Nutrition for the non nutritionist

CDE Exam Preparation

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Waterloo Wellington Diabetes

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WaterlooWellington DIABETES

Goals of Nutrition Therapy

- Blood Glucose levels as close to normal as possible without risk of hypoglycemia
- Lipids that reduce risk of CVD
- Blood pressure within target range
- Improve or continue quality of life
- Prevent or slow development of complications

It's not just about blood glucose

Food is to be Eaten and Enjoyed!

Type 1

- Insulin to match carbohydrate
- Prevent hypoglycemia
- Adjust insulin or food for activity
- Sick day management

Type 2

- Obesity and insulin resistance
- Increase exercise
- Decrease energy saturated, trans fats & cholesterol
- Reduce sodium

People with type 2 should maintain regularity in timing and spacing of meals to optimize glucose control

Pre-diabetes

Reduce risk of diabetes and CVD

Diabetes Prevention Program (DPP)

- lifestyle intervention
- weight loss 7% initial body weight
- 150 minutes exercise week

Decreased Incidence by 58%

Nutrition Assessment

Clinical-BMI, weight history, labs, SMBG, family history, medications
Other supplements, natural health products
Client's desires or expectations for the session
Client's goals, history, strengths, barriers
Diet History-24 hour recall, food frequency, food records
Previous education, previous nutrition/diet experiences, knowledge
Health literacy
Attitudes
Cultural food practices
Stage of change
Social History, support, finances, work, recreation, travel, alcohol, smoking
Food safety and availability
Stress
Social determinants of health

Nutrition Assessment

Nutritional adequacy

Carbohydrate intake

Eating patterns

Problematic eating

Potential for hypoglycemia

Does food intake match medication

Nutrition

Assessment
Nutrition Diagnosis
Nutrition Intervention
- goal setting
- plans
- education
- implementation

Monitoring and Evaluation

Sample Question

What reduction in A1c would you expect from nutrition therapy when newly diagnosed with diabetes?

a) 0.5%
b) 1-2%
c) 0.25-0.75%
d) A1c reduction requires medication

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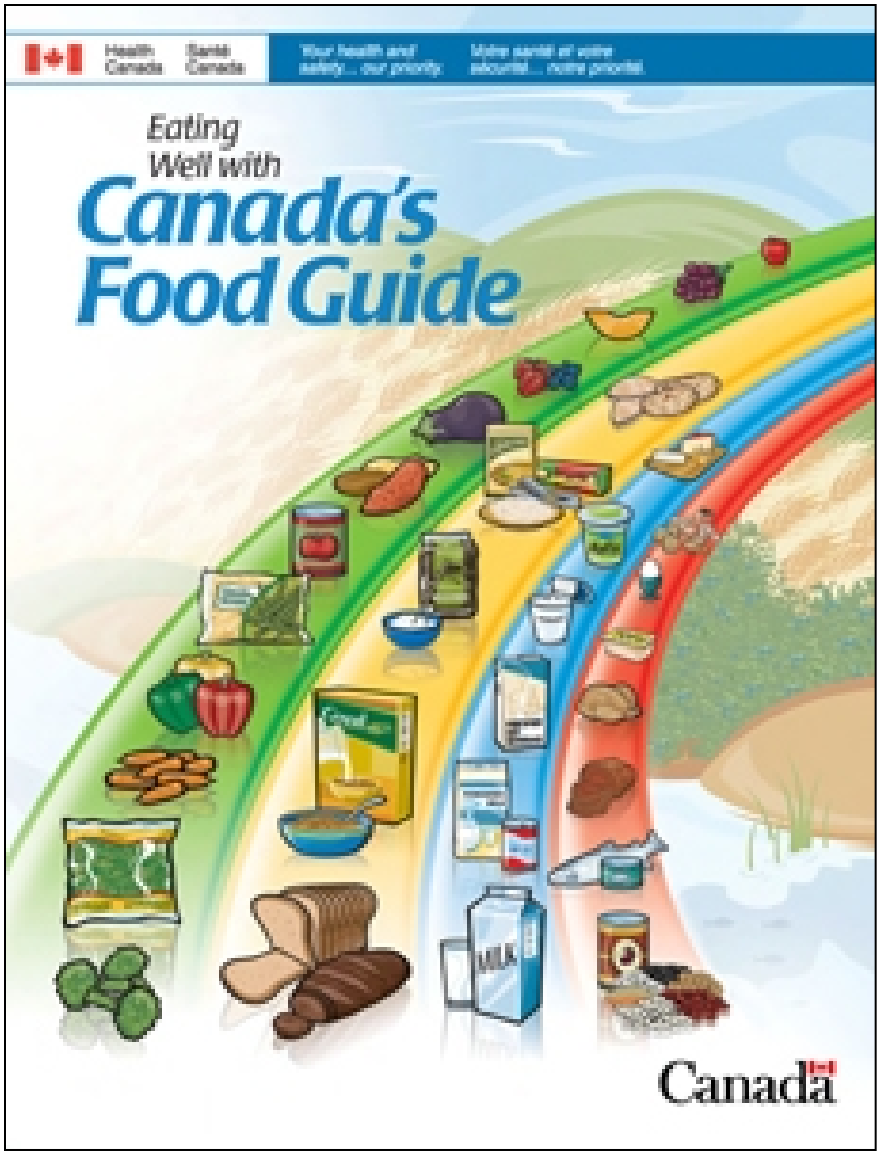
d) A1c reduction requires medication

Basics Tools of Nutrition Therapy

- Canada's Food Guide
- Just the Basics
- Diabetes Food Guide
- Beyond the Basics
- Carbohydrate Content of foods

- http://guidelines.diabetes.ca/PatientResources#SME

Canada's Food Guide (CFG)



