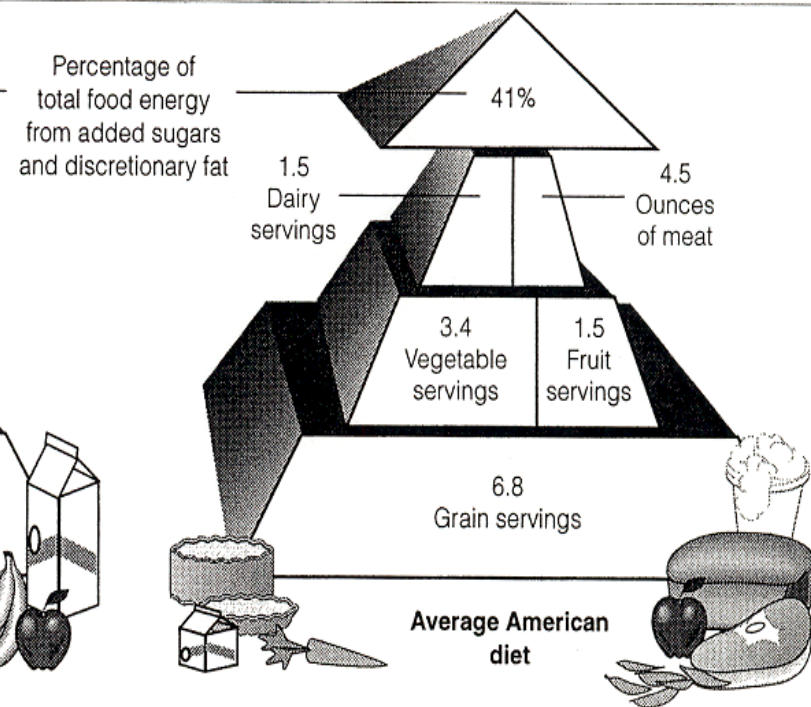
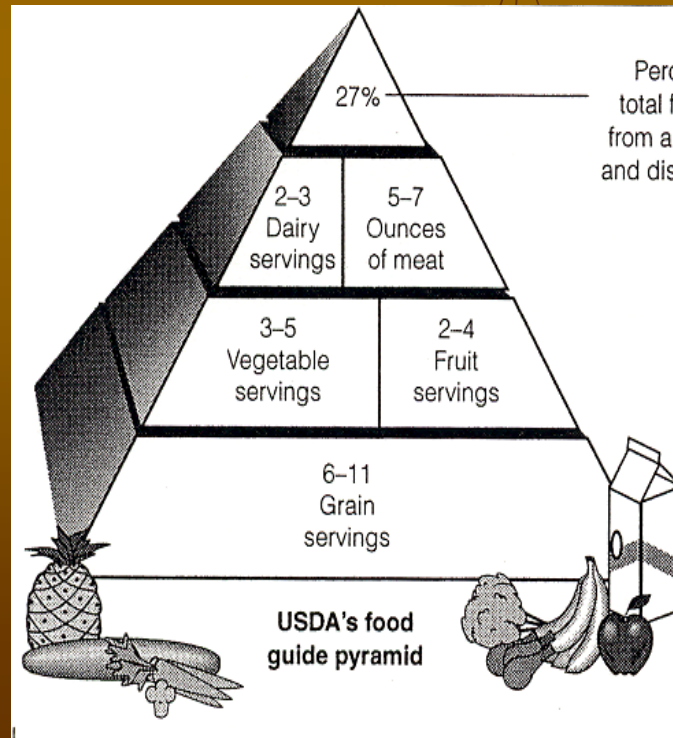
When to drink...

- Drink before you are thirsty.
- Drink during activity
- Drink after activity
- Water has no adverse effects on performance.
- Rarely one can not get too much water.



Components of nutrition

- Carbohydrates
- Proteins
- Fats
- Vitamins
- Minerals



Nutrition

■ Carbohydrates

- Proteins
- Fats
- Vitamins
- Minerals



Carbohydrates

(Most miss understood)



Carbohydrates

- Number one source of energy for all bodily function.
- Body storage
 - Liver (100g)
 - Muscles (325g)
 - Blood (15-20)
- 1gram gives off 4 calories



- Complex Carbohydrates

A metal tray containing various packaged snacks, including waffles, chocolate-covered items, and other treats, arranged in rows.

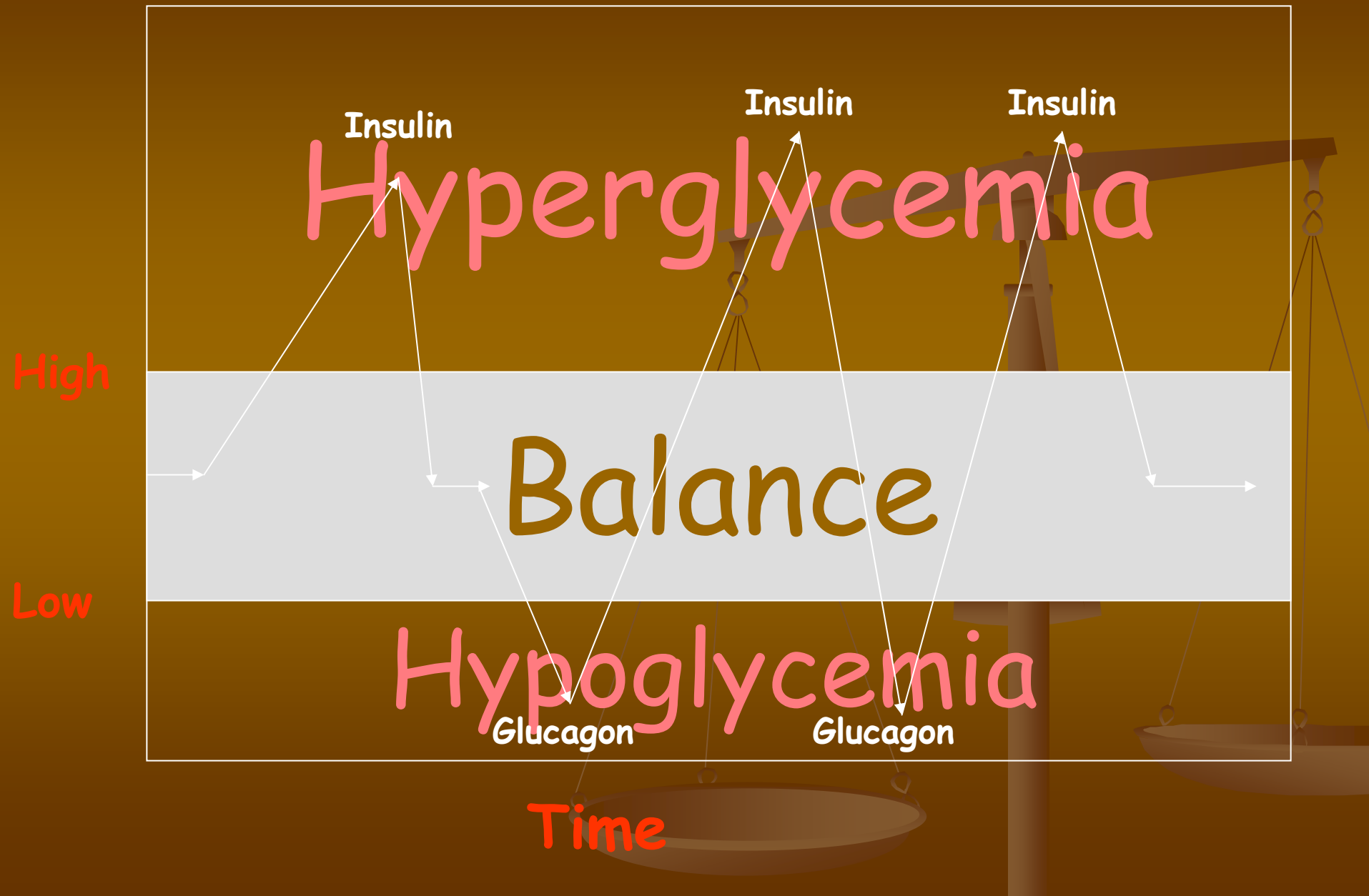


Simple Carbohydrates

Good tasting

- To much can be bad
 - Why?
 - Hyper / hypoglycemia





Simple Carbohydrates

(simple sugar)

- Sugars
 - Glucose (dextrose)
 - Used for energy
 - Stored as glycogen
 - Can be converted to fat
 - Fructose
 - Galactose
 - Sucrose
 - Maltose
 - Artificial sugars
 - Saccharin
 - Aspartame (nutriasweet)
 - Aciculae (sunette)
 - Sucralose

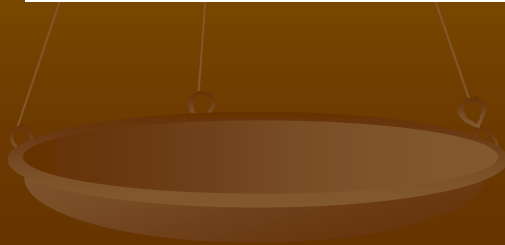


Simple Carbo (cont.)

- Where can we find these items?
 - Table sugar
 - Fruits
 - Candy bars
 - Soda pop
 - Fruit juices
 - Fruit punch
 - Sports drinks



-



Sources of carbohydrate

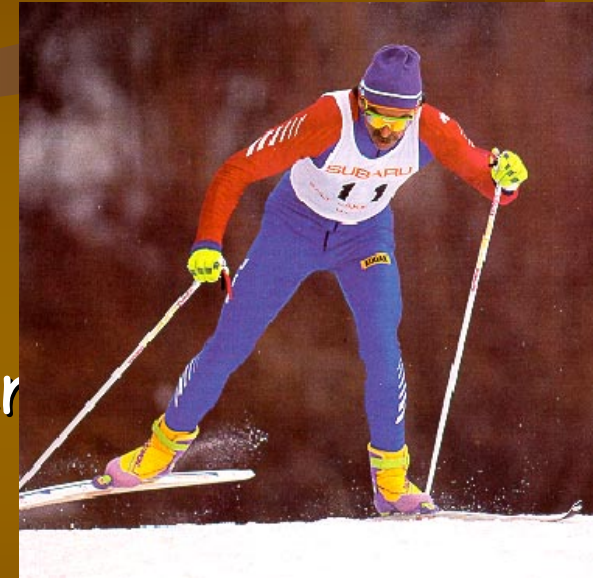
- Breads
- Cereals (hot & cold)
- Grains of all kinds
- Pasta

- Fruits
 - bananas
 - apples
 - pears etc.
- "Vegetables"
 - potatoes & other tubers
 - beans



Carb. intake recommendations

- 6-8 g/kg/day (10 for some athletes)
- Up to 600 g per day. Thereafter little benefit
- Skeletal muscle stores glycogen at the highest rate up to 2 hours after exercise
- 100 g (400 kcal) should be consumed 15 to 30 minutes after exercise
- 100 g every 2 - 4 hours thereafter



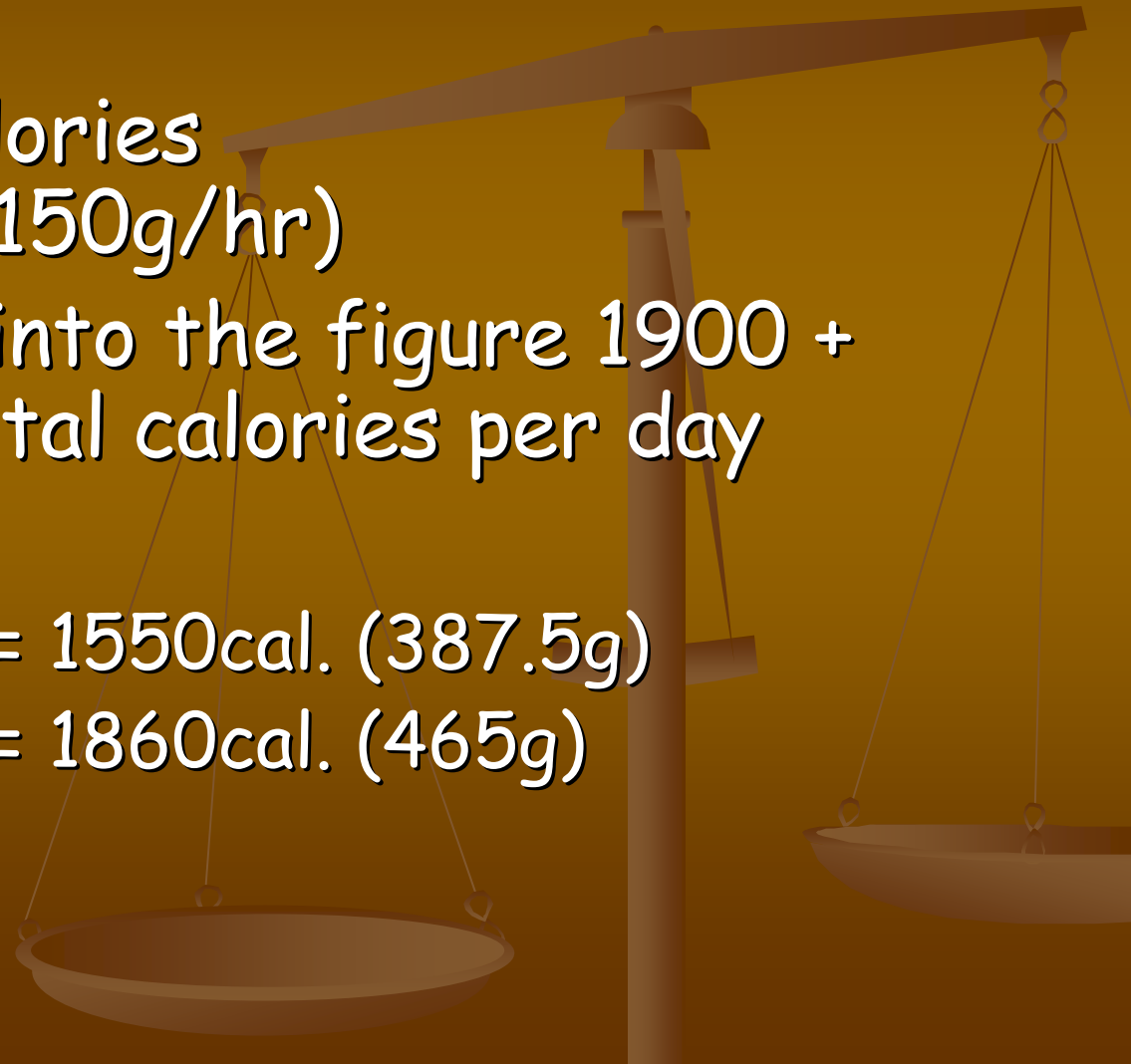
How much carbs does a wrestler need?

