

Module 2: Improving the Health & Wellness of People with Diabetes



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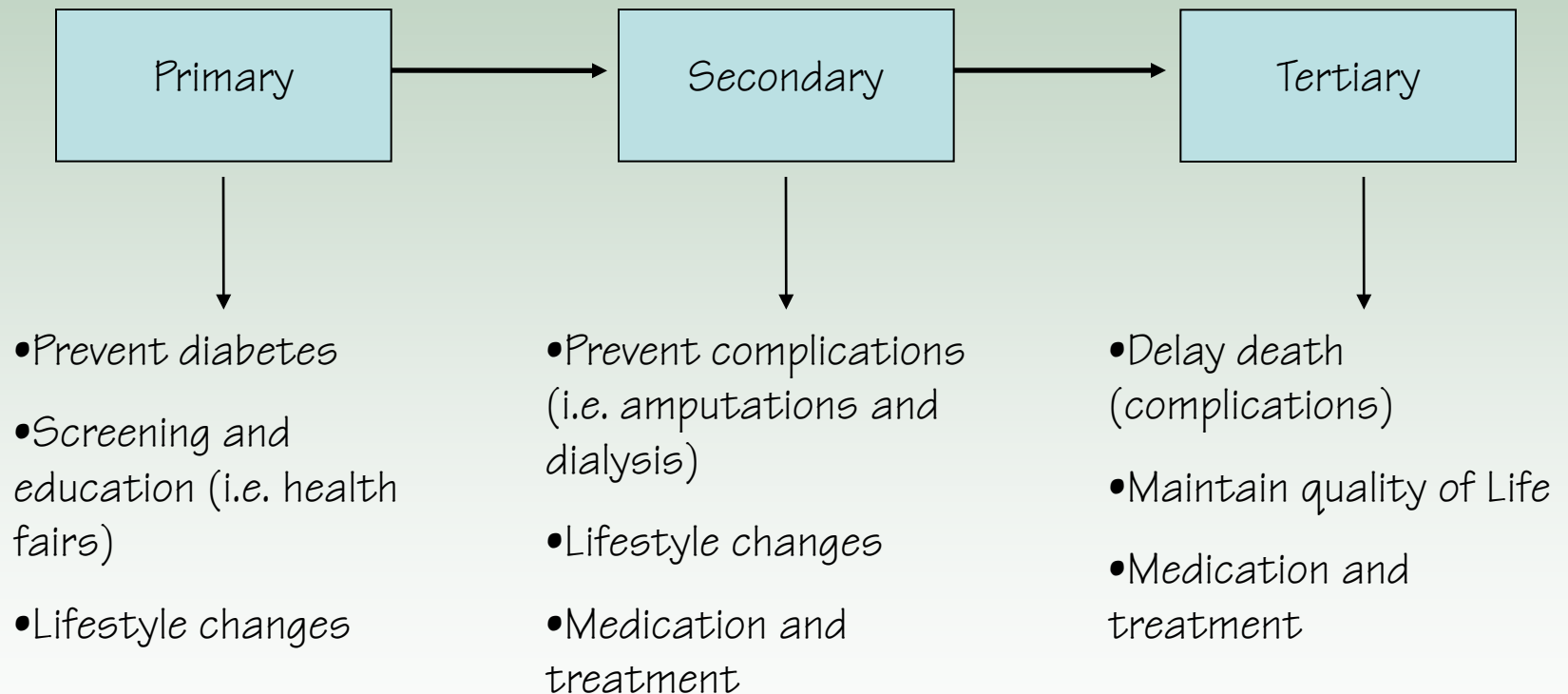
Objectives:

By the end of this module, students will know....

- What are ways to prevent diabetes or manage pre-diabetes?
- How to monitor and treat patients with diabetes?
- What are the medical treatments for diabetes and its complications?
- What are some diabetes resources?