Carbohydrate

Carbohydrate Awareness

Consistent Carbohydrate Food Choices

Carb to Insulin Ratio

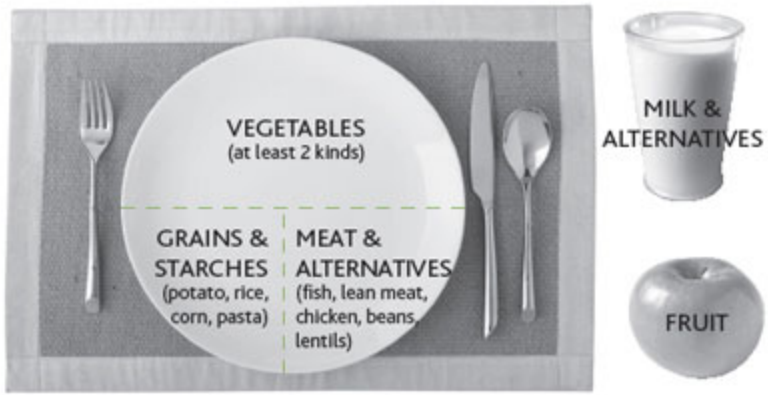
Carbohydrate

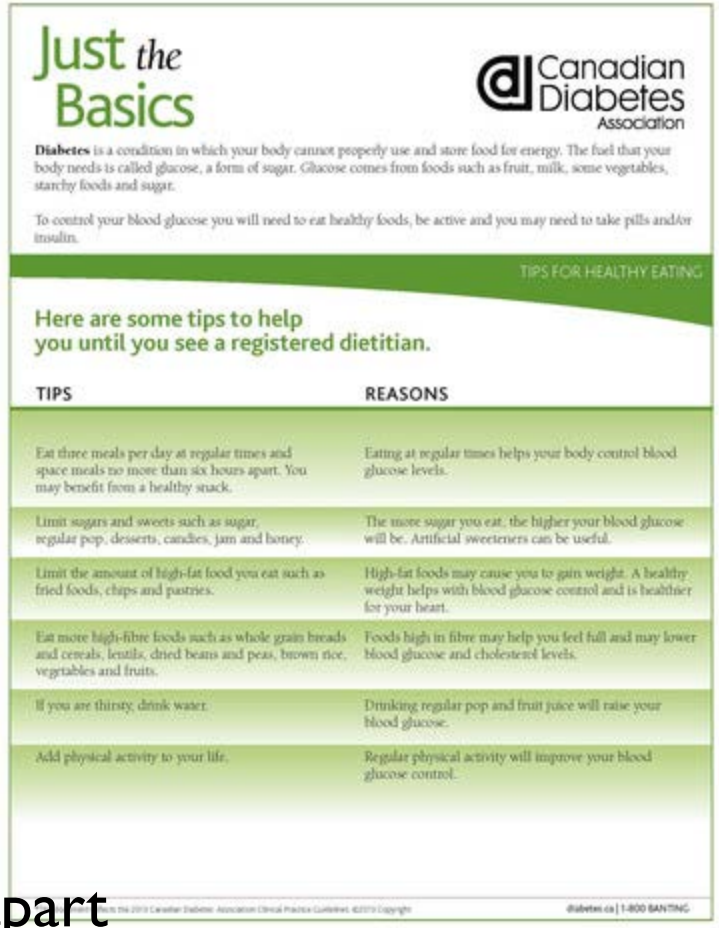
Carbohydrate Awareness

Many Patients will not move beyond Carbohydrate awareness

Just the Basics

- Healthy Plate





Just the Basics

Canadian Diabetes Association

Diabetes is a condition in which your body cannot properly use and store food for energy. The fuel that your body needs is called glucose, a form of sugar. Glucose comes from foods such as fruit, milk, some vegetables, starchy foods and sugar.

To control your blood glucose you will need to eat healthy foods, be active and you may need to take pills and/or insulin.

TIPS FOR HEALTHY EATING

Here are some tips to help you until you see a registered dietitian.

TIPS	REASONS
Eat three meals per day at regular times and space meals no more than six hours apart. You may benefit from a healthy snack.	Eating at regular times helps your body control blood glucose levels.
Limit sugars and sweets such as sugar, regular pop, desserts, candies, jam and honey.	The more sugar you eat, the higher your blood glucose will be. Artificial sweeteners can be useful.
Limit the amount of high-fat food you eat such as fried foods, chips and pastries.	High-fat foods may cause you to gain weight. A healthy weight helps with blood glucose control and is healthier for your heart.
Eat more high-fibre foods such as whole grain breads and cereals, lentils, dried beans and peas, brown rice, vegetables and fruits.	Foods high in fibre may help you feel full and may lower blood glucose and cholesterol levels.
If you are thirsty, drink water.	Drinking regular pop and fruit juice will raise your blood glucose.
Add physical activity to your life.	Regular physical activity will improve your blood glucose control.

diabetes.ca | 1-800 BANTING

3 meals, no more than 5 hours apart
Limit sweets
Reduce high fat foods
Encourage high fibre foods
Drink water
Exercise

Beyond the Basics

- Foods containing approximately 15 grams of carbohydrate are considered 1 'Choice'

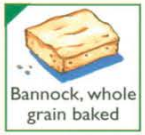
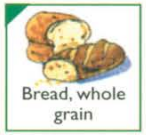
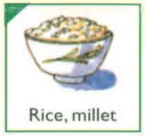
- Food groups
  - Grains and Starches
  - Fruits
  - Milk Products
  - Other Choices

- Portion sizes are Important
- Is not specific enough for carbohydrate counting

CARBOHYDRATE CONTAINING FOOD

1 serving = 15 g available carbohydrates or 1 carbohydrate choice:

GRAINS & STARCHES

 Bannock, whole grain baked	 Barley, bulgur	 Bread, whole grain	 Cereal, hot			 Bagel	 Bagel	 Bannock, fried	 Bread, white	 Bun, hamburger or hotdog
1.5x2.5 in	¾ cup	1 slice	¾ cup			¼ large	½ small	1.5x2.5 in	1 slice	½
 Chapati, roti, tortilla, whole wheat	 Corn, kernel	 English muffin, whole grain	 Pasta, couscous			 Cereal, flaked unsweetened	 Crackers, soda type	 Croutons	 French fries	 Naan bread
1 (6 in)		½					7	¾ cup	10	¼ (6 in)
 Plantain mashed, sweet potato	 Pita bread, whole wheat	 Potatoes, boiled, baked	 Rice, millet	 Soup, thick type			 Pancake, waffle	 Pita bread, white	 Pizza crust	 Taco shells
⅓ cup	½ (6 in)	½ medium	⅓ cup				1 (4 in)	½ (6 in)	1/12 (12 in)	2 (5 in)

