

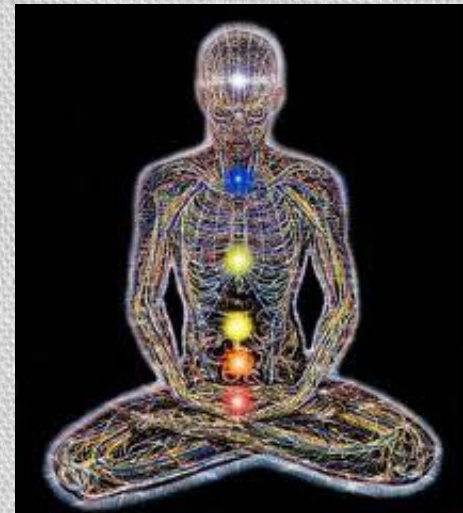


# CARBOHYDRATE CONTROLLED DIET

By Kristen Culver

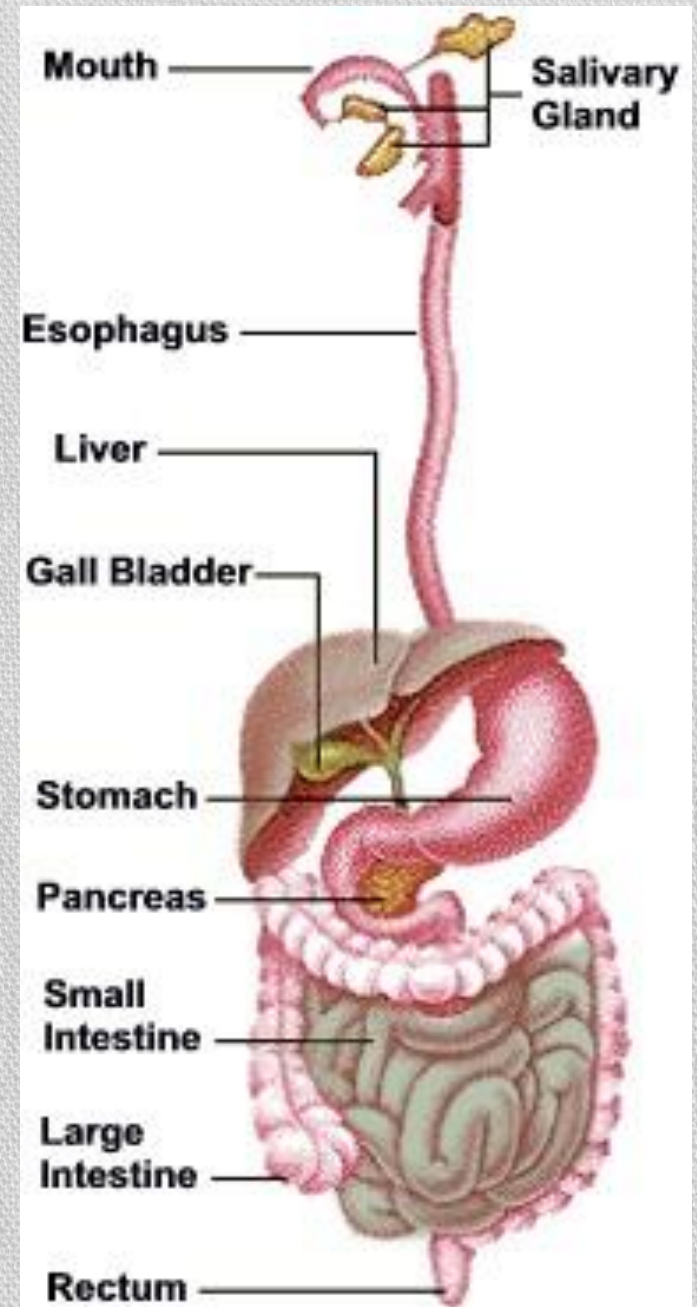
# CHO in the Body:

- 1. Supply energy
- 2. Provide fuel for the Central Nervous System
- 3. Provide fuel for the Muscular System
- 4. Spare Protein
- 5. Supply Dietary Fiber



# CHO Metabolism:

- 1. Mouth
- 2. Stomach
- 3. Small Intestine
- 4. Blood stream
- 5. Pancreas releases insulin
- 6. Liver Response
  - Stored Glycogen
  - Energy for muscles



# Type 1 Diabetes

- Onset often follows a Viral infection such as mumps
- Usually starts in children or young adults, affecting 10% of cases of diabetes.
- Beta-cell damage is often more severe in patients diagnosed before puberty.