Prevention

Areas/opportunities for Interventions with Diabetes





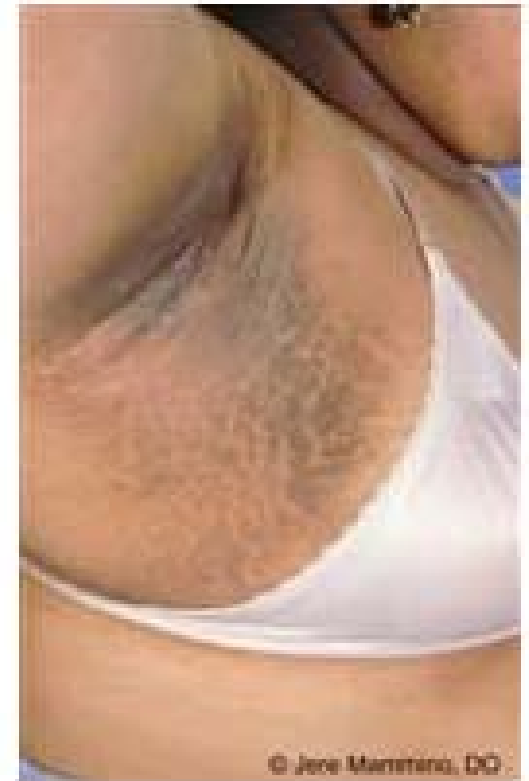
What are Ways to:

1. *Prevent diabetes*
2. *Manage Pre-diabetes*



Some other Pre-diabetic Conditions

Acanthosis Nigricans



Polycystic Ovarian Syndrome



- Usually obese
- Abnormal hair growth
- Menstrual irregularities
- Infertility



First line of therapy is...

