

Diabetes 101

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What is Diabetes?

- Diabetes mellitus is a group of diseases characterized by high levels of blood glucose resulting from defects in insulin production, insulin action or both.

Why do we care?

20.8 million people

- Diagnosed 14.6 million
- Undiagnosed 6.2 million
- 7% of the total population

What Does This Mean?

Diabetes is now recognized as one of the largest epidemics humanity has ever faced and a leading cause of death!!!!

■ 70% of people with diabetes will die of cardiovascular disease.

Estimated Costs of Diabetes?

- Total cost: \$132 billion
- Direct Medical costs: \$92 billion
- Indirect costs: \$40 billion

What about people?

Every 24 hours:

New cases: 4,100
Deaths: 810
Amputations: 230
Kidney Failure: 120
Blindness: 55

Ethnic Groups over 20 years

- 8.7% White
- 9.5% Hispanic
- 13.3% Black
- 27% SW Native Americans

- 21% of all Americans over age 60

■ 61% of all
Hispanic/Latino
Americans born in
2000 AD will have
Diabetes

What about Utah?

- 154,000 people in Utah have been diagnosed
- 1 out of every 25 people in Utah have diabetes
- Sixth leading cause of death in Utah and US

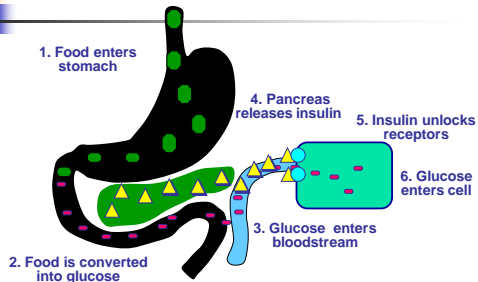
Types of Abnormal Glucose?

1. Type 1 diabetes---previously called insulin-dependent diabetes (IDDM) or juvenile-onset diabetes.
2. Type 2 diabetes---previously called non-insulin-dependent diabetes (NIDDM) or adult-onset diabetes.

Types of Abnormal Glucose?

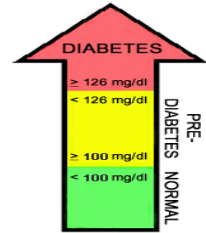
3. Gestational diabetes---a form of glucose intolerance that is diagnosed in some women during pregnancy.
4. Prediabetes---term used to distinguish people who are at increased risk for developing diabetes.

How Food is Digested



Diagnosing diabetes

- Fasting plasma glucose test (see figure to the right)
- If fasting glucose test is positive, confirm results by repeating on a different day.



Symptoms

- Extreme thirst
- Frequent urination
- Extreme hunger
- Blurry vision
- Unexplained weight loss
- Tingling or numbness in the hands or feet
- Constant fatigue
- Dry / irritated skin (above and beyond Utah standards)
- Wounds that are slow to heal

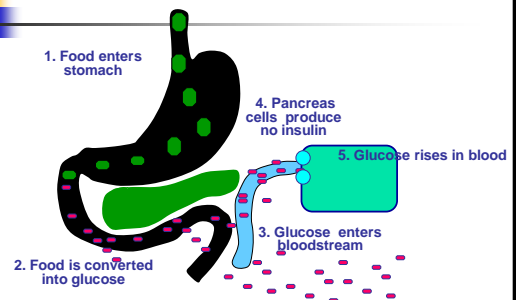
Type 1

- 5-10% of all diagnosed cases
- May be autoimmune, genetic or environmental
- Beta-cell destruction usually leading to absolute insulin deficiency
- Onset usually abrupt in young but can be slow in older patients
- Usually normal weight or slender

Type 1

Insulin is the medication that is used!!!!
 Symlin, insulin pumps, glucose sensors

What happens in Type 1 diabetes?



Type 2

- 90-95% of all diabetes cases
- Onset is usually very slow
- Older age? Children?
- Family history, history of gestational DM
- Depression?
- Complications are often present at diagnosis: retinopathy, neuropathy nephropathy

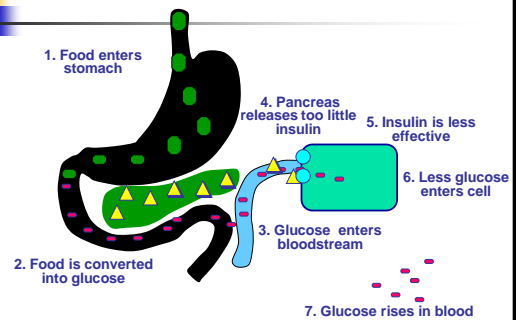
Type 2

And Obesity

Type 2

- Hypertension is most often present
- Cholesterol levels often abnormal
- Medications:
oral diabetes medications, lipid lowering agents, hypertensive medications, pain medications for neuropathy, insulin, Byetta, Symlin

What Happens in Type 2 diabetes?