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FRUITS

Apple	Applesauce, unsweetened	Banana	Blackberries, strawberries	Blueberries	Cherries	Grapes	Kiwi			Mixed dried fruit
1 medium	1 cup	1 small	2 cups	1 cup	15	15	2 medium			1 cup
Mango	**Melon**	**Orange**	**Peach**	**Pear**	**Pineapple**	**Plum**	**Canned fruit, in juice**			**Juice**
½ medium	1 cup	1 medium	1 large	1 medium	¾ cup	2 medium	1 cup			1 cup

MILK & ALTERNATIVES

Chocolate milk, 1%	Evaporated milk, canned	Milk, low fat	Milk powder, skim	Soy beverage, flavoured	Soy beverage, plain	Soy yogurt, flavoured	Yogurt, low fat plain	Yogurt, artificially sweetened		
1 cup	1 cup	1 cup	4 tbsp	1 cup	1 cup	⅓ cup	¾ cup	¾ cup		

OTHER CHOICES (sweet foods and snacks)

Milk pudding, skim no sugar added	Popcorn, air-popped low fat			Arrowroot, gingersnap cookies	Brownie or cake, unfrosted	Jam, jelly, honey	Muffin	Oatmeal granola bar	Pretzels, low fat	Sugar
1 cup	3 cups			3	2 in square	1 tbsp	½ small	1 bar (28 g)	7 large/ 30 sticks	3 tsp

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Carbohydrate

Consistent Carbohydrate Food Choices

Meal Plan

TIME							
CARBOHYDRATES (grams / choices)							
GRAINS & STARCHES							
FRUITS							
MILK & ALTERNATIVES							
OTHER CHOICES							
VEGETABLES							
MEAT & ALTERNATIVES							
FATS							

Health Literacy: Levels

1. Basic
2. Communicate and interact
   - Extract information and apply
3. Critical Thinking
   - Analyze information

60 %
population
Level 2 or below

Carbohydrate Counting Patient requirements

- Literacy skills
- Numeracy skills
- Equipment

Requires Record Keeping and Work!

Food Record

	Breakfast	Lunch	Dinner
Date:	Food /portion grams Carb	Food /portion grams Carb	Food /portion grams Carb
	AC Blood Sugar / PC Blood Sugar / Insulin / Total Carb	AC Blood Sugar / PC Blood Sugar / Insulin / Total Carb	AC Blood Sugar / PC Blood Sugar / Insulin / Total Carb
	Locattion / Hunger/Feelings	Locattion / Hunger/Feelings	Locattion / Hunger/Feelings
Date:	Food /portion grams Carb	Food /portion grams Carb	Food /portion grams Carb
	Blood Sugar / Blood Sugar / Insulin / Total Carb	AC Blood Sugar / PC Blood Sugar / Insulin / Total Carb	AC Blood Sugar / PC Blood Sugar / Insulin / Total Carb
	Locattion / Hunger/Feelings	Locattion / Hunger/Feelings	Locattion / Hunger/Feelings
	Food /portion grams Carb	Food /portion grams Carb	Food /portion grams Carb

Carbohydrate Counting

- Type 1
- Insulin Pump
- Type 2 people looking for tighter control

Carbohydrate Counting

- Simple using a label to incorporate a food based on label information
- Utilizing the amount of carbohydrate to be consumed to determine an insulin dose
- “Insulin: Carbohydrate Ratio”

Carbohydrate Counting: Labels

Nutrition Facts
Valeur nutritive
Per 1/2 cup (55 g)
pour 1/2 tasse (55 g)

Amount / Teneur	% Daily Value / % valeur quotidienne
Calories / Calories 210	
Fat / Lipides 7 g	10 %
Saturated / saturés 0.5 g + Trans / trans 0 g	3 %
Cholesterol / Cholestérol 0 mg	
Sodium / Sodium 10 mg	1 %
Carbohydrate / Glucides 32 g	11 %
Fibre / Fibres 5 g	18 %
Sugars / Sucres 8 g	
Protein / Protéines 7 g	
Vitamin A / Vitamine A	2 %
Vitamin C / Vitamine C	0 %
Calcium / Calcium	4 %
Iron / Fer	15 %

Serving size in cups and grams

Carbohydrate in grams
Don't use %

Fibre
Subtract from carbohydrate

Sugar alcohol would be listed here

Carbohydrate Counting

- Portion Size

Information about Carbohydrate content of Foods

- Food Labels
- Nutrient Content of Common Foods
- Calorie King
- My Fitness Pal
- Many apps

Carbohydrate Counting

-500 Rule

-Insulin to Carbohydrate Ratio

Carbohydrate Counting- 500 Rule

Calculate Total Daily Dose (TDD) of insulin

500 divided by TDD=
grams of carbohydrate covered by 1 unit of rapid insulin

Carbohydrate Counting- 500 Rule

Example

Insulin: Lantus 25 + Apidra 6 + 9 + 10= 50

500/50=10

1 unit of insulin would cover 10 grams of carbohydrate

Carbohydrate Counting- 500 Rule

Breakfast :200 ml oatmeal, 125 ml milk, 30 ml raisins, 1 slice whole wheat toast

Calculation:

	Carbohydrate(grams)
Oatmeal	15
Milk	6
Raisins	15
Toast	15
Total	51

Carbohydrate Counting- 500 Rule

1 unit of insulin would cover 10 grams of carbohydrate

Calculate the amount of insulin for this breakfast

Carbohydrate divided by ratio

51 divided by 10 = 5.1

This person would take 5 units of insulin

Carbohydrate Counting-
Insulin to Carbohydrate ratio

 # grams carbohydrate

_____ = 1 unit of insulin per____ gm CHO

 # units of rapid insulin

Calculating Carbohydrate Insulin to Carbohydrate ratio

Lunch

250 ml rice, salad, chicken, 1 banana

Calculation:

	Carbohydrate(grams)
Rice	45
Salad	0
Chicken	0
Peach	15
Total	60

Calculating Carbohydrate Insulin to Carbohydrate ratio

If 1:C Ratio was 1:6
1 unit to cover 6 grams of carbohydrate

Calculate the amount of insulin based on the lunch using the ratio

60 divided by 6 = 10

This person would take 6 units of insulin

Carbohydrate Counting
Insulin to Carbohydrate ratio

Tim Horton bagel and soup

Bagel 58 grams

Soup 24 grams

Total 82 grams

I:C ratio of 1 unit to cover 8 grams

How much Insulin would this person need?

