Diabetes - 2008

Living with diabetes
Risks, Preventions and Treatments

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Prevalence of Diabetes & Pre-diabetes

- **Diagnosed:** 17.9 million people
- **Undiagnosed:** 5.7 million people
- **Pre-diabetes:** 57 million people
- 1.6 million new cases of diabetes were diagnosed in people aged 20 years or older in 2007

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Who has diabetes?

- **Age 20 years or older:** -23.5 million Americans, or 10.7% of all people in this age group have diabetes.

- **Age 60 years or older:** 12.2 million, or 23.1% of all people in this age group have diabetes.

- **Men:** 12.0 million, or 11.2% of all men aged 20 years or older have diabetes although nearly one third of them do not know it.

- **Women:** 11.5 million, or 10.2% of all women aged 20 years or older have diabetes although nearly one quarter of them do not know it

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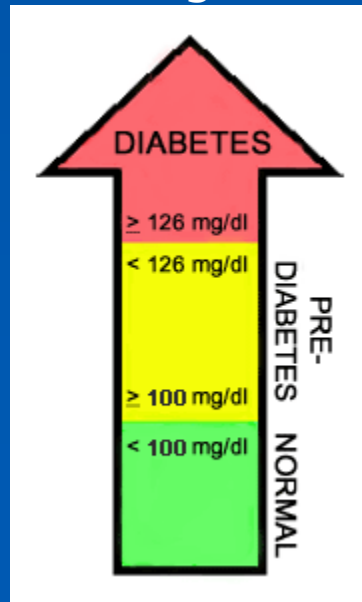
Diabetes or Pre-diabetes?

Diabetes is diagnosed by and combination. of **2** of the following

- Fasting blood glucose > 126 mg/dl
- Random blood glucose/ 2 hours post meal >200
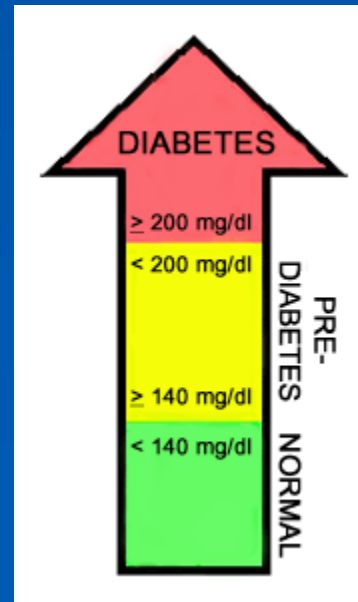- OGT test with elevated fasting and post glucose level >200

Pre Diabetes

- **IGT – impaired glucose tolerance**
- **IFG – impaired fasting glucose**

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Fasting

2 hour post meal glucose

Diagnosis Diabetes or Pre – Diabetes

Treat Pre-diabetes?

- The Diabetes Prevention Trial showed that changes in lifestyle can stop or delay the development of diabetes!

- Lifestyle changes include diet and a regular exercise program.

- Diabetes can be prevented by 58% of those with pre diabetes by losing between 5-10% of body weight, for a 200 lb person this is 10 -15 lbs.

- The aims of an exercise program should be to build up to 30 minutes of exercise 5 days a week

- Always check with your doctor to be sure you are healthy enough for exercise.

Who gets Diabetes?

- Risk Factors for Type 2 Diabetes:
- Family history of diabetes
- Overweight - 80% of diabetics are overweight
- Inactive
- Over 45 years old
- African American, Asian American, Hispanic, Native American or Pacific Islander heritage
- History of gestational diabetes or having a baby weighing over 9 pounds
- Having high cholesterol and/or high blood pressure