Diabetes Complications

- Cardiovascular Disease (CVD):
 - 2 to 4 times the risk of heart disease and stroke compared with people without diabetes
 - Diabetes appears to particularly increase the risk of CVD in women
 - Major cause of death in all patients with DM

Diabetes Complications

- Eyes
Glaucoma, cataracts, retinopathy
- Kidneys
Nephropathy, renal failure
- Nerves
Neuropathy, amputations
- Gums and teeth

Preventing Complications

- Developing self-management skills is at the foundation of diabetes management:
 - Self-monitoring of blood glucose
 - Meal planning
 - Exercise
 - Medication compliance

Preventing Complications

- Glycemic Control
 - Control the amount of sugars and carbohydrates consumed
- Aggressive Lipid Lowering
 - Lower the amount of "bad fats" in your diet
- Management of Hypertension
 - Decrease blood pressure and find ways to manage stress

Gestational Diabetes?

- Diabetes diagnosed in pregnancy
- 2-5% of all pregnancies
- More common in obese women
- More common if family hx of DM
- More frequent in African Americans, Hispanic/Latino Americans and American Indians

Gestational?

- No known cause of gestational diabetes, but there are some ideas
 - Hormones from the placenta may block the action of the mother's insulin in her body causing insulin resistance
 - The stress of the pregnancy may also cause insulin resistance
- Usually disappears after pregnancy
- Risk for Type 2 diabetes later in life

Gestational?

Screening 24-26 wks.
50gram glucose drink with blood draw 1 hour after drink.
Positive if results are equal or greater than 140mg/dL

Gestational?

- Women have 20-50% chance of developing diabetes in the next 5-10 yrs.
It appears that the largest risk comes from weight!!

Encourage normal body weight!!!

Pre-diabetes—do we care?

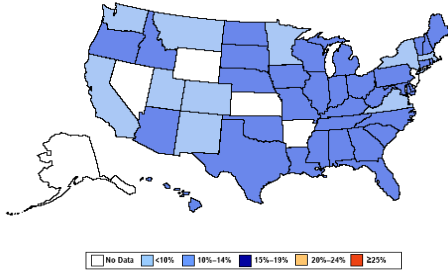
- Estimated 61 million people
- Estimated 70% progress to DM
- Lifestyle changes may prevent or delay the onset to DM
- Complications begin when glucose levels are elevated!!!!

Pre-diabetes and Obesity?

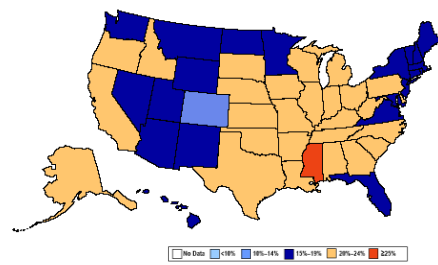
Are they connected?

YES!!!

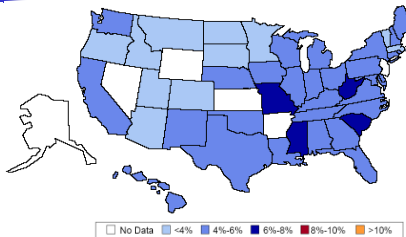
Obesity 1990



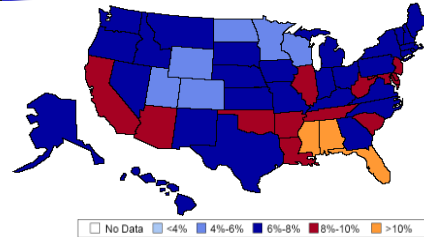
Obesity in 2001



Diabetes in 1990



Diabetes in 2001





What can we do?

Make Lifestyle changes!!!



What about exercise?

- **We need to move, move, move, move, move, move, move and move some more!!**
- **About 1 hr every day should be the minimum. 10,000 steps is great!!!**



What about food?

Mike Huckabee, Governor from Arkansas, said he lost several hundred pounds by following the advice of his MD:

"If it wasn't a food 100 years ago, don't eat it"!!!!



Diets? Or Just Healthy Eating?

- Eat Less
- Decrease highly processed foods
- Increase fruits and vegetables
- Do not drink your carbohydrates



Questions?

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- Blog: <http://askginnyaboutdiabetes.blogspot.com>
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