1. Healthy Eating
2. Increase Physical Activity
3. Weight Management



Healthy Diet

The 3 R's of a Healthy Diet



1. Right foods
2. Right amount
3. Right time

Eat the Right Foods

Fats, Oils, and Sweets Group



use sparingly

Milk, Yogurt, and Cheese Group



2-3 servings per day

Meat, Poultry, Fish, Eggs and Nuts Group



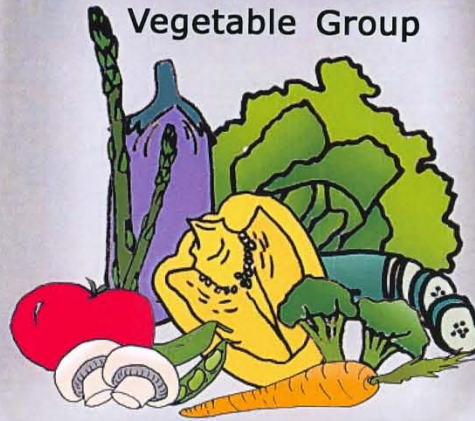
2-3 servings per day

Fruit Group



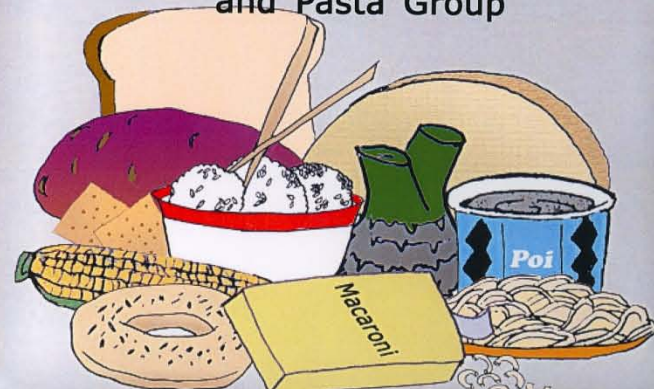
2-4 servings per day

Vegetable Group



3-5 servings per day

Grains, Cereal, Rice and Pasta Group



6-11 servings per day



Eat the Right Amount

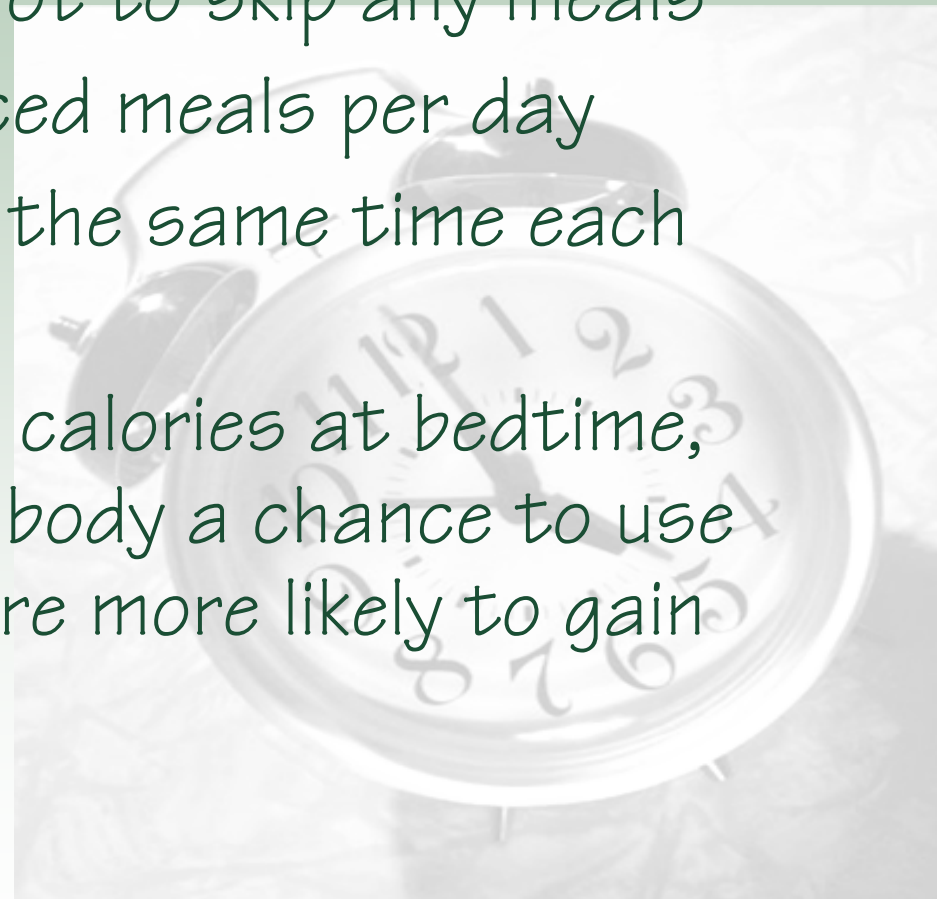
Portion sizes are key
to this concept

Eat the Right Amount



Right Time

- It is important to try not to skip any meals
- Eating 3 regularly spaced meals per day
- Eating meals at about the same time each day.
- If you eat most of your calories at bedtime, you are not giving your body a chance to use these calories and you're more likely to gain weight






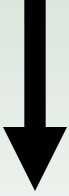
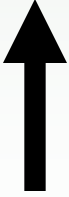
Physical Activity

Physical Activity

- Includes anything that gets you moving, such as walking, ballroom dancing, hula, paddling or working in the yard.
- Being active helps you physically and mentally.
- The CDC suggests that adults get in at least 30-minutes of physical activity, 5-days a week.



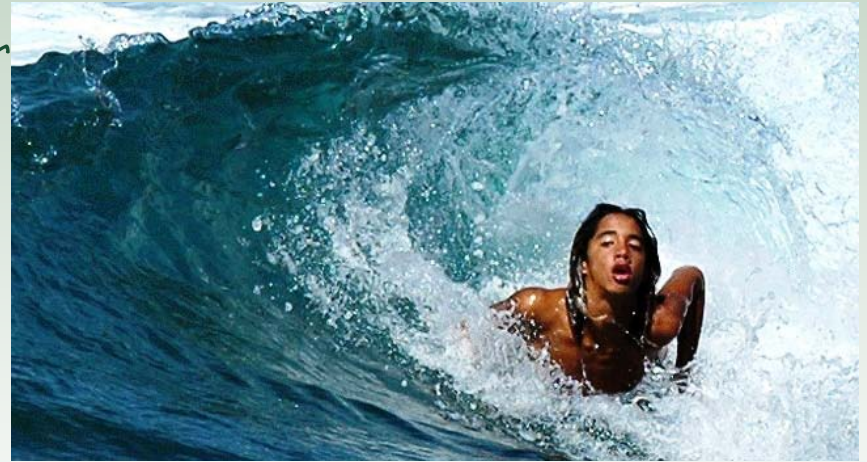
Physical Activity

	<ul style="list-style-type: none">• Blood glucose• Blood pressure• Cholesterol• Stress
	Risk for: <ul style="list-style-type: none">• Heart disease• Stroke
	Strengthens: <ul style="list-style-type: none">• Heart• Muscles• Bones

Regular physical activity helps insulin work better, improving blood circulation, and keeps joints flexible.

ACTIVITY SUGGESTIONS

- Limit television viewing
- Set a goal to increase your physical activity
- Start slow and work up (time and activity)
- Pick activities you like
- Set the example



Why are healthy diet & physical activity important in managing diabetes?

- Food → Sugar (Glucose) → Energy
- People with diabetes don't effectively burn glucose for energy, and glucose can build up in the blood.
- A healthy diet and physical activity can help to keep blood glucose at normal levels.