Carbohydrate Counting
Insulin to Carbohydrate ratio

I:C ratio of 1 unit to cover 8 grams

Carbohydrate: 82

82 divided by 8 = 10

This person would use 10 units of insulin

Comparing Food Choices to Carb Counting

Food	Food Choice Method 1 choice = 15 gm	Carb Counting Method
1 slice of bread	1 choice	18 gm CHO
1 apple	1 choice	20 gm CHO
7 crackers	1 choice	14 gm CHO
TOTAL	**45 grams**	**52 grams**

Carbohydrate

Primary source of fuel

- controlled not restricted

Quantity that effects blood glucose

RDA 130 g/day

Sugar is contained within carbohydrate

Quality and Quantity

Fibre 25-50 g/day

Insoluble

Soluble

Fibre 25-50 g/day

Insoluble

- Improved bowel habits

Soluble

- Decrease pc meal blood glucose
- Decrease LDL
- Delayed gastric empty

Protein

RDA 0.8-1.1 g/kg body weight
Restricted in renal disease
Most protein foods contain fat
  meat and alternatives, milk, nuts

Encourage meat alternatives
Low fat dairy products
Low fat meat selections
*Fish

Fish

Fatty fish rich in omega 3:

2 times per week

Salmon, tuna, sardines, trout

Basic Nutrition

Carbohydrate	4 cal/g	45-60%
Protein	4 cal/g	15-20%
Alcohol	7 cal/g	
Fat	9 cal/g	20-35%

Sugar

Sucrose (fructose) 10% energy

Sugar

Calculations

Example

2000 calories

10% would be 200 calories

Carbohydrate has 4 calories per gram

To get grams divide calories by # grams

Divide by 4

200/4= 50

Sugar

50 grams

of added sugar are allowed within 2000 calorie diet

Total Fat 20- 35 %

Saturated less than 7% energy

Trans fats: minimal

Polyunsaturated: limit to 10%

include omega 3

Monounsaturated preferred

Calculating Percentage of Fat

2000 calories

30% fat = 600 calories

Divide 600 by 9

Fat has 9 calories per gram

600/9=66

66 grams of fat

Snacks who needs them?

Individualized

Mixed insulin

NPH insulin

Long periods between meals

To prevent hypoglycemia

Sample Question

Approximately how much carbohydrate does this meal have?

250 ml chicken noodle soup, 4 crackers, 30 g cheese, 15 grapes

a)30 grams

b)50 grams

c)35 grams

d)45 grams

Sample Question

Approximately how much carbohydrate does this meal have?

250 ml chicken noodle soup, 4 crackers, 30 g cheese, 15 grapes

a)30 grams

b)50 grams

c)35 grams

d)45 grams

Sample Question

How much sucrose could be incorporated into an 1800 calorie diet?

a) 20 %

b) 50 grams

c) 35 grams

d) 45 grams

Sample Question

How much sucrose could be incorporated into an 1800 calorie diet?