- Rough estimation
 - Total cal.
 - Take body weight in kg and multiply by 6 - 8
- Example
 - $45\text{kg} \times 8 = 360\text{g/day}$.
 - 1440cal per day



How many calories are burned during a two hour practice?

- About 1200 calories
(600cal/hour)(150g/hr)
- Add this back into the figure $1900 + 1200 = 3100$ total calories per day
- Total carbs
 - $.50 \times 3100\text{cal} = 1550\text{cal.}$ (387.5g)
 - $.60 \times 3100\text{cal} = 1860\text{cal.}$ (465g)



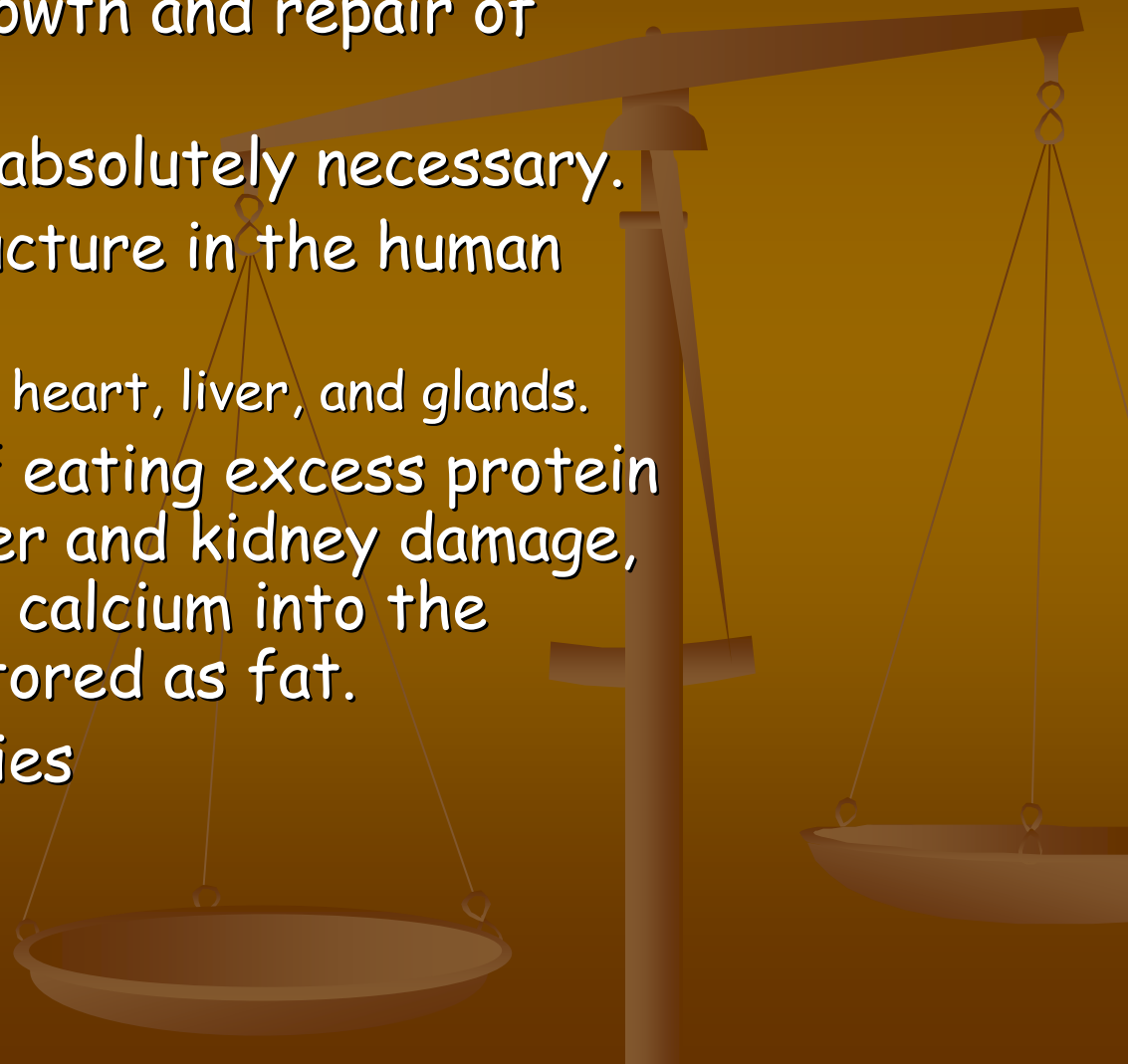
Nutrition

- Hydration
- Carbohydrates
- **Proteins**
- Fats
- Vitamins
- Minerals



Function

- Primarily for the growth and repair of body tissues.
- Used for fuel when absolutely necessary.
- Found in all cell structure in the human body.
 - Brain, Blood, muscle, heart, liver, and glands.
- Negative effects of eating excess protein include potential liver and kidney damage, dehydration, loss of calcium into the urine, and protein stored as fat.
- 1 gram gives 4 calories



Practical Implications

Estimated dietary protein needs of sedentary individuals and athletes

- RDA = 0.8 g/kg/day or 56 g for sedentary individual (actual intake in U.S. is ~90 g/day).
- Strength athletes need about 1.4 g/kg/day to stay in nitrogen balance (1.6-1.7 g/kg/day, safety margin added).
- Endurance athletes need 1.2-1.4 g/kg/day.
- Most athletes can obtain the added protein by ensuring that protein intake is ~15% total energy intake, using foods from the traditional food supply (supplements not needed).

How Much protein?

- Sedentary individual
 - .8 - .9g/kg/day
- Athletes
 - 1.6 - 1.7g/kg/day

- Example:

- $45 \times 1.6 = 72\text{g/day}$
- 288cal/day



PROTEIN SOURCES

■ Legumes

- soybeans (complete)
- peas
- peanuts
- beans

■ Grains

- rice
- wheat
- corn
- oats etc.

■ Nuts/seeds

- almonds
- pecans
- sunflower seeds etc.