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**Diabetes
control**



Managing and Treating Patients with Type 2 Diabetes



Organs Affected by Diabetes

- Eyes - #1 cause of blindness
- Kidneys - #1 cause of renal failure/dialysis
- Blood vessels - risk equal to a **heart attack**
- Nerves – loss of sensation & control, pain
- Immune system - ↑ risk of infection
#1 cause of amputations

1st step in preventing them all....

Blood Sugar Control!

Find the Balance to Maintain Blood Sugar



Exercise
Medication
Stress
Reduction
Activities

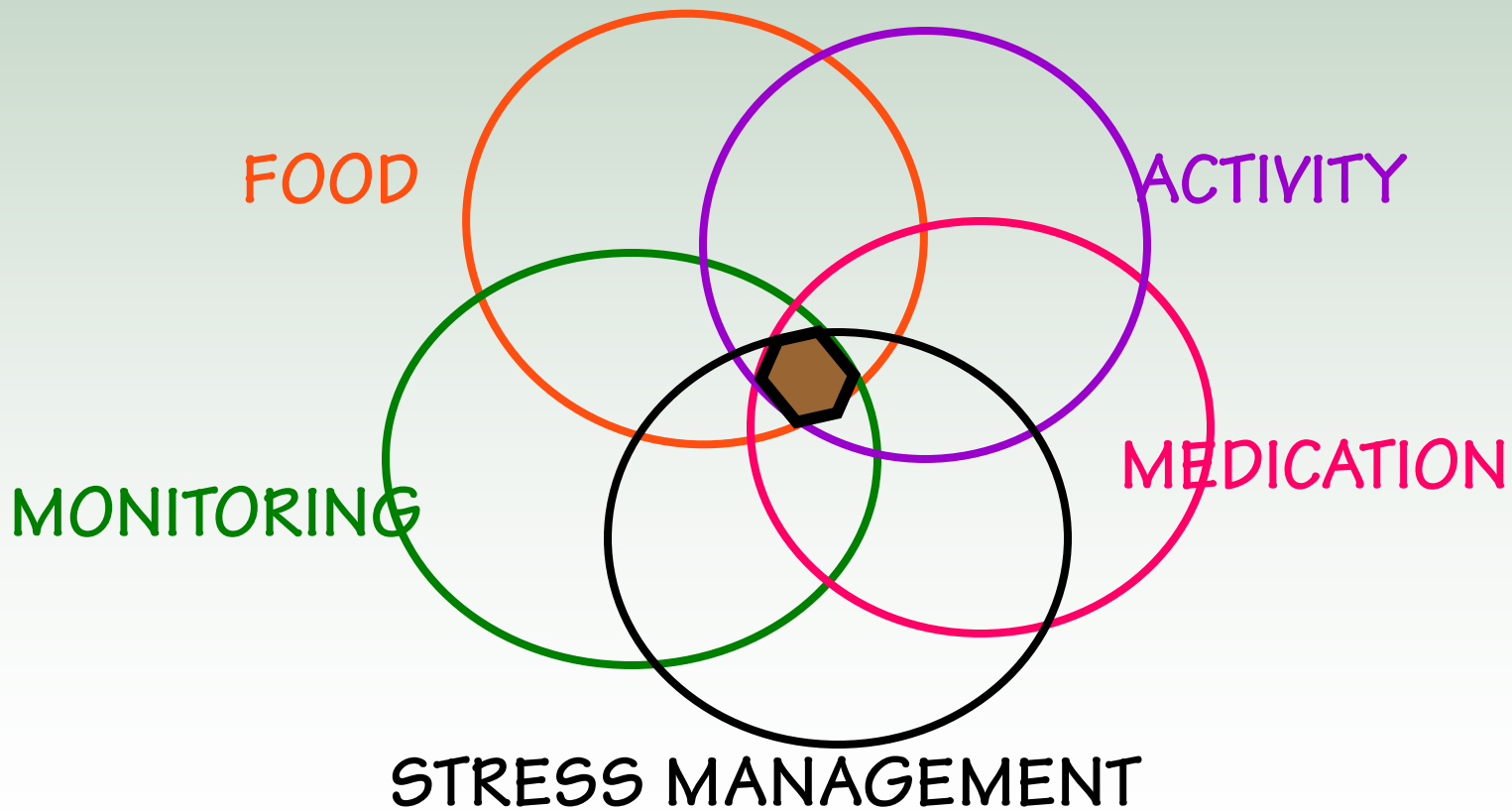


Food
Stress
Illness
Hormones

To reduce the risk of developing complications!