a) 20 %

b) 50 grams

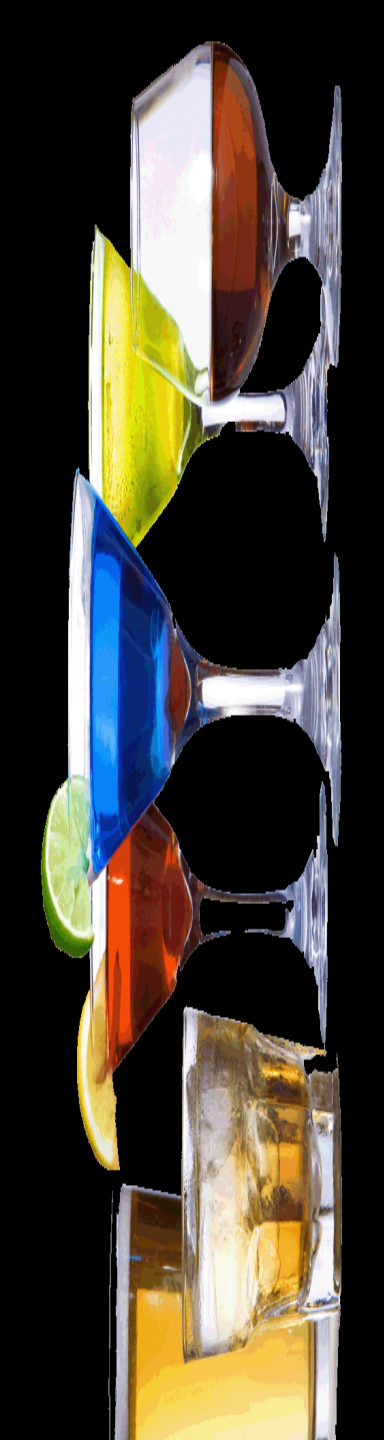
c) 35 grams

d) 45 grams

Sweeteners approved by Health Canada

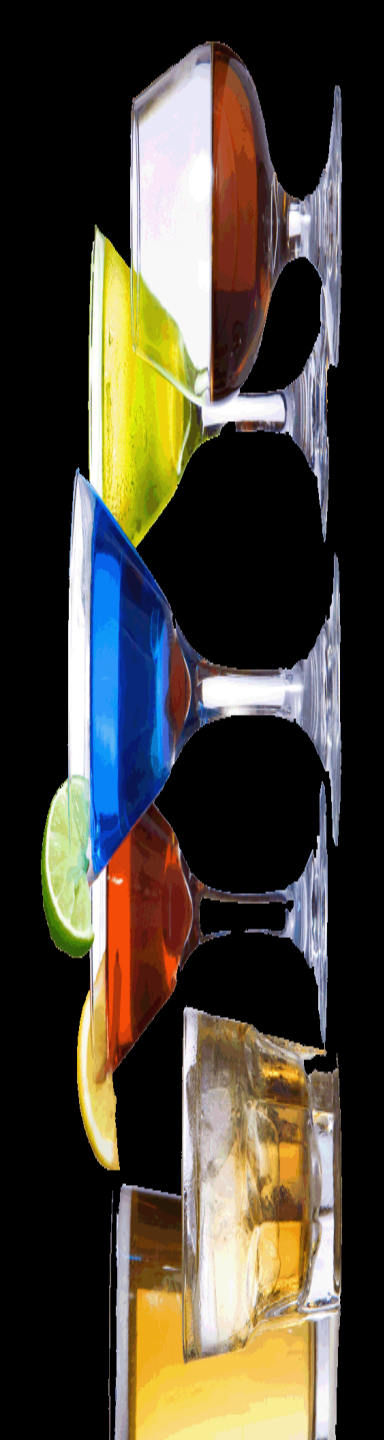
Sweeteners		Sugar Alcohols
	Acceptable Daily Intake (ADI) mg/kg body weight	*Sugar alcohols do not have Acceptable Daily Intake (ADI). Large amounts (>10g/day) can cause diarrhea, cramps, gas and bloating.
Acesulfame potassium	15	Erythritol
Aspartame	40	Hydrogenated starch hydrolysates
D-tagatose	80	Isomalt
Neotame	2	Lactitol
Saccharin	5	Maltitol
Stevia glycosides	4	Maltitol syrup
Sucralose	9	Mannitol
Thaumatin	0.9	Sorbitol
		Sorbitol syrup
		Xylitol

Know aspartame and sucralose!



Alcohol and Type 2

- Hypoglycemia if they use secretagogues or insulin
- Concern if poor eater or missed meals
- Contributes to weight gain
- Increased blood pressure and triglycerides