■ Dairy products

- milk
- cheese
- yogurt

■ Eggs

■ Fish

■ Chicken/poultry

■ Beef



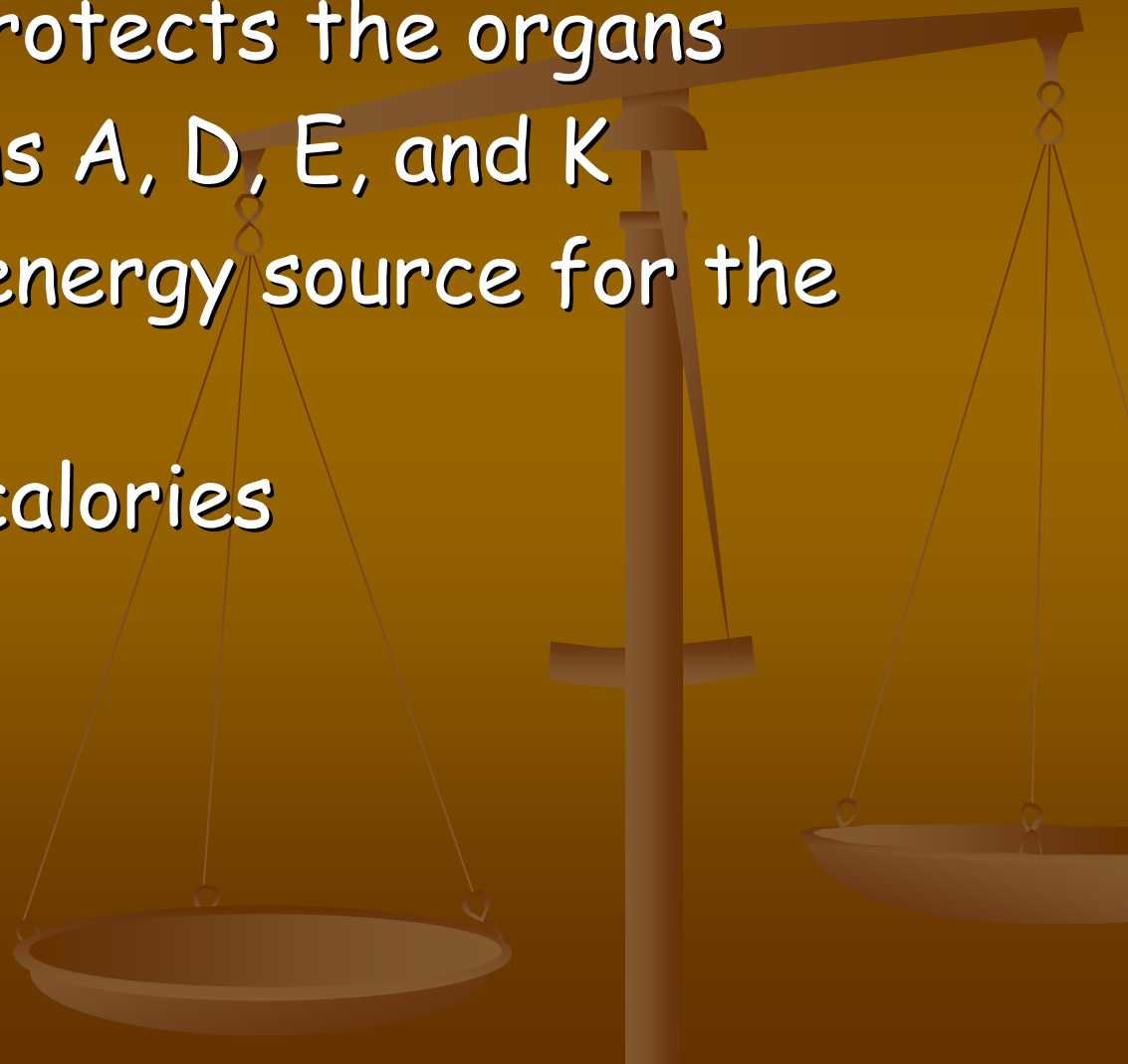
Nutrition

- Hydration
- Carbohydrates
- Proteins
- **Fats**
- Vitamins
- Minerals



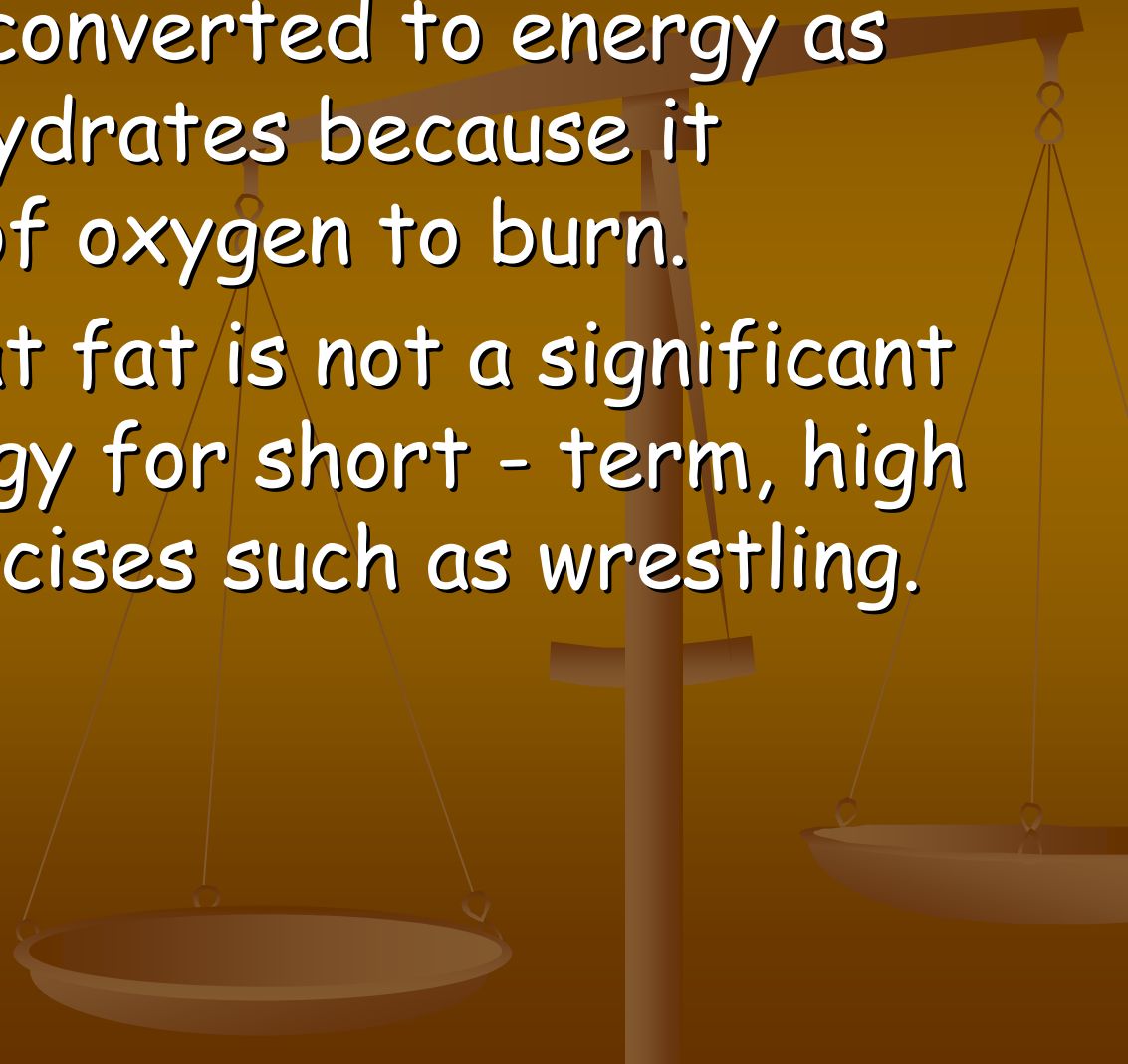
Function

- Cushions and protects the organs
- Carries vitamins A, D, E, and K
- Concentrated energy source for the body
- 1gram gives 9 calories



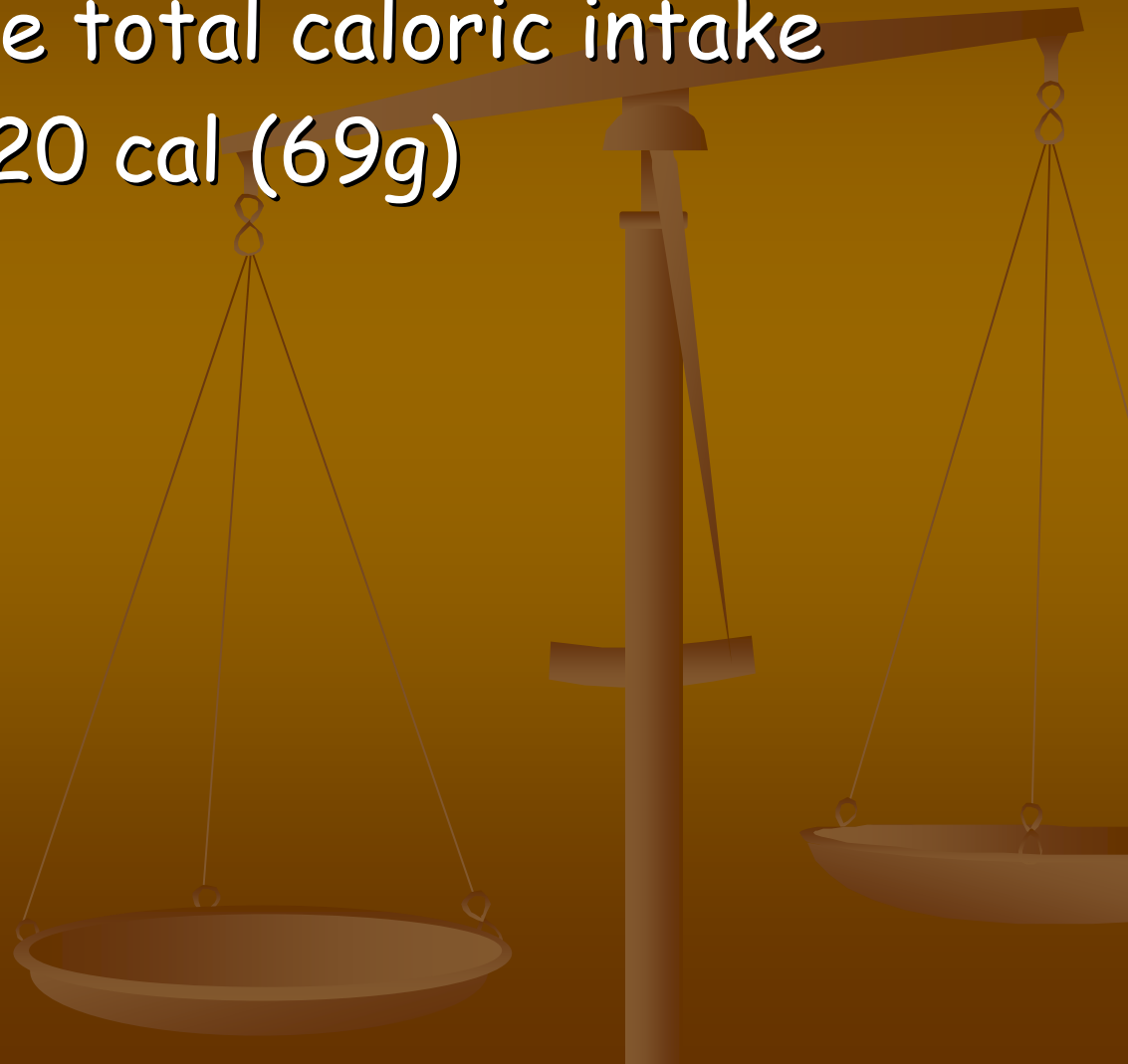
Energy source?

- Fat cannot be converted to energy as fast as carbohydrates because it requires a lot of oxygen to burn.
- This means that fat is not a significant source of energy for short - term, high-intensity exercises such as wrestling.



Fat intake

- 20 - 30% of the total caloric intake
- $3100 \times .20 = 620 \text{ cal (69g)}$



Fat is good

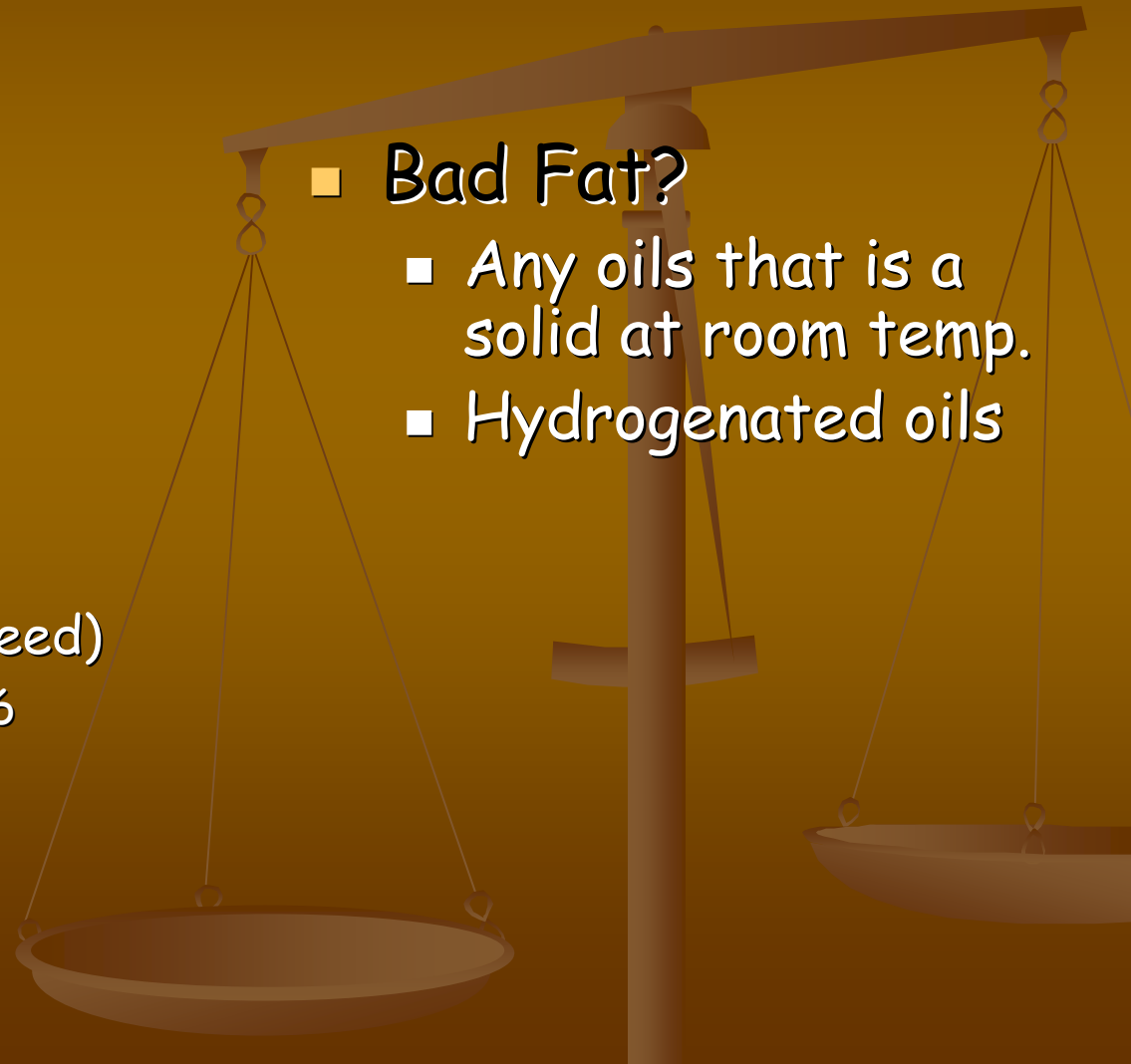
■ Good Fat?

■ Natural

- Dairy
- Nuts
- Fish
- Meat
- Oils (olive, flaxseed)
 - Omega 3 and 6

■ Bad Fat?