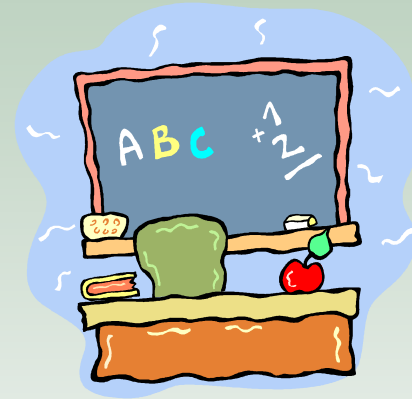
TREATMENT

TOOLS TO GET BLOOD SUGAR UNDER CONTROL



ABCDEFGG's of Diabetes

- “**A**” is for Hemoglobin **A**1c
- “**B**” is for **B**lood Pressure
- “**C**” is for **C**holesterol
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“G” Blood Glucose monitoring

- Doctor should check regularly
- May prescribe home glucometer
- Best done a few times/day
 - usually once fasting in the morning
 - possibly another time after eating
 - keep results in log
 - correlate values with diet, lifestyle



Acute complications of poor glucose control

Poor glucose control with another factor (such as infections, trauma, heart attack, alcohol use):

- Diabetic Ketoacidosis
Life-threatening electrolyte abnormality
Symptoms: appears drunk, sweet breath like nail polish remover, rapid breathing, thirst, urination
 - Occurs predominantly in those with **Type 1** diabetes
- Hyperosmolar Hyperglycemic State
Life-threatening dehydration, glucose usually >600
Symptoms: extreme thirst, dry mouth, confusion, hallucinations, dark urine
 - Occurs predominantly in those with **Type 2** diabetes

Both conditions can cause coma and death

Oral Medications (Pills)

- Used to treat Type 2 diabetes
- Lowers blood sugar
- More than one drug can be used at the same time as the physician prescribed.
- **Must** be taken on a regular basis
 - The doctor may prescribe either only one pill or a combination of diabetes pills in order to regulate the blood sugar.
 - **The goal remains the same: good blood sugar control.**



Oral Diabetes Medications

Name	Side Effect	Advice
Metformin (Glucophage)	“Sore Stomach” (nausea/vomiting, diarrhea), metallic taste	Should pass in a few weeks, see doctor if not
Sulfonylureas (Glipizide, Glyburide, Glucotrol, Glimiperide)	Risk of hypoglycemia (low blood sugar) – similar to insulin	Eat regularly-don't skip meals Teach to notice signs & correct
Glitazones (Actos, Avandia)	Swelling/water retention, potential risk of liver damage	Liver labs every 2 months for first year
Others: Sitagliptin (Januvia) – no significant side effects Acarbose (Precose) – diarrhea and flatulence		

Insulin Therapy

- Insulin injections allow the body to lower the individual's blood sugar.
- In type 1 diabetics where the individual is not producing insulin the injections put insulin into the blood system.
- In type 2 diabetics insulin injections supplement (add to) the insulin that is produced by the pancreas.





Recognizing Hypoglycemia

Blood Glucose < 70

Risks: skipping meals, overdosing meds, excessive alcohol, excessive exercise

Symptoms:

- hunger
- nervousness and shakiness
- perspiration
- dizziness or light-headedness
- sleepiness
- confusion
- difficulty speaking
- feeling anxious or weak