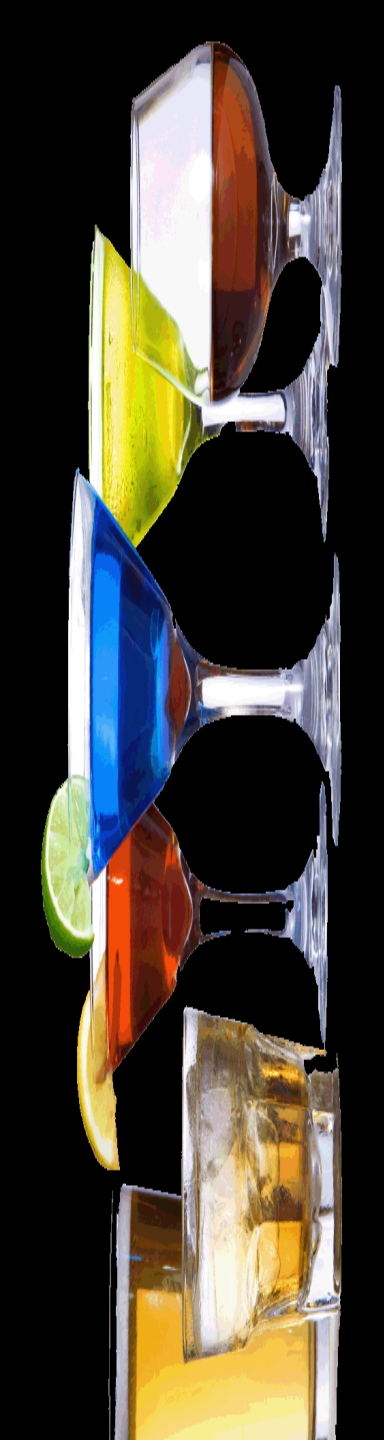
Alcohol and Type 1

Caution Risk of hypoglycemia

Symptoms can be mistaken for being drunk

Delayed – up to 24 hours

Do not take insulin for carbohydrate in alcoholic beverages



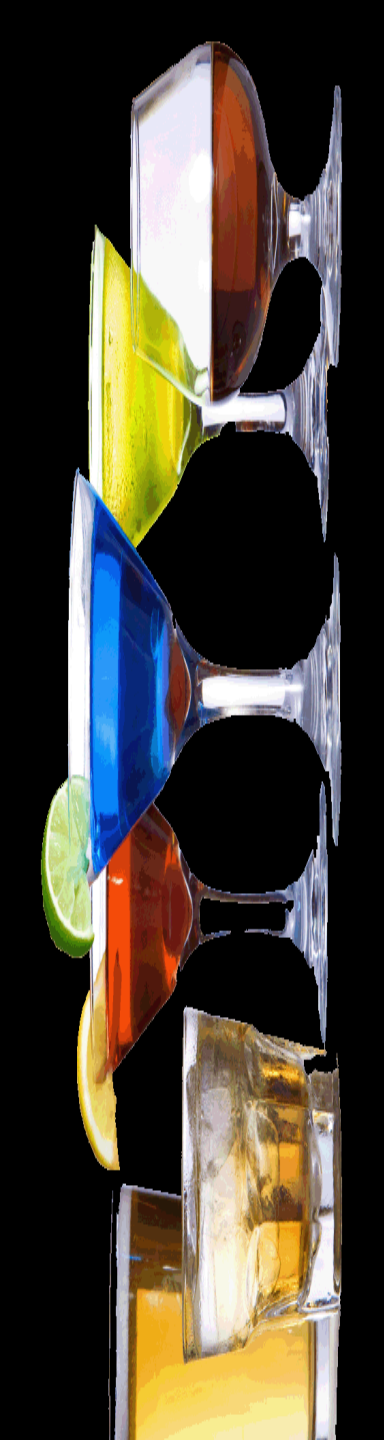
To prevent Hypoglycemia Risk

Have food when having alcohol

Decrease insulin

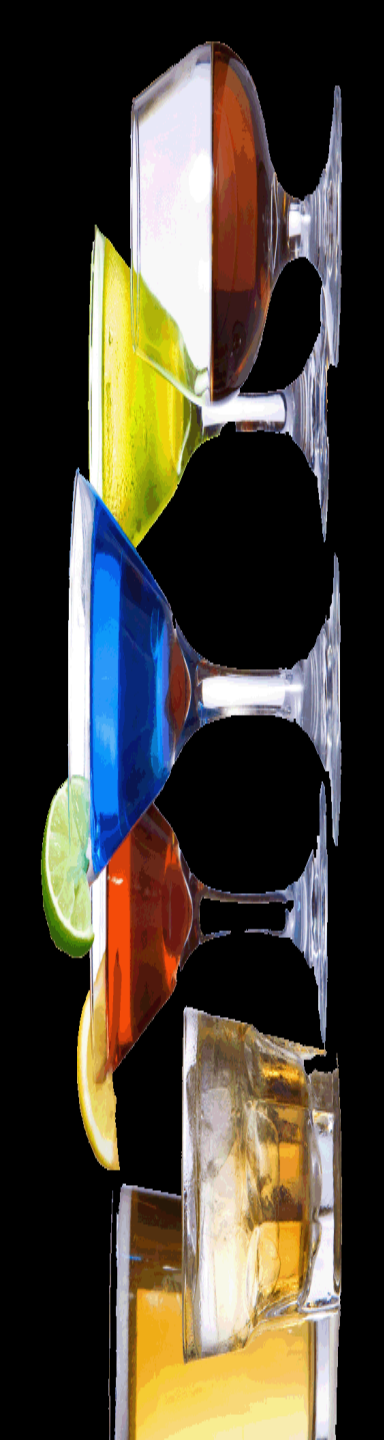
Monitor blood glucose (especially before bed and during the night)

Tell someone you have diabetes



What is a 'standard drink'

- Beer: 360 mL (12 fl.oz) of regular strength beer (5% alcohol)
- Spirits: 45 mL (1.5 fl.oz) of spirits (40% alcohol)
- Wine: 150 mL (5 fl.oz) of wine (12% alcohol)



Alcohol

Men 15 drinks/ week

No more than 3 per day

Women 10 drinks per week

No more than 2 per day

Glycemic Index

A lot of starchy foods have a high Glycemic Index (GI).
Choose medium and low GI foods more often.

LOW GI (55 OR LESS) *† Choose most often ✓✓✓	MEDIUM GI (56-69) *† Choose more often ✓✓	HIGH GI (70 OR MORE) *† Choose less often ✓
BREADS: 100% stone ground whole wheat Heavy mixed grain Pumpernickel	**BREADS:** Whole wheat Rye Pita	**BREADS:** White bread Kaiser roll Bagel, white
CEREAL: All Bran™ Bran Buds with Psyllium™ Oat Bran™	**CEREAL:** Grapenuts™ Puffed wheat Oatmeal Quick oats	**CEREAL:** Bran flakes Corn flakes Rice Krispies™
GRAINS: Barley Bulgar Pasta/noodles Parboiled or converted rice	**GRAINS:** Basmati rice Brown rice Couscous	**GRAINS:** Short-grain rice
OTHER: Sweet potato Yam Legumes Lentils Chickpeas Kidney beans Split peas Soy beans Baked beans	**OTHER:** Potato, new/white Sweet corn Popcorn Stoned Wheat Thins™ Ryvita™ (rye crisps) Black bean soup Green pea soup	**OTHER:** Potato, baking (Russet) French fries Pretzels Rice cakes Soda crackers

One change I will make now is:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

*expressed as a percentage of the value for glucose † Canadian values where available

Adapted with permission from: Foster-Powell K, Holt SHA, Brand-Miller JC. International table of glycemic index and glycemic load values A m J Clin Nutr. 2002;76:5-56

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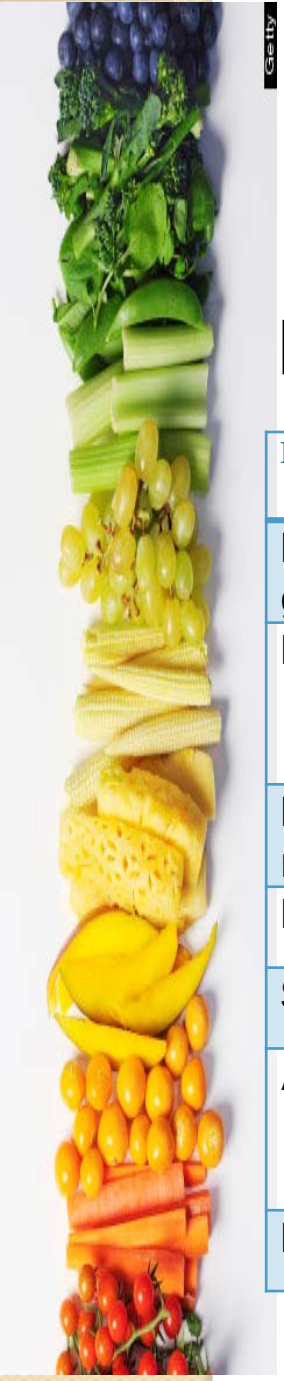

Glycemic Index

Factors that affect the Glycemic Index (GI)

Factor	Example
Low degree of starch gelatinization	Spaghetti, oatmeal
Physical form of food	Pumpernickel and whole grains breads, legumes, barley, al dente pasta
High amylose to amylopectin ratio	Basmati rice, legumes and cornstarch
Fibre	Rolled oats, beans and lentils, apples
Sugar	Some cookies and breakfast cereals
Acidity	Vinegar, lemon juice, salad dressings, acidic fruits e.g. oranges, sourdough bread
Fat	Potato chips are lower GI than baked potato