- Any oils that is a solid at room temp.
- Hydrogenated oils



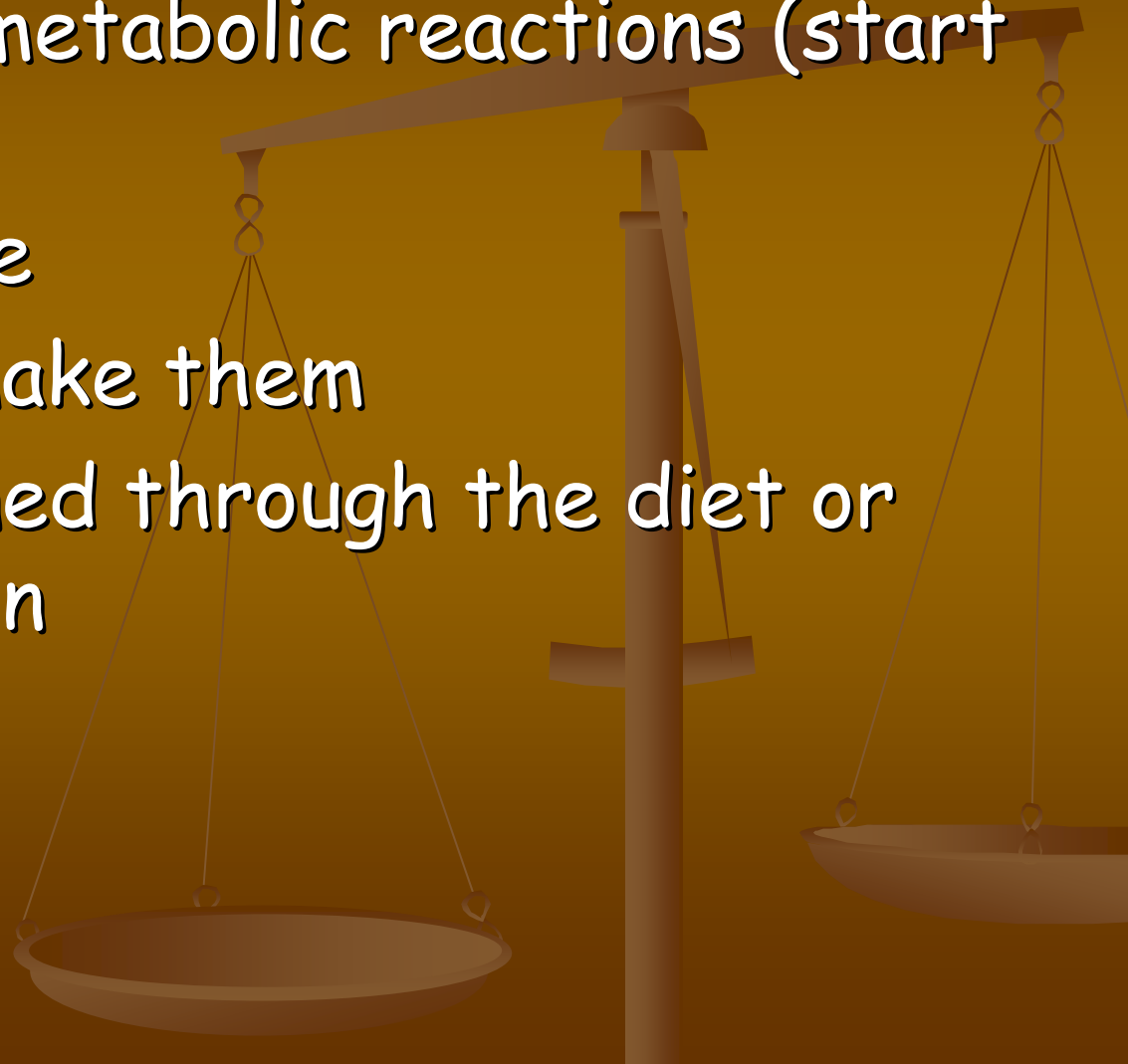
Nutrition

- Hydration
- Carbohydrates
- Proteins
- Fats
- **Vitamins**
- Minerals



Vitamins

- Help regulate metabolic reactions (start the body)
- No caloric value
- Body can not make them
- Must be obtained through the diet or supplementation



Vitamins

- Two types
 - Water-soluble vitamins
 - Fat-soluble vitamins

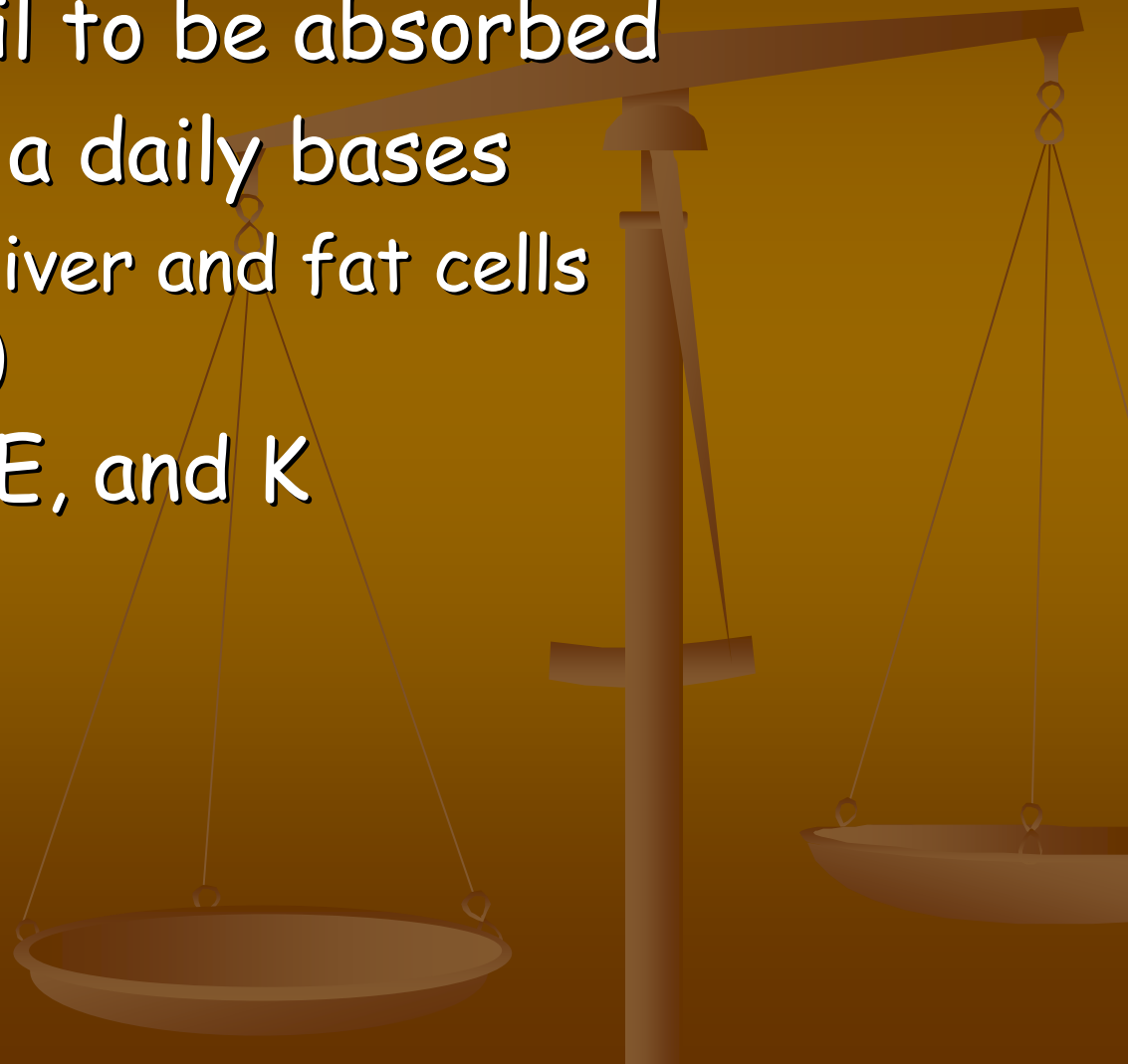


Water soluble vitamins

- Absorbed directly into the blood stream
- Not stored in the body
- Must be replenished daily or within several days
- Vitamin B complex
 - Thiamin, riboflavin, niacin, pyridoxine, cobalamin, pantothenic acid, folic acid, biotin
- Vitamin C

Fat soluble vitamins

- Require fats/oil to be absorbed
- Not needed on a daily bases
 - Stored in the liver and fat cells (subcutaneous)
- Vitamins A, D, E, and K



Nutrition

- Hydration
- Carbohydrates
- Proteins
- Fats
- Vitamins
- **Minerals**



Minerals

- Chemical elements that can not be synthesized by the body
- Assist enzymes in all body function
- Building materials for bones, teeth, tissue, muscles, blood, and nerve cells
- Major minerals
 - the body requires 100mg/day or more
- Trace minerals
 - the body requires 100mg/day or less

Supplements

(Performance Enhancer)

■ Unregulated industry from FDA

- A billion dollar industry
- Unsure of what you are getting in the package
 - Amount
- Warning – “Not intended for individuals under the age of 18.”
- No studies done with our age group.



Supplements

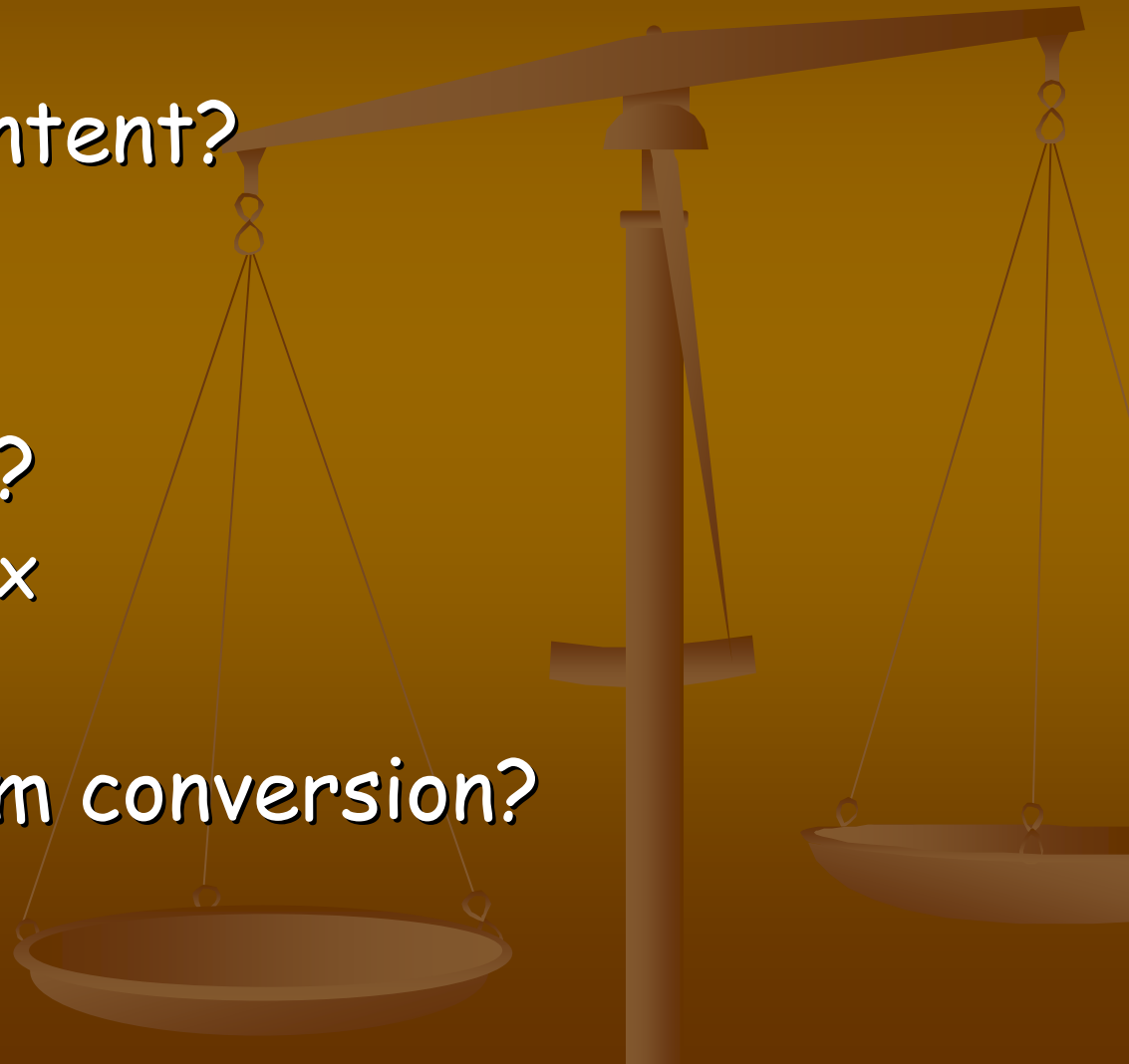
(Performance Enhancer)

- Multivitamins
- Protein Power?
- Ephedrine products??
 - Fat Burner
 - Increase metabolic rate
- Rip Fuel?
 - Increase energy
 - Caffeine
- Red Bull?
- Creatine Monohydrate?
 - Enhance performance in high intensity short term physical activities
- HMB (Beta Hydroxy Methylbutyrate)
 - May increase lean muscle mass
- Glutamine?
 - Maintain muscle mass and immune system



Reading Nutritional Labels

- Serving size?
- Serving per content?
- Total Calories?
- Fats?
- Carbohydrates?
 - Simple/complex
- Protein?
- Calories to gram conversion?



Nutritional Facts

Serving Size

Is your serving the same size as the one on the label? If you eat double the serving size listed, you need to double the nutrient and calorie values. If you eat one-half the serving size shown here, cut the nutrient and calorie values in half.

Calories

Are you overweight? Cut back a little on calories. Look here to see how a serving of the food adds to your daily total. A 5' 4", 138-lb. active woman need about 2,200 calories each day. A 5' 10", 174-lb. active man needs about 2,900. How about you?

Total Carbohydrate

When you cut down on fat, you can eat more carbohydrates. Carbohydrates are in foods like bread, potatoes, fruits and Vegetables. Choose these often! They give you more nutrients than sugars like soda pop and candy.

Dietary Fiber.

Grandmother called it "roughage," but her advice to eat more is still up-to-date! That goes for both soluble and insoluble kinds of dietary fiber. Fruits, vegetables, whole-grain foods, beans and peas are all good sources and can help reduce the risk of heart disease and cancer.