Treating Hypoglycemia

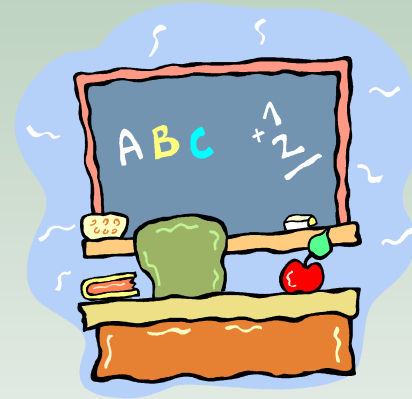
Quick Fixes



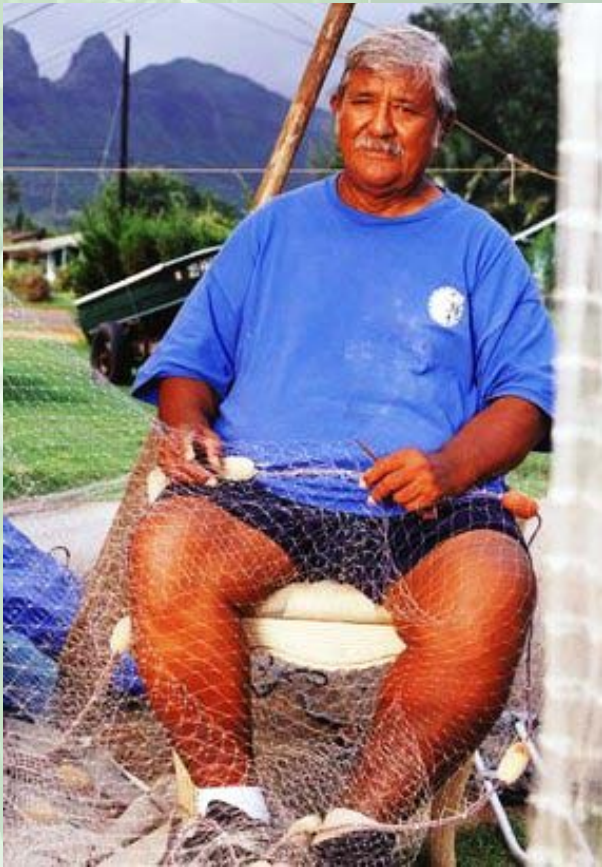
- 2 or 3 glucose tablets
- 1/2 cup (4 ounces) of any fruit juice
- 1/2 cup (4 ounces) of a regular (**not diet**) soft drink
- 1 cup (8 ounces) of milk
- 3 to 6 pieces of hard candy
- 1 or 2 teaspoons of sugar or honey

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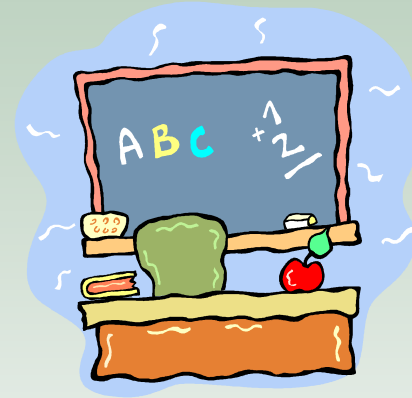
“A” is for A1c




- Blood test.
- Measures average blood glucose (sugar) for the past **2 to 3 months**.
- The ADA recommends that people aim for an **A1c below 6.5-7%**.

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“B” is for Blood Pressure

- Blood pressure = force of blood inside blood vessels to flow to other parts of the body.
-  blood pressure : your heart has to work harder than it should.
- The ADA recommends that your blood pressure is below 120 / 80 mmHg.

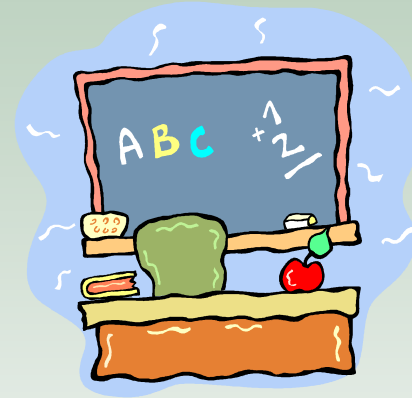


Blood Pressure Medications

Name	Side Effect	Advice
ACE Inhibitor (Vasotec, Accupril, Lotensin)	Dry cough Angioedema (swelling of face, mouth)	Doctor can switch to ARB
ARB (Diovan, Cozaar)	Similar to ACE Inhibitors but side effects less common, headache	
These 2 types are used for diabetics with hypertension Other common medications that may be used include Hydrochlorothiazide and Beta blockers		

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“C” is for Cholesterol

- Blood test. At least yearly
- Cholesterol level = amount of fat in blood
- ↑ HDL helps to protect your heart.
- ↑ LDL can clog blood vessels and lead to heart disease.
- ↑ triglycerides raise your risk for heart disease.