Sample Question

Which meal has the lowest glycemic index

a) Bran flakes, milk, banana

b) Brown rice with vegetable

c) Converted rice, fried chicken

d) Soda crackers and cheese

Sample Question

Which meal has the lowest glycemic index

a) Bran flakes, milk, banana

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Sick Days

Maintain blood glucose:

Preventing hyper (DKA) or hypoglycemia

Prevent dehydration

Sick Days

S **Sugar** Check every 2-4 hours

I **Insulin** **Continue to take it!**

C **Carbohydrate**

Take some every 1-2 hours

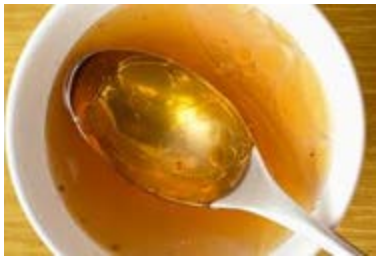
K **Ketones** Test if your blood glucose is above 16

Sick Days

Convert solids to fluids to maintain carbohydrates

Carbohydrate Beverages
Each contain 10 grams of carbohydrate and can be substituted in the menu:

Apple Juice: 75 ml
Cranberry Juice (white): 50 ml
Cranberry Cocktail (white): 75 ml
Cranberry Cocktail Low Calorie : 250 ml
Gatorade: 200 ml
Grape Juice (white): 50 ml
Powerade: 200 ml
Regular Jello: 50 ml
Regular Iced Tea: 75 ml
Regular Gingerale: 125 ml
Regular Popsicle: 1 stick



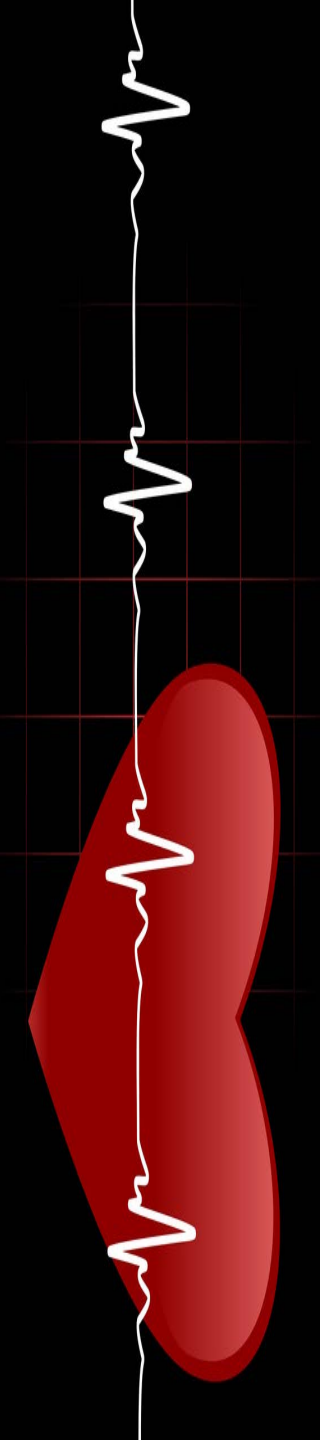
Sick Days

Blood Glucose mmol/L	**Blood Ketones mmol/L**	**Urine Ketones**	**Action Required** **My rapid insulin is_____**
< 3.9	negative		Decrease pre-meal insulin
4.0- 16.0	<0.6	+ or -	Usual insulin dose
4.0 – 16.0	≥ 0.6	Small light purple +2	Add an Extra 10% in addition to pre-meal dose
>16.0	<0.6	+ or -	Add an Extra 10% in addition to pre-meal dose
>16.0	≥0.7- 1.4	Moderate purple +3	Add an Extra 15% in addition to pre-meal dose
>16.0	≥1.5 – 3.0	Large dark purple +3	Add an Extra 20% every 4 hours in addition pre-meal dose Contact your Dr. or healthcare team as soon as possible.

Sick Days

Call your Health Care provider if you:

- Vomit more than twice in 12 hours
- Have severe stomach pain
- Have rapid breathing
- Have a rapid heart beat
- Have fruity smelling breath (ketones)
- Have difficulty staying awake



Dyslipidemia

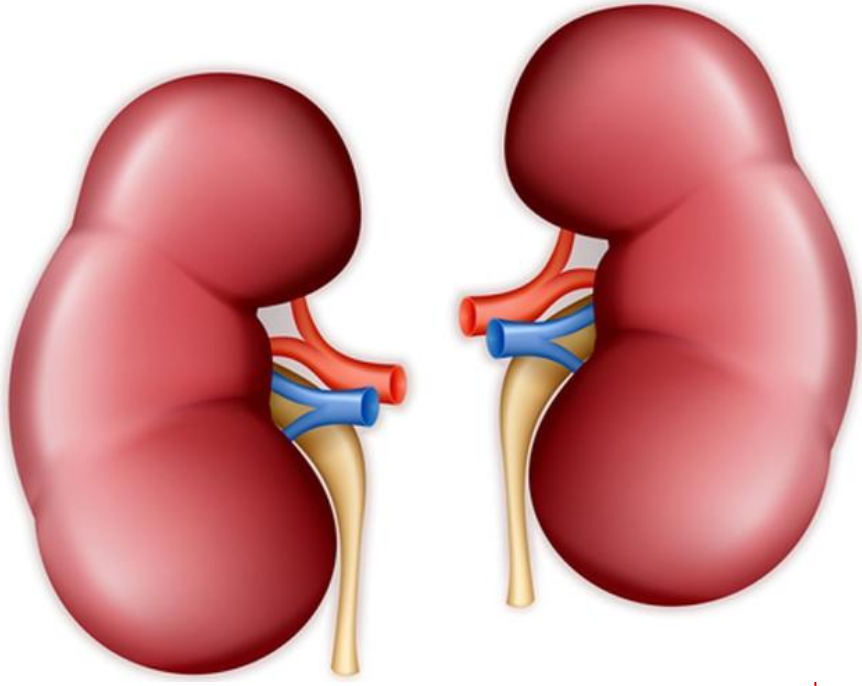
Goal is to reduce LDL Cholesterol

- ↓ Saturated Fat
- ↓ Weight
- D/C smoking
- ↑ Fibre
- ↑ Plant sterols
- ↑ Omega 3
- ↑ Physical Activity

Dyslipidemia

	Change	LDL Reduction
Saturated fat	Decrease to less than 7% of calories	8–10%
Dietary cholesterol	Decrease to less than 200 mg/day	3–5%
Weight	Lose 10 pounds if overweight	5–8%
Soluble fiber	Add 5–10 grams/day	3–5%
Plant sterols/stanols	Add 2 grams/day	5–15%
Total		**20–30%***

Kidney Disease



Complex Diet

- Potassium
- Sodium
- Phosphorus
- Protein
- Fluid

Blood pressure and blood glucose control are important !