# Type 1 Diabetes

- Insulin:
  - In Type 1 Diabetes, beta cells produce little or no insulin.
  - Hormone produced by beta cells in the pancreas and is needed to move glucose into cells, where it is stored and later used for energy.
- Previously used terms include:
  - Type 1
  - Insulin-dependent diabetes
  - “Juvenile,” “brittle,” or “ketosis-prone” diabetes

- <http://www.youtube.com/watch?v=OYH1deu7-4E>

# Signs and Symptoms

- Polydipsia
- Polyphagia
- Polyuria
- Weakness and fatigue
- Irritability
- Blurred vision
- Losing feeling in your feet or a tingling feeling
- Sudden weight loss



# Signs and Symptoms

- Diabetic ketoacidosis occurs when the body cannot use sugar as a fuel source because there is no or not enough insulin. Fat is used for fuel instead...
  - Deep, rapid breathing
  - Dry skin and mouth
  - Flushed face
  - Fruity breath odor
  - Nausea or vomiting
  - Stomach pain



# Tests and Results

- **Glucose tolerance test:** Blood glucose is measured after fasting and 2 hours after drinking a glucose beverage.
  - Results between 140 and 199 mg/dL indicate pre-diabetes, and a level of 200 mg/dL represents diabetes.
- Fasting glucose > 126 mg/dL for two times
- Non-fasting blood glucose level > 200 mg/dL with symptoms
- Hemoglobin A1c test:
  - Normal: Less than 5.7%
  - Pre-diabetes: between 5.7% and 6.4%
  - Diabetes: 6.5% or higher



# Insulin

- Everyone with Type 1 Diabetes must take insulin every day.
- People with diabetes need to know how to adjust the amount of insulin they are taking
  - When they exercise
  - Are sick
  - Eating more or less
  - When they are traveling



# Insulin

Type	Begins working	Peaks	Ends working
<i>Rapid, Bolus</i>			
Humalog (Lispro)	15-20 minutes	30-90 minutes	3-4 hours
Novolog (Aspart)	15-20 minutes	40-50 minutes	3-4 hours
<i>Short Acting</i>			
Regular (Humulin)	30-60 minutes	80-120 minutes	4-6 hours
<i>Intermediate Acting</i>			
NPH	2-4 hours	6-10 hours	14-16 hours
Lente	3-4 hours	6-12 hours	16-18 hours
Ultralente	4-6 hours	10-16 hours	18-20 hours
<i>Long Acting</i>			
Lantus	2-3 hours	Almost no peak; flat action throughout duration	18-26 hours

# DM Diet:



- Discourage meal skipping....
  - Three meals a day with snacks
- Provide consistent carbohydrate with each meal and snack with set doses of insulin.
- 15 gram carbohydrate:
  - 1 slice of bread
  - 1 cup of milk
  - 1 small fresh fruit, ½ cup fruit juice
  - ½ cup mashed potatoes, peas or corn
  - 3 cups raw vegetables
  - OR... 2 Oreo cookies

# DM Diet:

- Monounsaturated fatty acids and carbohydrates combined should provide about 60-70% of daily energy intake
- Limit saturated fats to < 10% of energy intake
- Use a plan that includes CHO at 45-65% of total energy intake each day to prevent ketosis



*American Dietetic Association*

# DM Diet:

- Most women need about 3-4 carbohydrate choices (45-60 g CHO) each meal
- Men generally need about 4-5 CHO choices (60-75 g CHO) per meal.
- Use 1-2 carbohydrate choices (15-30 g CHO) for snacks.
- Body size and activity level will determine the number of choices needed.