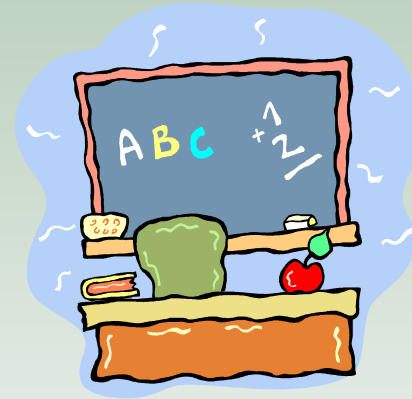


Cholesterol Medications

Name	Side Effect	Advice
Statin (Lipitor, Zocor, Crestor, Pravachol)	Muscle and joint aches, may lead to serious muscle damage Rare liver damage	See doctor if aches don't improve Liver tests 1-2 months after starting
Other medications: Fibrates (side effects similar to statins, gall stones, GI upset), Niacin (flushing), Bile acid resins (Constipation, GI upset), Fish oil		

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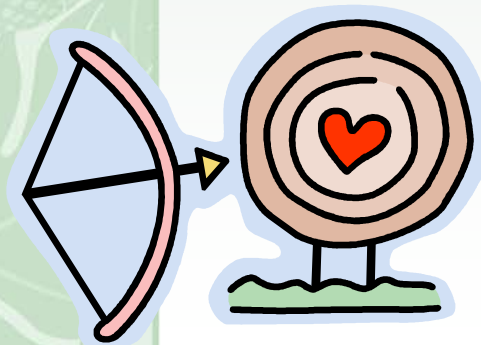


“D” is for Dialysis Prevention

- Urine Microalbumin test
 - Detects “small kine” protein in your urine before full kidney damage begins
 - Should be done yearly by doctor
- Urinary Creatinine
 - Reflects amount of kidney damage
- Medications for kidney disease
 - ACE Inhibitors and ARBs
(same ones used for blood pressure)

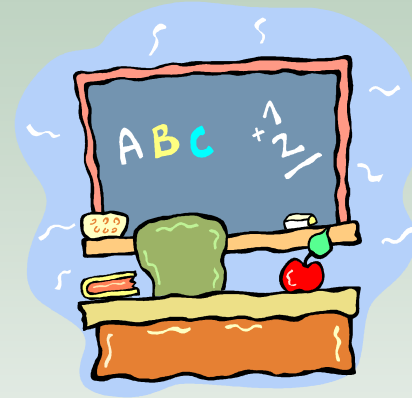
How to keep your ABCDs on target

- Make wise food choices (healthy diet)
- Increase physical activity
- Take medication(s) as directed



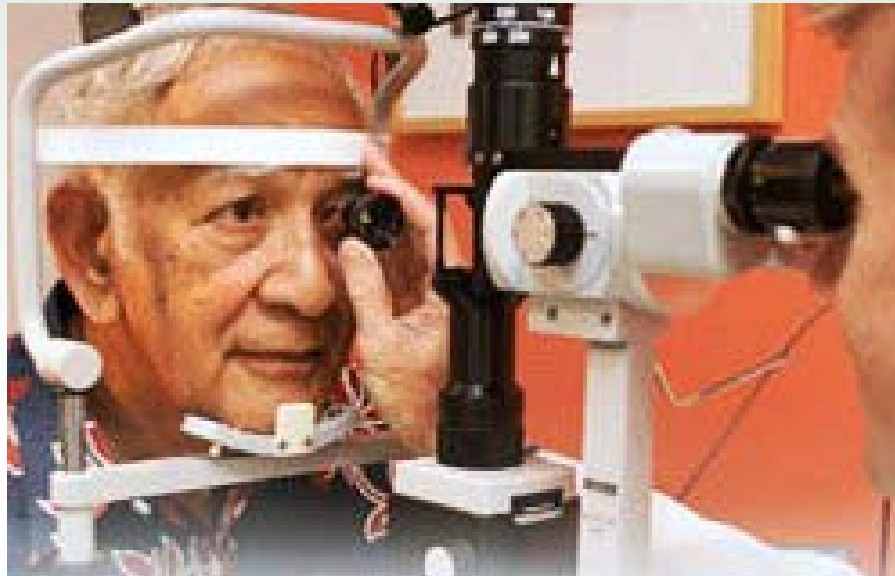
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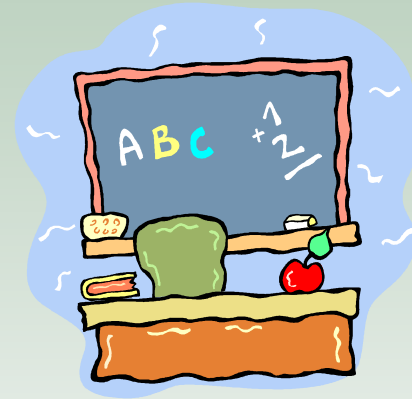
“E” is for Eye Exam Yearly

- Annually beginning at diagnosis for Type 2
- Performed by an ophthalmologist or optometrist experienced in diagnosing diabetic retinopathy.