Hypertension

Hypertension

Lifestyle Modification to Manage Hypertension*		
Modification	**Recommendation**	**Approximate Systolic BP Reduction, Range**
Weight	Maintain normal body weight (BMI: 18.5-24.9)	5-20 mmHg/10-kg weight loss
DASH diet	Consume diet rich in fruits, vegetables, lower-fat milk products	8-14 mmHg
Dietary sodium	Reduce sodium intake to no more than 2400 mg sodium or 6000 mg salt (sodium chloride)	2-8 mmHg
Physical activity	Engage in regular aerobic physical activity at least 30 minutes/day most days of the week	4-9 mmHg
Alcohol	Limit consumption to ≤2drinks/day for men and ≤1 drink/day for women	2-4 mmHg

Abbreviations: BMI: body mass index, BP: blood pressure; DASH: Dietary Approaches to Stop Hypertension.
* For overall cardiovascular risk reduction, stop smoking. The effects of implementing these modifications are dose and time dependent and could be higher for some individuals.

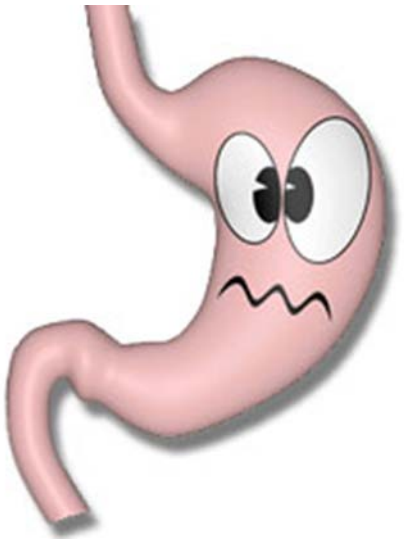
Adapted from Chobanian et al.[4]

Gastroparesis

Delayed gastric emptying 1-2 hours

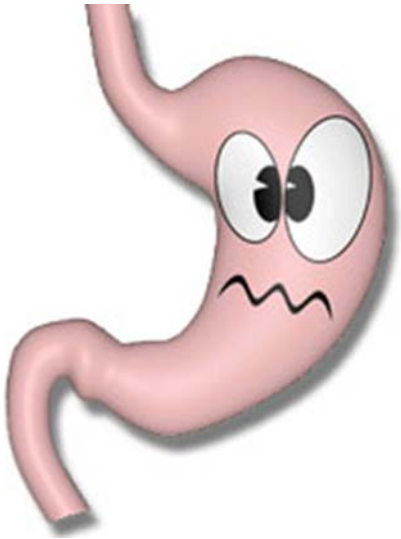
Type of neuropathy

Postprandial hypoglycemia



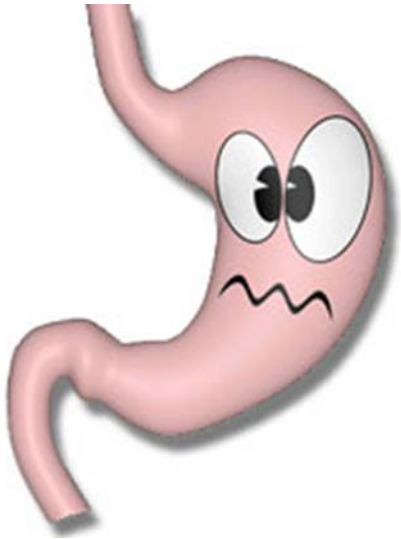
Gastroparesis- Symptoms

- Nausea
- Vomiting
- Early Satiety
- Bloating
- Postprandial fullness Abdominal Pain
- Erratic Blood Glucose



Gastroparesis- Dietary Recommendations

- Low fibre
- Low fat
- Small meals
- Liquid based meals
- Avoid alcohol
- Avoid carbonated drinks



Celiac

Autoimmune disease

4-6% of type 1 diabetes

Often asymptomatic

Symptoms may be:

- Vomiting
- Diarrhea
- Constipation
- Decreased vitamin status
- Unexplained blood sugars

Celiac

Gluten FREE diet

No wheat, rye, barley

Oats can be used cautiously

Gluten is HIDDEN in many Foods e.g. soy sauce

Long Term Risk of malabsorption iron, calcium

Compensation for Physical Activity

Type 1

- Add additional food
- Decrease Insulin
- Both

Compensation for Physical Activity

	Insulin	**Carbohydrate**
Light exercise	Reduce bolus by 10%	Add 10 grams before activity (May not be needed)
Moderate Exercise	Reduce Bolus by 20%	Add 15-30 grams before exercise
Vigorous Activity	Reduce Bolus by 30-50%	Add 30-60 before or after exercise

Compensation for Physical Activity

Also consider:

- Timing of exercise compared to meal
- Blood glucose before starting exercise
- Weight goal: maintenance or loss

Compensation for Physical Activity

Things to consider to prevent Hypoglycemia
Injection site- avoid working muscles
Timing of exercise versus insulin action
Food Intake
Alcohol

Hypoglycemia can occur up to 24 hours after an activity

Compensation for Physical Activity

Type 2

Only necessary if using insulin or secretagogues

Caution as additional food contributes to weight gain

Questions

Contact me at: wendyg@langs.org

Check out information at: waterloowellingtondiabetes.ca