Protein

Most Americans get more protein than they need. Where there is animal protein, there is also fat and cholesterol. Eat small servings of lean meat, fish and poultry. Use skim or low-fat milk, yogurt and cheese. Try vegetable proteins like beans, grains and cereals.

Vitamins & Minerals

Your goal here is 100% of each for the day. Don't count on one food to do it all. Let a combination

Serving Size ½ cup (114g)

Serving Per Container 4

Amount Per Serving

Calories 90

Calories from fat 30

% Daily Value

Total Fat 3g

5%

Saturated Fat 0g

0%

Cholesterol 0mg

1%

Sodium 300mg

13%

Total Carbohydrate 13g

4%

Dietary Fiber 3g

12%

Sugars 3g

Protein 3g

Vitamin A

80%

Vitamin C

60%

Calcium

4%

Iron

4%

Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

Calories

2,000

2,500

Total Fat Less than

65g

80g

Sat Fat Less than

20g

25g

Cholesterol less than

300mg

300mg

Sodium Less than

2,400mg

2,400mg

Total Carbohydrate

300g

375g

Fiber

25g

30g

Calories per gram:

Fat 9

Carbohydrate 4

Protein 4

Total Fat

Aim low: Most people need to cut back on fat! Too much fat may contribute to heart disease and cancer. Try to limit your calories from fat. For a healthy heart, choose foods with a big difference between the total number of calories and the number of calories from fat.

Saturated Fat

A new kind of fat? No - saturated fat is part of the total fat in food. It is listed separately because it's the key player in raising blood cholesterol and your risk of heart disease. Eat less!

Cholesterol

Too much cholesterol - a second cousin to fat - can lead to heart disease. Challenge yourself to eat less than 300 mg each day.

Sodium

You call it "salt," the label calls it "sodium." Either way, it may add up to high blood pressure in some people. So, keep your sodium intake low - 2,400 to 3,000 mg or less each day.

The AHA recommends no more than 3,000 mg sodium per day for healthy adults.

Daily Value

Feel like you're drowning in numbers? Let the Daily Value be your guide. Daily Values are listed for people who eat 2,000 or 2,500 calories each day. If you eat more, your personal daily value may be higher than what's listed on the label. If you eat less, your personal daily value may be lower.

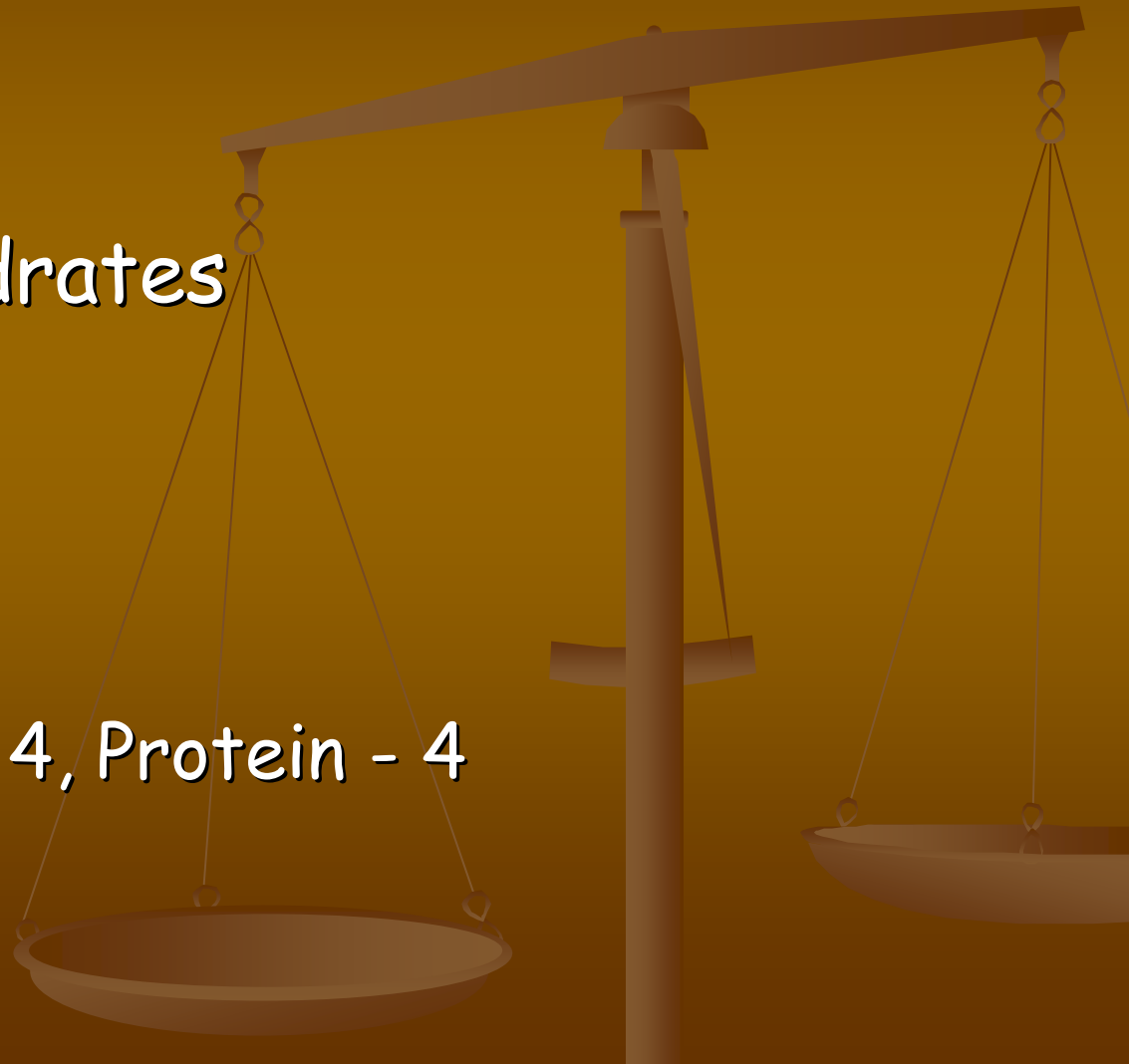
For fat, saturated fat, cholesterol and sodium, choose foods with a low % Daily Value. For total carbohydrate, dietary fiber, vitamins and minerals, your daily value goal is to reach 100% of each.

g = grams (About 28 g = 1 ounce)

mg = milligrams (1,000 mg = 1 g)

Nutritional Label

- Serving Size
- Calories
- Total Carbohydrates
- Protein
- Fat
- Calories/gram
 - Fat - 9, Carb.- 4, Protein - 4

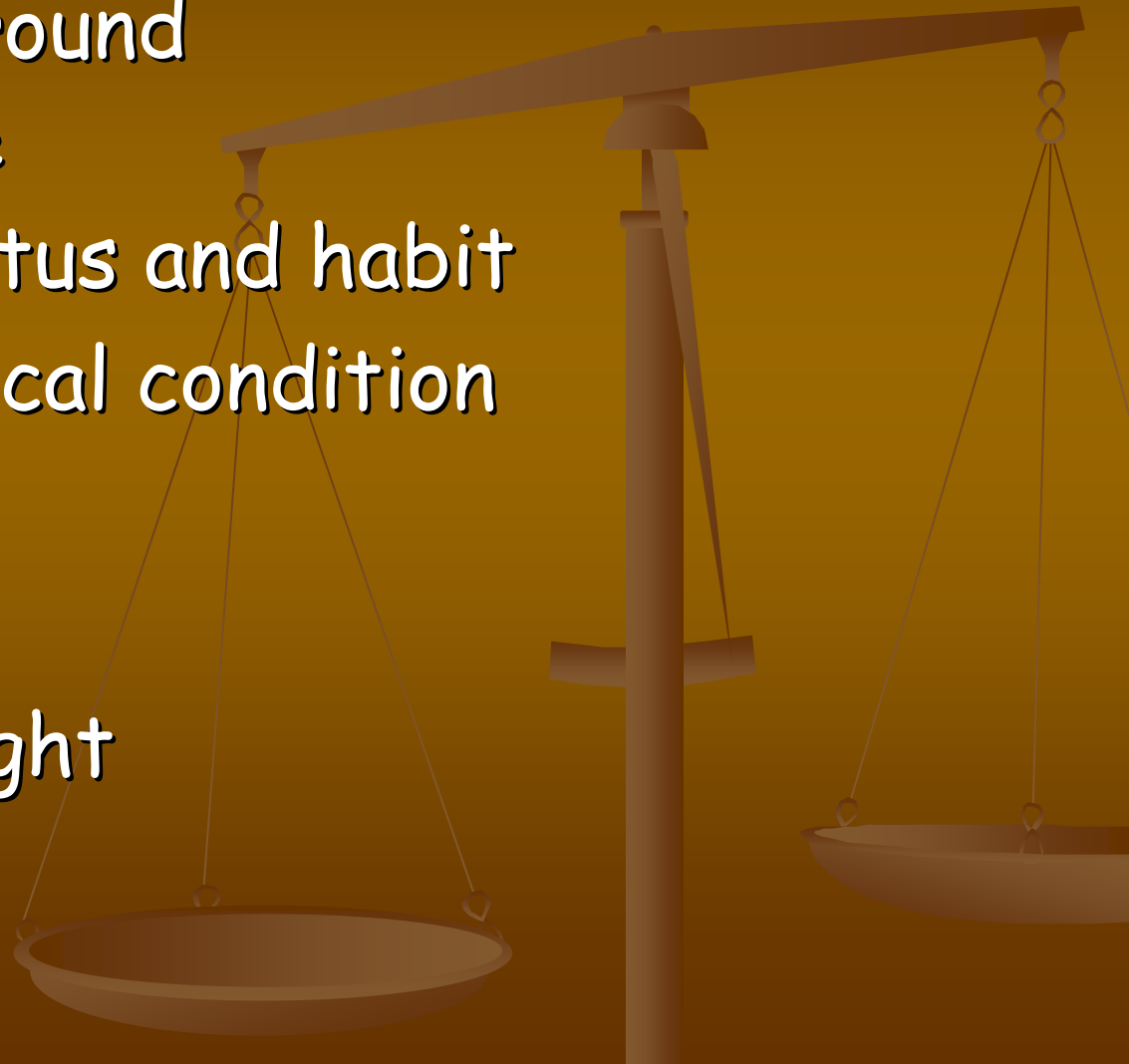


Putting it all together



Many Factors to consider

- Genetic background
 - Metabolic rate
- Nutritional status and habit
- Athlete's physical condition
- Gender
- Age
- Individual Weight



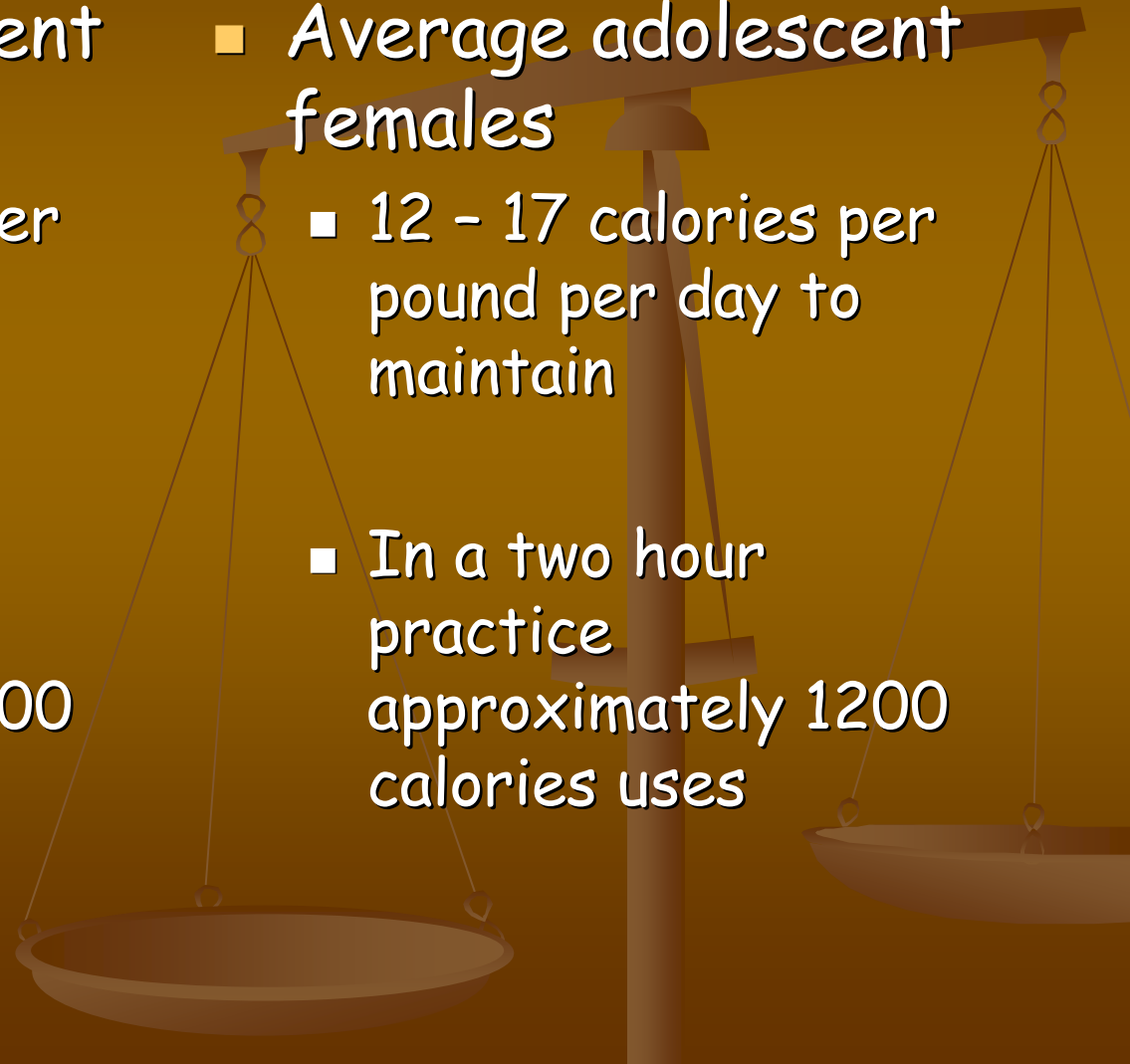
Calories, calories, calories?