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“F” is for Foot Care

- Daily Visual exam with shoes and socks off
- Annual complete exam including visual inspection, neurovascular examination (test with a microfilament) and risk categorization.
- Discuss appropriate footwear
- Refer high risk individual to foot specialist





Other Considerations for Diabetes

Diabetes & Pregnancy

- Diabetes near conception
 - risk of birth defects, miscarriage
- Gestational Diabetes
 - risk of macrosomia (big baby)



Treatment: diet, tight glucose control
Oral meds usually switched to insulin

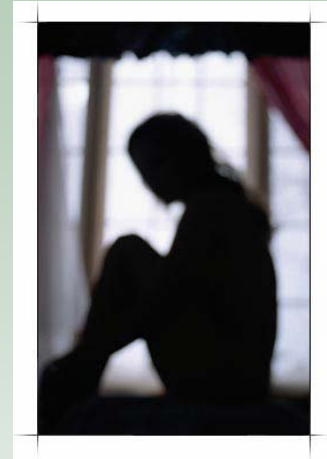
Vaccinations

- Will not treat *diabetes*, but will help to prevent further complications from occurring.
- *Vaccines to receive:*
 - Influenza (often called the flu)
 - Pneumococcal
 - Pneumonia
 - Meningitis
 - Tetanus/diphtheria (Td) Toxoid
 - Caused by bacteria entering through wounds



Depression Screening

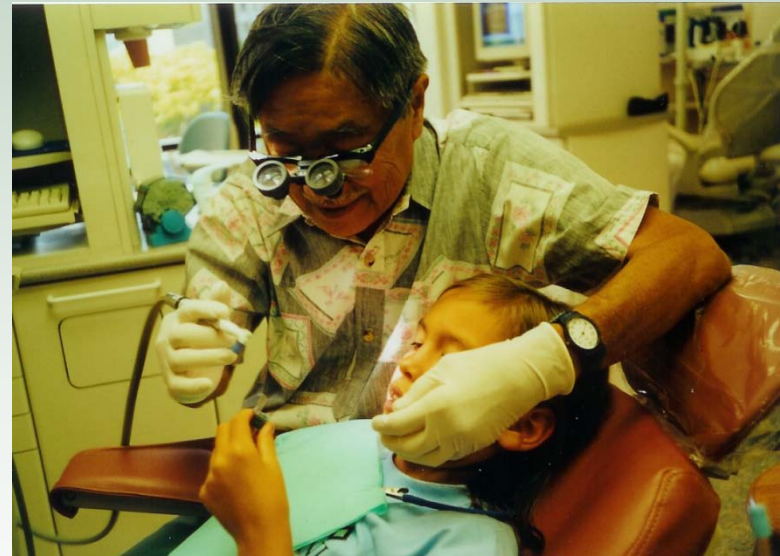
- ↑ Diabetes ↑ Depression
- ↑ Depression ↑ Diabetes
- ↑ Treatment ↓ Diabetes ↓ Depression



Successful treatment of depression in people with diabetes can improve glycemic control and overall quality of life.

Oral/Dental Exam

- Persistent poor glycemic control has been associated with the incidence and progression of diabetes-related complications including:
 - Gingivitis
 - Periodontitis
 - Dry mouth
 - Oral mucosal disorders
- More rigorous follow-up and attention to acute oral infections.



Products

- Insulin pens
- Insulin pumps
- Glucose monitoring watches

Coming Soon...

- Continuous monitoring systems
- Inhaled insulin

The Moral of the story

To prevent getting Type 2 diabetes ...

- Maintain a healthy weight
- Eat a variety of foods in the right portion size
- Be active

To prevent complication of Type 2 diabetes...

- All the above
- Medications as directed
- Know your ABC's
- Complete your recommend screening



Diabetes Resources



Resources

- National
 - American Diabetes Association (www.diabetes.org)
 - The National Kidney Foundation
 - The American Heart Association (www.heart.org)
 - National Diabetes information Clearinghouse
 - Center for Disease Prevent and Control (CDC) – Diabetes (www.cdc.gov/diabetes)
- State - Hawaii
 - Hawaii Diabetes Control Program: 808-538-3900 (www.cdc.gov/diabetes/states/hi.htm)
 - American Diabetes Association – Honolulu 808-947-5979
 - Diabetes Care Connection (sponsored by HMSA, eligibility requirements) 1-800-499-5036
 - Hawaii Association of Diabetes Educators – www.hawaiiidiabeteseducators.com