# Exercise

- Working out increases sensitivity to insulin
  - Lowers blood pressure
  - Improves cholesterol levels
  - Decreases body fat
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- Recommended at least 150 minutes per week of moderate-intensity physical activity OR 90 minutes per week of vigorous aerobic exercise
  - Exercise at least 3 days a week without more than 2 consecutive days without PA
  - Make sure to follow doctors recommendations when engaging in PA

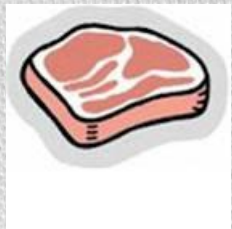


# Consequences of Uncontrolled DM

- More than 65% of Diabetics die from heart disease or stroke
- Diabetes is the chief cause of:
  - Blindness
  - Renal failure
  - Amputations
  - Birth defects



## Meat



1 serving = 2-3 oz

1 oz contains:  
0 carbohydrates  
35-100 calories  
7 gram protein

### Examples:

Beef  
Chicken  
Fish  
Pork  
Turkey  
Seafood  
Lamb  
Wild Game  
Veal

## Starch



1 serving =

15 gram carbs.  
80 calories  
3 gram protein

### Examples:

Potato (1/4 large)  
Bagel (1/4)  
1/2 English muffin  
1/2 bun  
3c plain Popcorn  
1/2 pita  
4" pancake  
6" corn tortilla  
6" flour tortilla  
Bread (1 slice)  
Rice (1/3 c)  
1/2 c Corn or peas  
1/2 c Yam

## Vegetable



1 serving= raw 1 c, cooked 1/2 c

5 gram carbs  
25 calories  
2 gram protein

### Examples:

Green beans  
Beets  
Broccoli  
Carrots  
Cauliflower  
Celery  
Cucumber  
Greens  
Mixed Veggies  
Mushrooms  
Peppers  
Radish  
Salad Greens  
Squash  
Tomato  
1/2 c Veggie juice  
Zucchini

## Fruit



1 serving =

15 gram carbs  
60 calories  
0 gram protein

### Examples:

Apple, small  
Banana, small  
1/2 c canned fruit  
1/2 Grapefruit  
17 Grapes  
1c Melon  
Orange, small  
Raisins 2 tbsp  
Strawberry 1 1/4 c

Fruit Juices:  
1/2 c apple, orange  
1/2 c pineapple  
1/2 c cranberry  
1/3 c Grape/Prune

## Milk



1 serving =

12 gram carbs  
90-150 calories  
8 gram protein

### Examples:

Milk, 1 cup  
Soy milk, 1 cup  
6 oz yogurt/ SF  
Evap. Milk 1/2 c

Fat Free & Low:  
100 calories  
0-3 gram fat

Reduced:  
120 calories  
5 gram fat

Whole:  
150 calories  
8 gram fat

## Fat



1 serving =

0 gram carbs  
45 calories  
5 gram fat

### Examples:

Olive oil, 1 tsp  
Almonds, 6 nuts  
Peanuts, 10 nuts  
Pecans, 4 halves  
Margarine, 1 tsp  
Mayonnaise 1 tsp  
Low fat 1 tbsp  
Dressing, 1 tbsp  
Low fat 2 tbsp  
Cream cheese  
Low fat 1.5tbsp  
Sour cream  
Low fat 3 tbsp

## Free Food



1 serving =

<5 gram carbs  
<20 calories

### Examples:

Coffee  
Diet soda  
Sugar free drinks  
Garlic  
SF Gelatin  
SF Gum  
SF syrup, 2 tbsp  
Herbs  
Hot sauce  
Mustard  
Sugar Substitutes  
Tea

- [http://www.youtube.com/watch?v=jJvAL-iiLnQ&feature=BFa&list=PLEE91C1389B1F8E11&lf=results\\_\\_main](http://www.youtube.com/watch?v=jJvAL-iiLnQ&feature=BFa&list=PLEE91C1389B1F8E11&lf=results__main)

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