- Average Adolescent male

- 15 - 19 calories per pound per day to maintain.
- In a two hour practice approximately 1200 calories uses

- Average adolescent females

- 12 - 17 calories per pound per day to maintain
- In a two hour practice approximately 1200 calories uses



Total caloric needs.

$$\text{Weight} \times 19 = A$$

Approximate number of calories your body needs to maintain it's weight

A + 1200 = _____
Caloric need to maintain

INCREASE TO GAIN / DECREASE TO LOSE.

How much Water?

- Weight X .04 = pound of water lost
- Pound of water lost X 2 = cups of water needed

$$100 \times \underline{.04} = 4$$

$$4 \times \underline{2} = 8 \text{ cups}$$

How many calories?

■ Males:

- $100\text{lb.} \times 19 = 1900\text{cal}$

- To maintain weight without exercise

- With exercise

- $1900 + 1200 = 3100\text{cal/day}$

- Increase to gain /
Decrease to lose

■ Females:

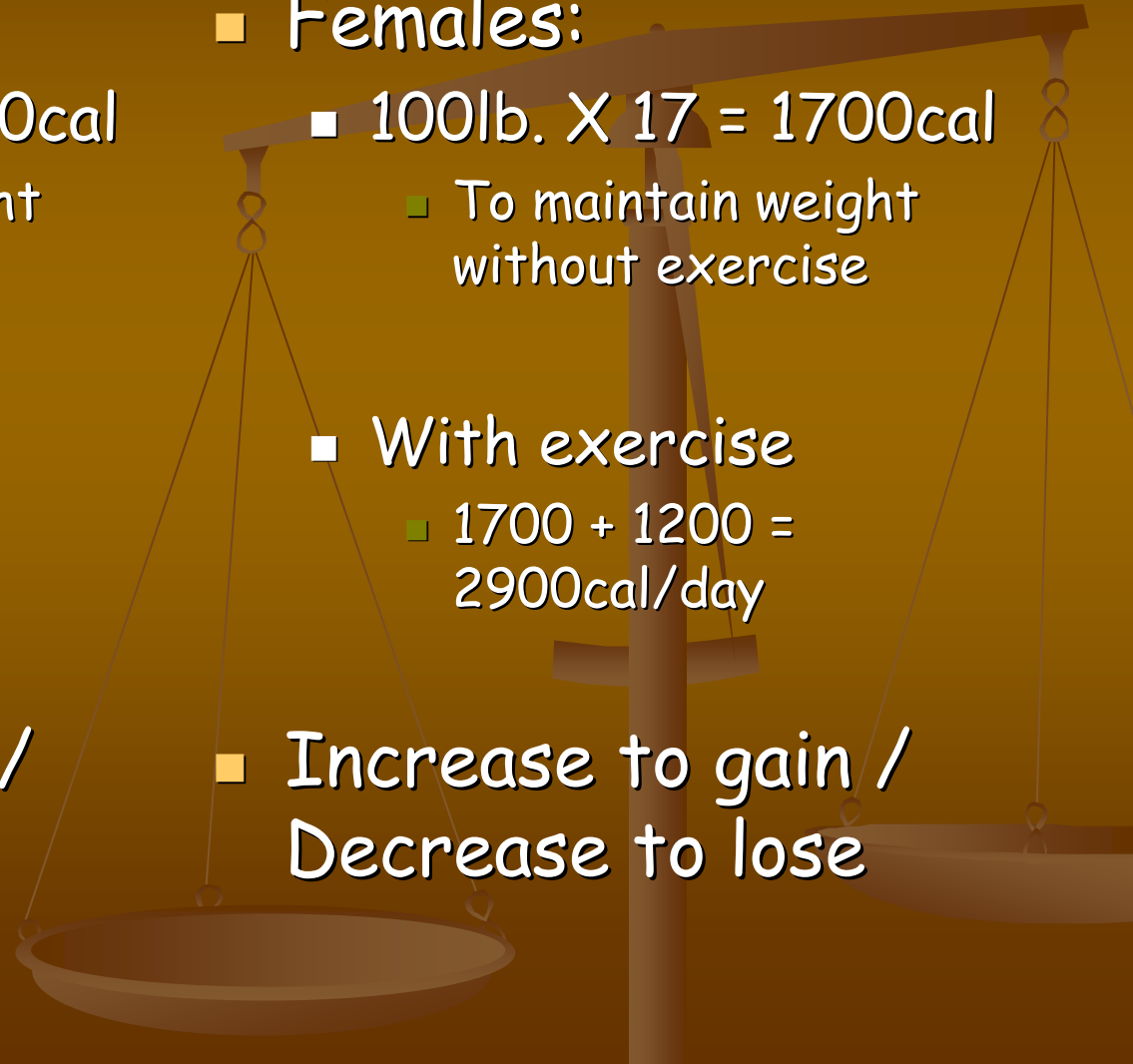
- $100\text{lb.} \times 17 = 1700\text{cal}$

- To maintain weight without exercise

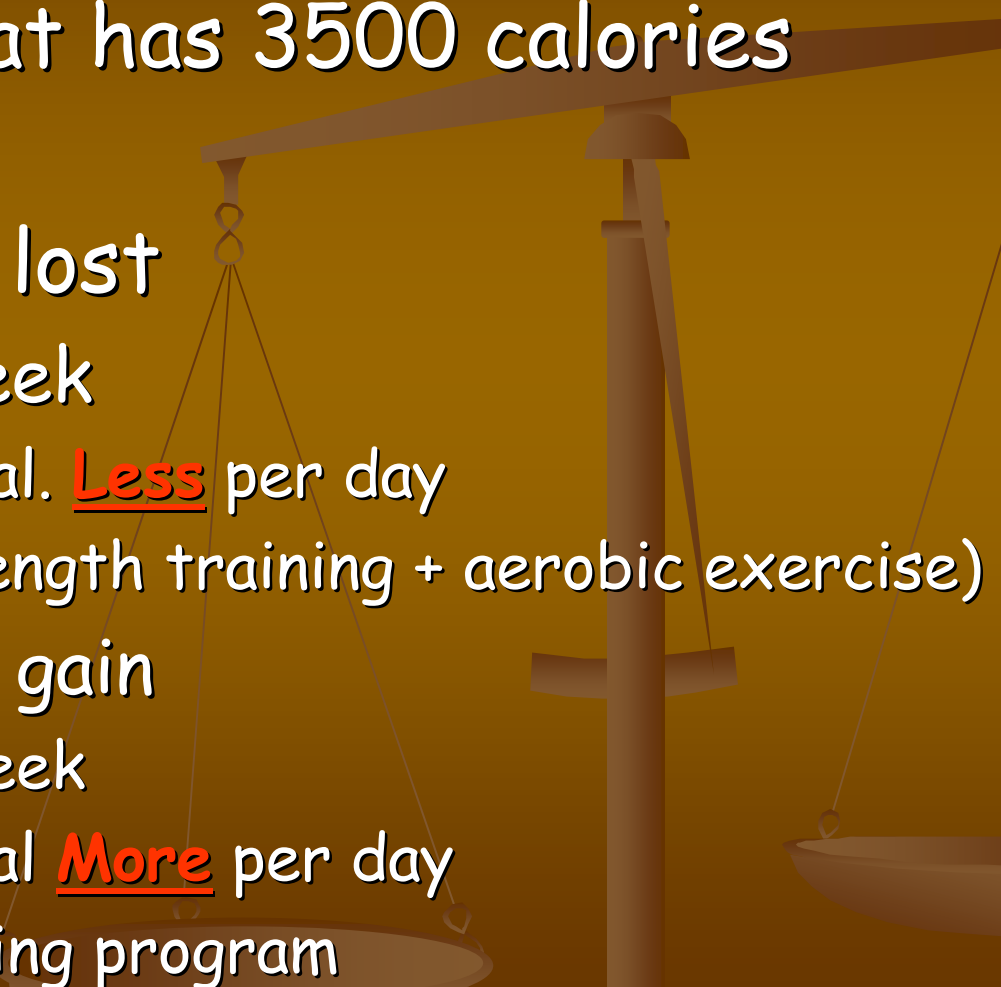
- With exercise

- $1700 + 1200 = 2900\text{cal/day}$

- Increase to gain /
Decrease to lose



To Gain or Lose?

- One pound of fat has 3500 calories (389g)
 - Healthy weight lost
 - 1 - 1.5lb. Per week
 - Taking in 500cal. Less per day
 - Exercises (strength training + aerobic exercise)
 - Healthy weight gain
 - 1 - 1.5lb. Per week
 - Taking in 500cal More per day
 - Strength training program
- 

Nutrition needed

Hydration through out the day

Male with 1900
calories

•60%

carbohydrates

•1140 cal
from carbs
•285 grams

20% protein

380 cal from
protein

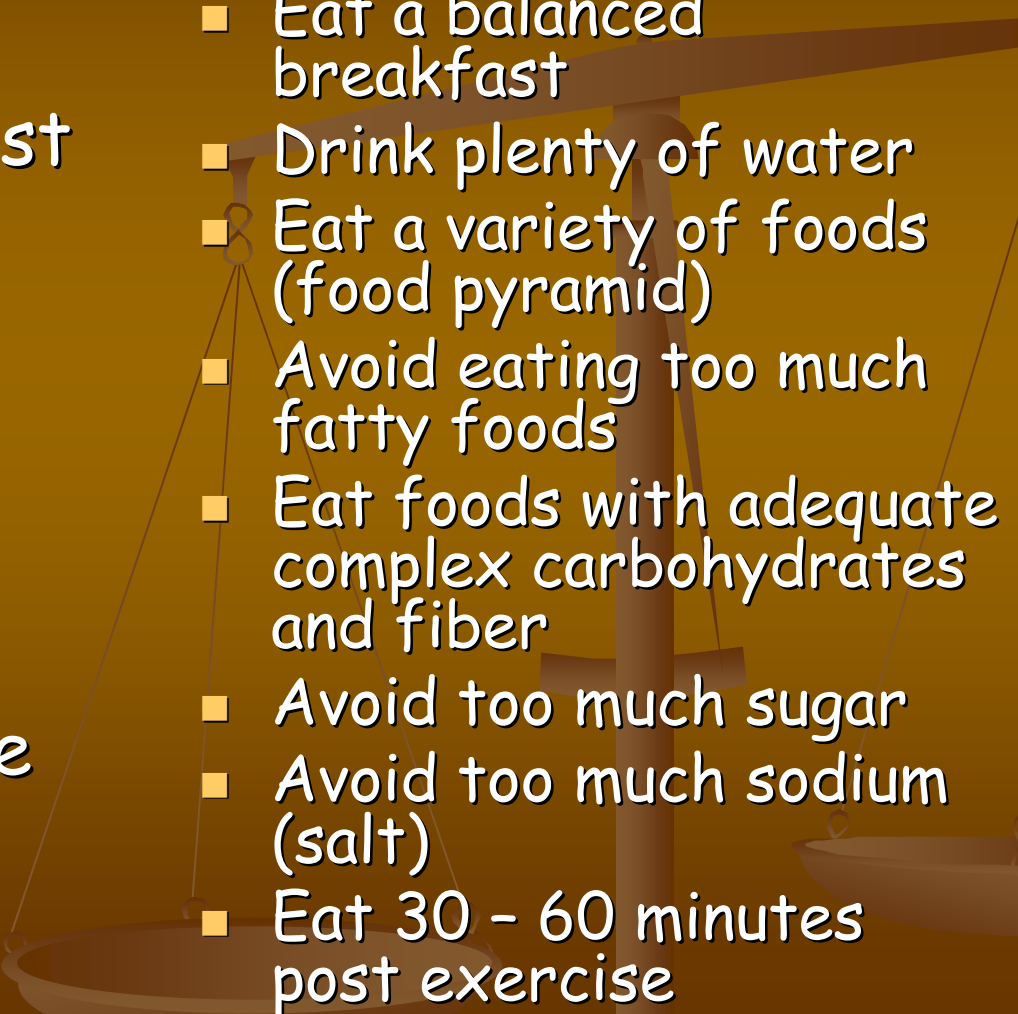
95 grams



20% fat

380 cal
from fat
42 grams

Guidelines for optimal performance

- 
- 1. Education
 - 2. Start early (post season)
 - 3. Gradual Progression
 - 4. Consistency
 - Eating habit
 - Training routine
- Eat a balanced breakfast
 - Drink plenty of water
 - Eat a variety of foods (food pyramid)
 - Avoid eating too much fatty foods
 - Eat foods with adequate complex carbohydrates and fiber
 - Avoid too much sugar
 - Avoid too much sodium (salt)
 - Eat 30 - 60 minutes post exercise

All Day Events

Athletes should consider the amount of time between eating and performance when choosing foods at all day events. Suggested pre-event foods include the following:

■ One Hour Or Less Before

- fruit and vegetable juices such as orange, tomato or v-a juices,
- and/or fresh fruit such as apples, watermelon,
- peaches, grapes or
- oranges.

■ Two To Three Hours Before

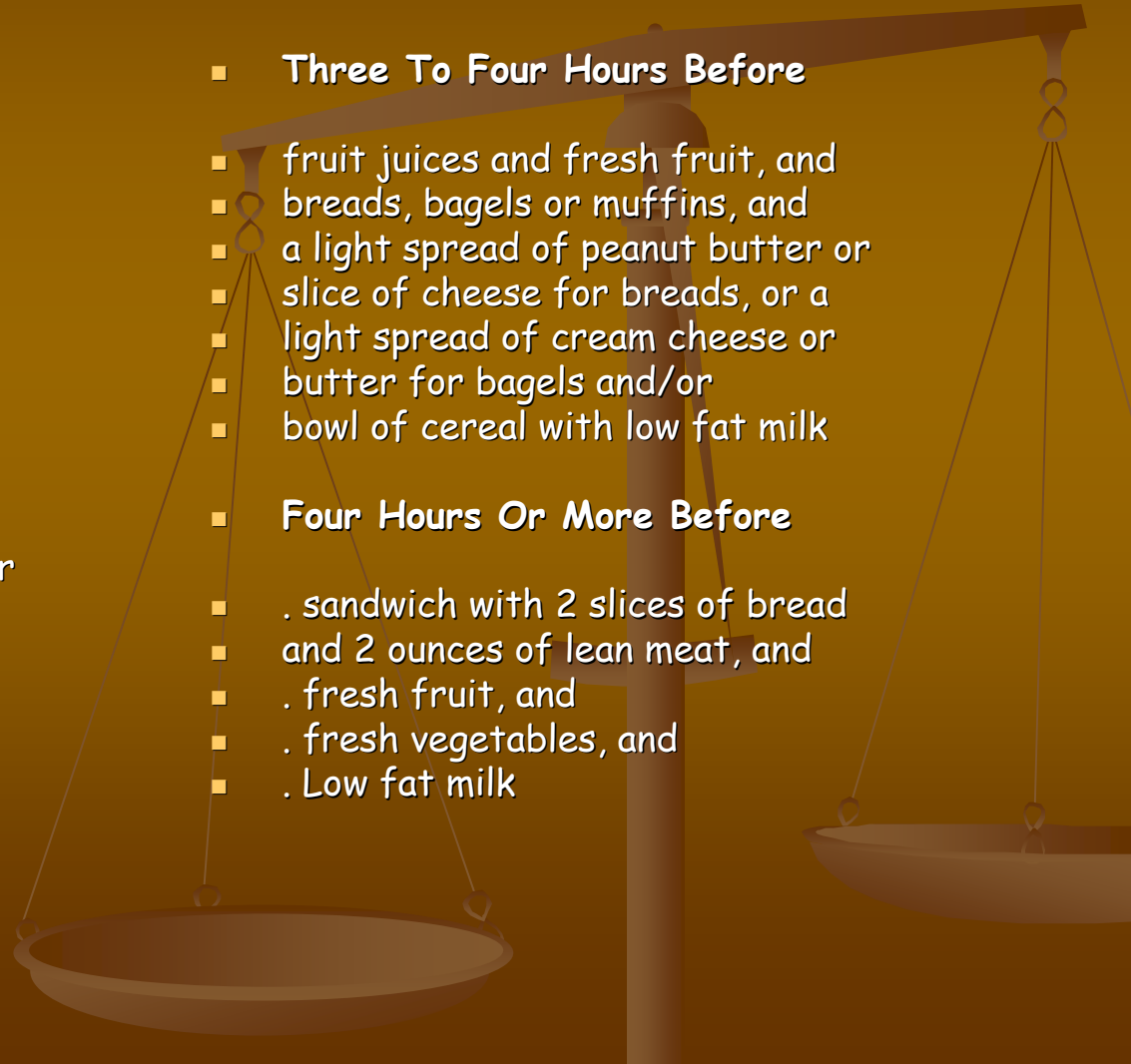
- fruit juices and fresh fruit, and/or
- breads, bagels or muffins, with a
- limited amount of butter or cream
- cheese.

■ Three To Four Hours Before

- fruit juices and fresh fruit, and
- breads, bagels or muffins, and
- a light spread of peanut butter or
- slice of cheese for breads, or a
- light spread of cream cheese or
- butter for bagels and/or
- bowl of cereal with low fat milk

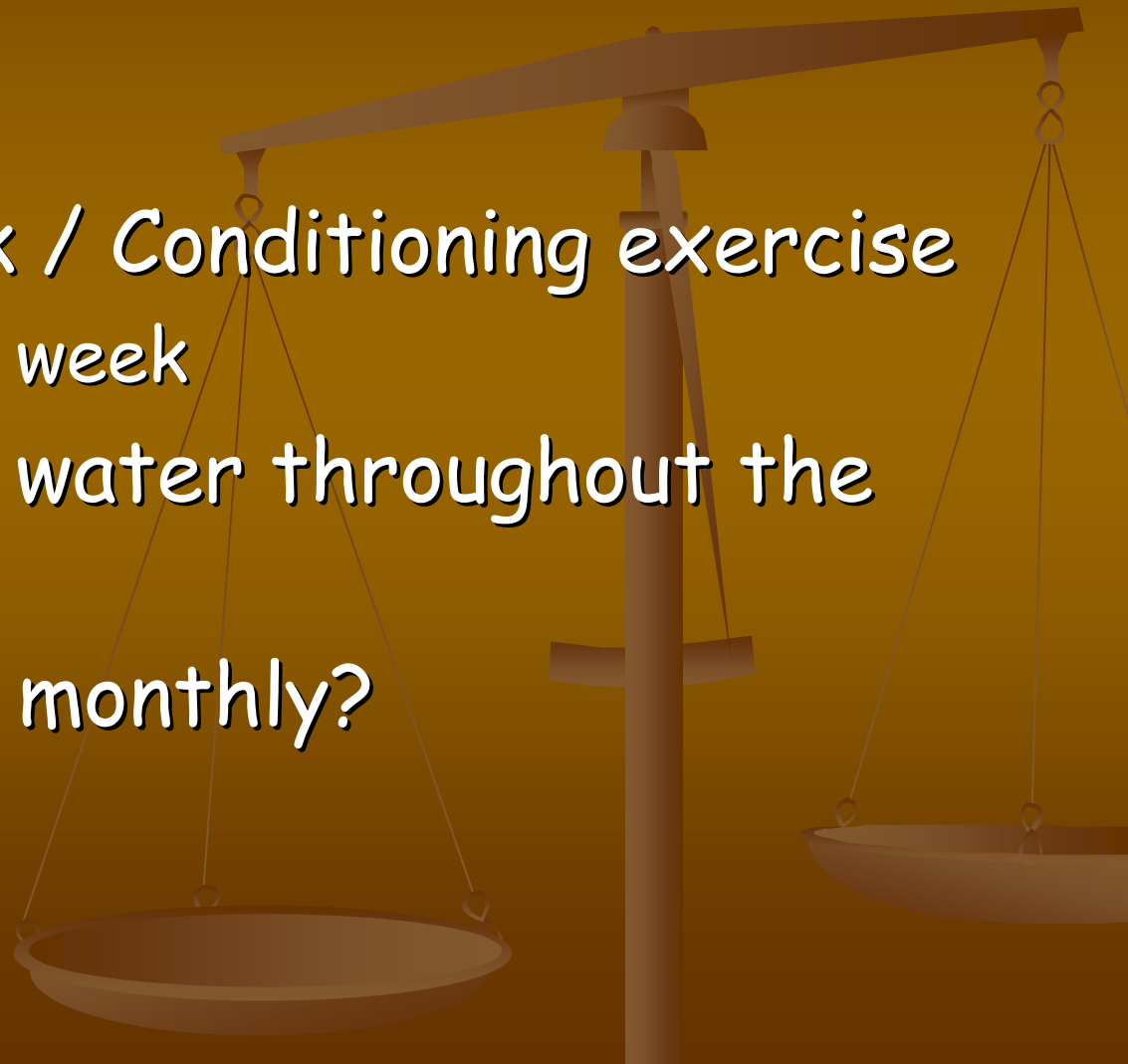
■ Four Hours Or More Before

- . sandwich with 2 slices of bread
- and 2 ounces of lean meat, and
- . fresh fruit, and
- . fresh vegetables, and
- . Low fat milk



Training Program

- Strength train
 - 3 days / week
- Endurance work / Conditioning exercise
 - 2 - 3 times per week
- Drink plenty of water throughout the day
- Monitor weight monthly?



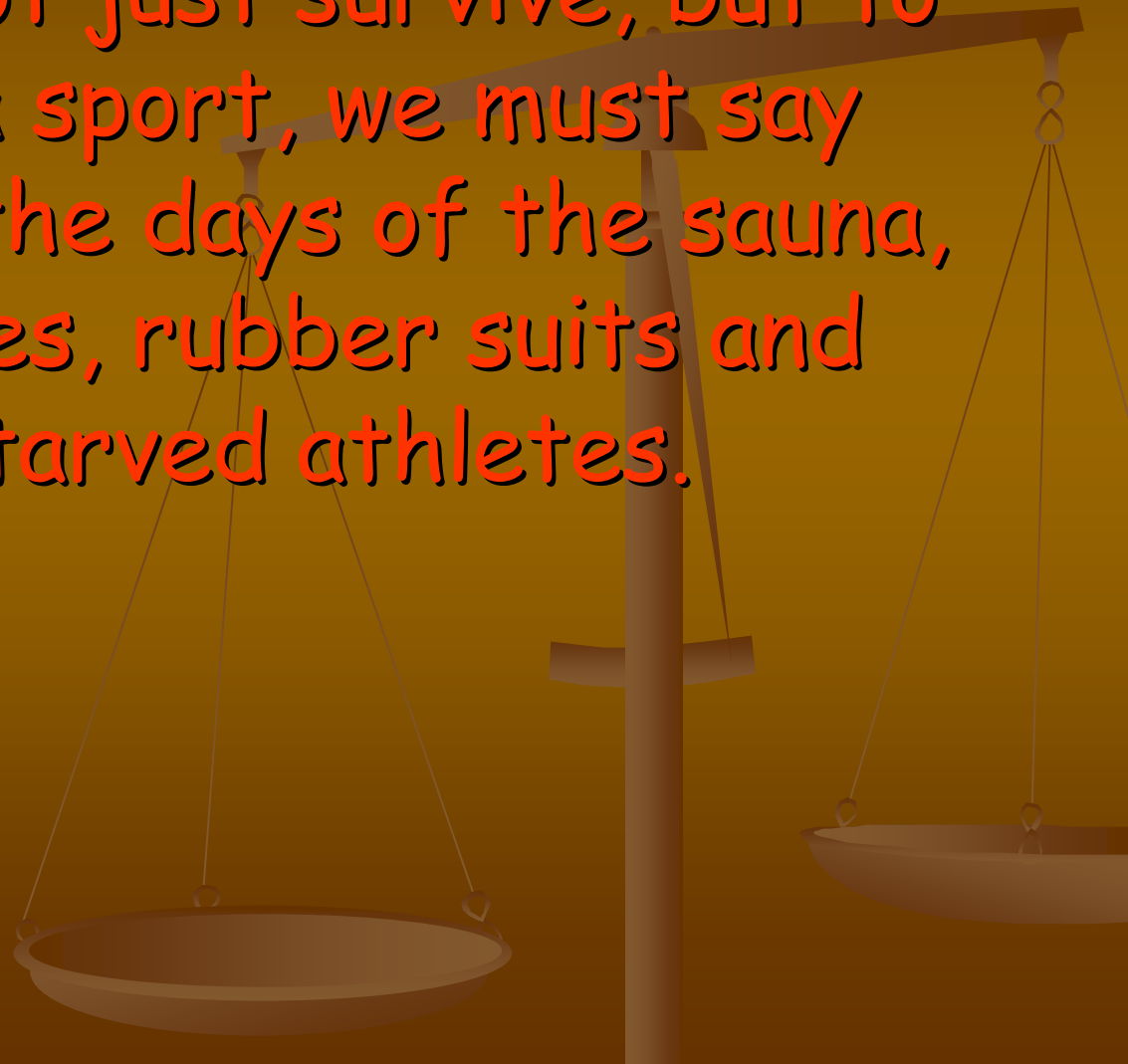
Commitment



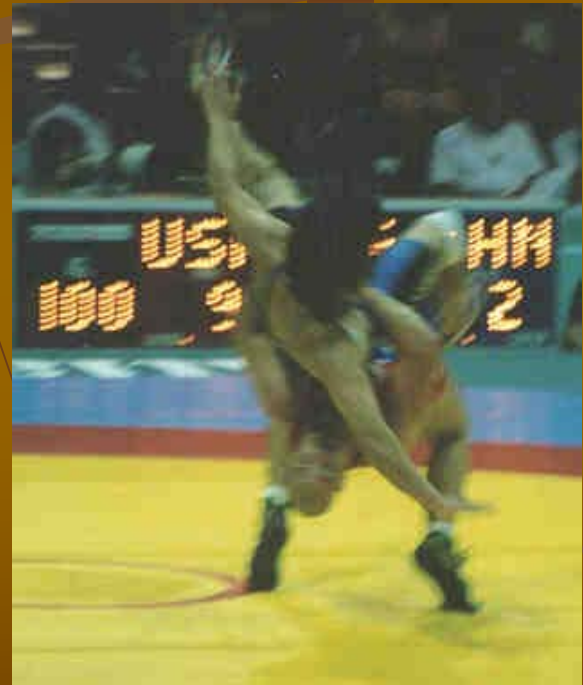
The decision you make will affect
your wrestlers and their lifestyle
for several months if not
forever!



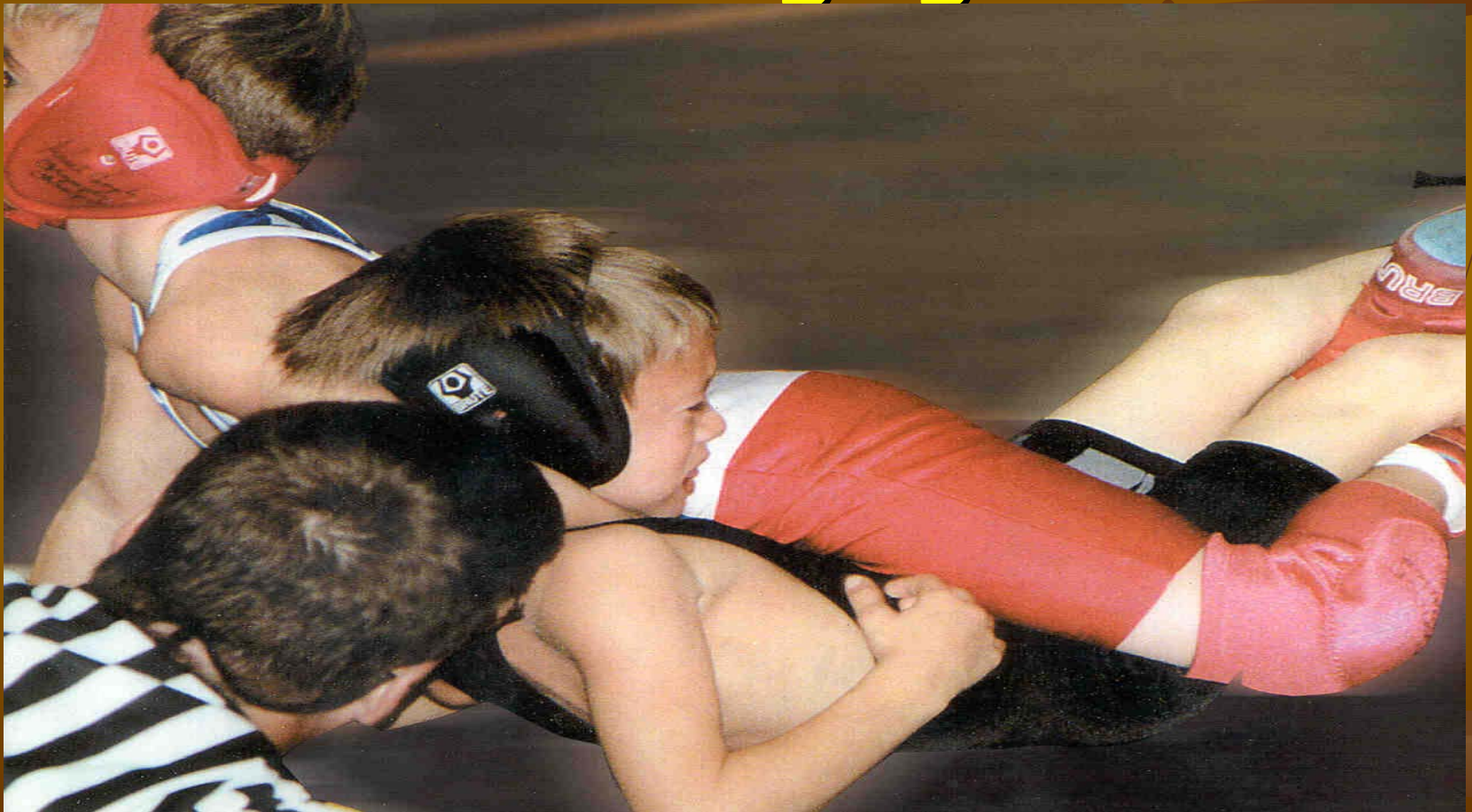
In order to not just survive, but to thrive as a sport, we must say goodbye to the days of the sauna, sweat boxes, rubber suits and semi starved athletes.



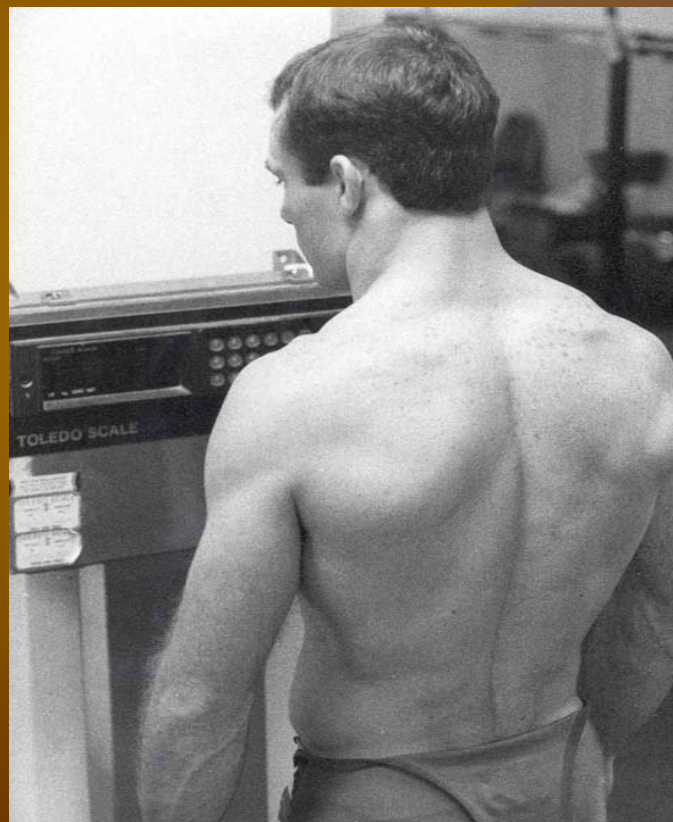
Maintaining
Optimal
Performance
is a victory
not only on
the mat but
off the mat.



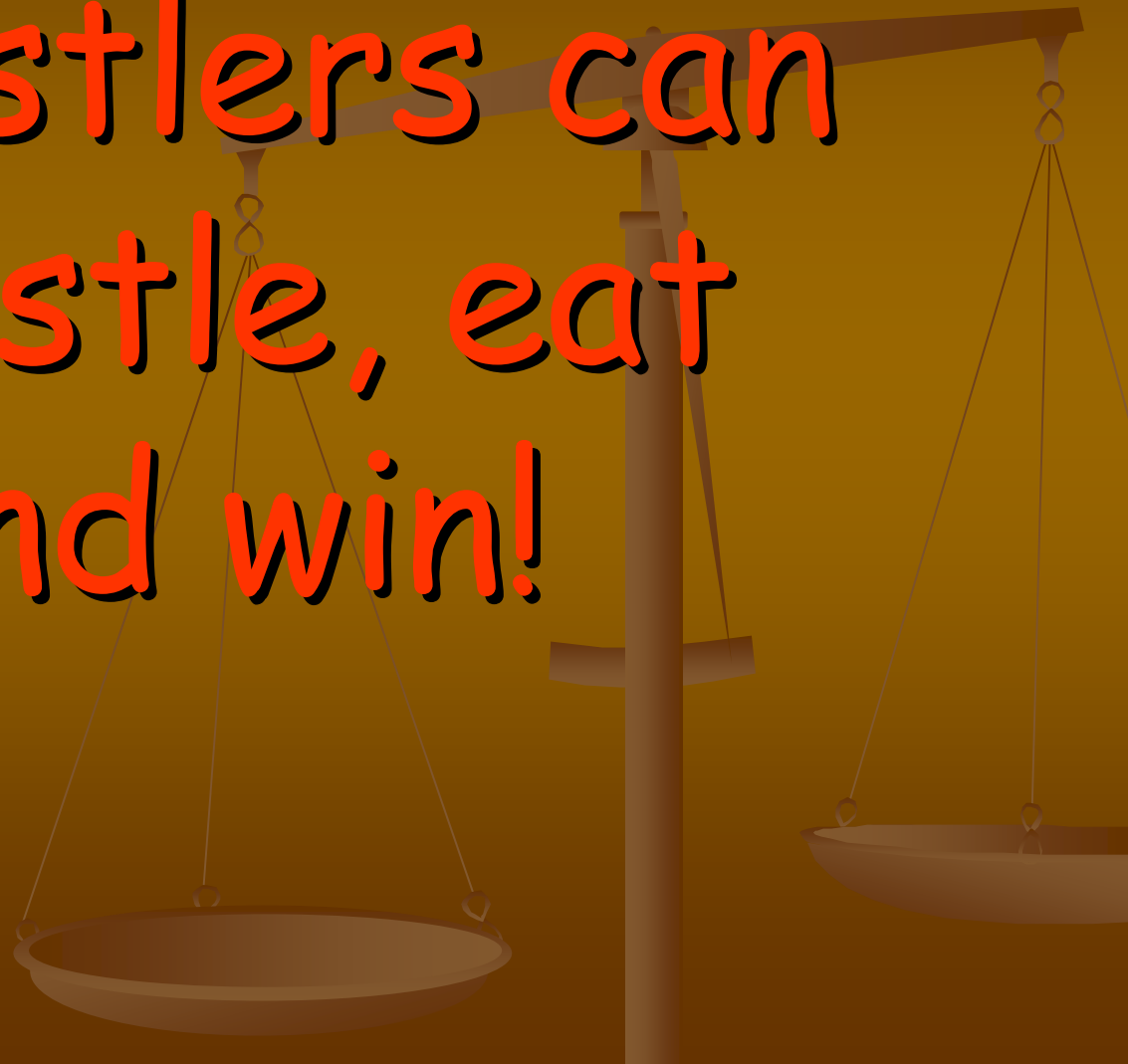
The sport of wrestling is changing.



ARE YOU?



Wrestlers can
wrestle, eat
and win!



WRESTLE



References

Cook books

- 1. All-American Low-Fat Meals in Minutes: M.J. Smith, DCI Publishers, 1990.
- 2. American Heart Association Low-Salt Cookbook: Edited by Rodman D. Starke and Mary Winston. Times Books, 1990.
- 3. Cooking at Heart: Linda Hachfeld and Betsy Eykyn, Appletree Press, 1991.
- 4. Eating on the Run: Tribble, Evelyn: Leisure Press, Champaign, IL, 1992.
- 5. Low-Cholesterol Cuisine: Anne Lindsay, Morrow, 1992.
- 6. Low-Fat. Low-Cholesterol Cookbook: American Heart Association, Random House, 1989.

References

- 7. Lunches to Go: Jeanette Miller and Elisabeth Schafer, JEM Communications, 1992.
- 8. Quick & Healthy Recipes and Ideas for People Who Say They Don't Have Time to
Cook Healthy Meals: Brenda J. Ponichtera, 1991.
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