Diabetes and BMI
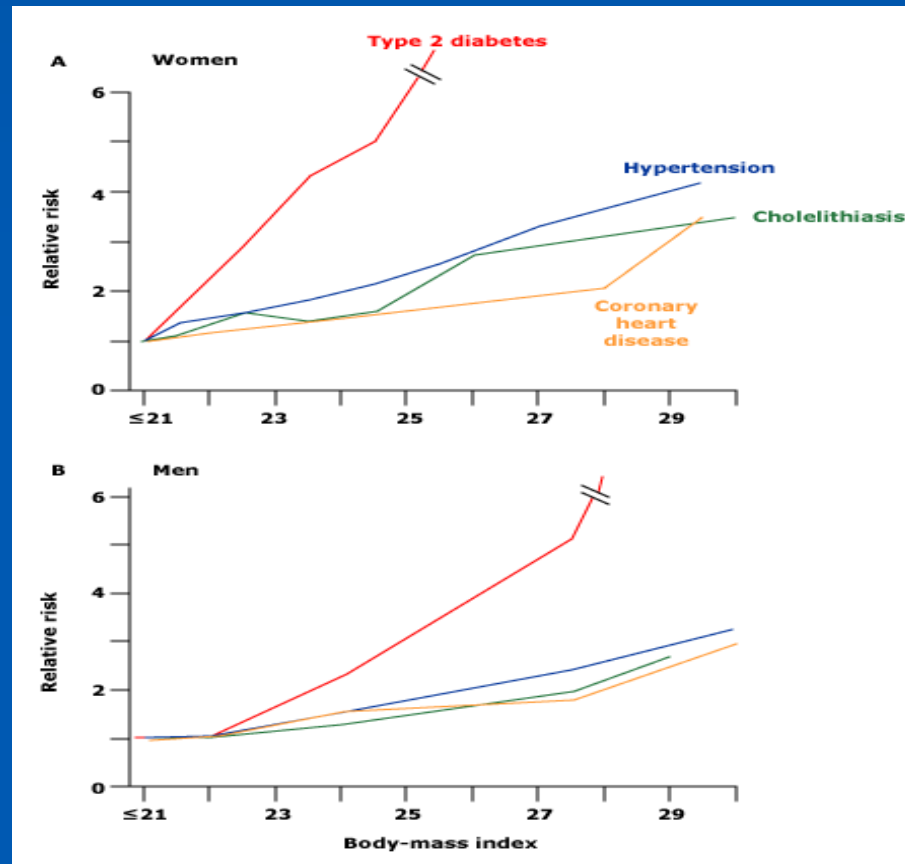
Exercise decreases chance of developing diabetes
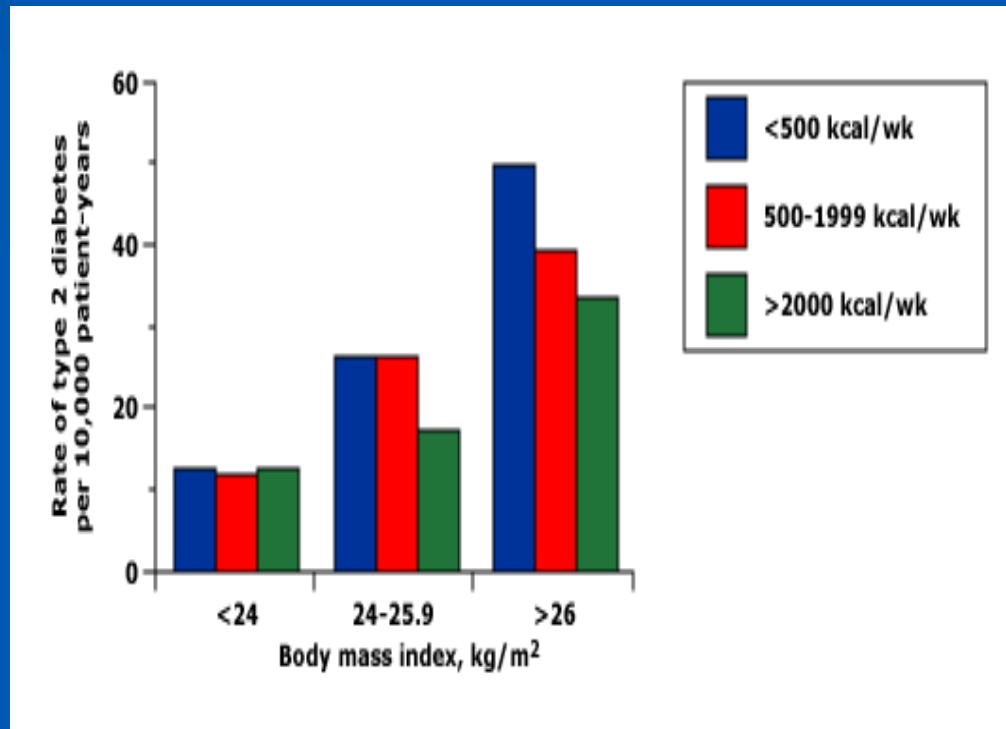
Effects of weight loss and lifestyle changes

- The Diabetes Prevention Trial (DPT)- has some of the best data on the effects of lifestyle change
- 3234 obese individuals (avg. BMI 34)

  randomized to

  1. Intensive lifestyle change (low fat diet aimed at 7% loss of body weight and exercise 150 min. a week or

  2. Metformin 850 mg Bid + info diet and exercise or

  3. placebo + info on diet and exercise

The study was stopped when it became clear that Lifestyle changes clearly out performed Metformin

❖ The diet and exercise group lost an average of 15 lb in one year and maintained the loss for the duration of follow up –3 years a 7% change in body weight

❖ The risk of diabetes was 14% in the lifestyle group, 22% in the metformin group and 29% in the placebo group.

Diet Therapy

- Rough estimate of caloric needs to maintain body weight can be determined as follows :

- Men, active women — 15 kcal/lb

- Most women, sedentary men, and adults over 55 years — 13 kcal/lb

- Sedentary women, obese adults — 10 kcal/lb

In the Male Health Professionals Trial, of 42000 men,
– a western diet (characterized by high consumption of red meat, processed meat, high fat dairy products, sweets, and desserts) was associated with an increased risk of diabetes independent of BMI, physical activity, age, or family history (RR 1.6, 95% CI 1.3–1.9).
The risk was markedly increased (RR 11.2) among subjects who ate a western diet and were obese (BMI ≥30 kg/m2 versus <25 kg m2).

In contrast, men who ate a diet characterized by higher consumption of vegetables, fruit, fish, poultry, and whole grains had a modest reduction in risk of developing diabetes (RR 0.8, 95% CI 0.7–1.0).

Causes of Type 2 diabetes

- When the pancreas produces too little insulin.

- When the body does not respond appropriately to insulin, a condition called "insulin resistance."

Progression of type 2 diabetes

Adapted from Type 2 Diabetes BASICS, ©2000 International Diabetes Center, Minneapolis, MN.
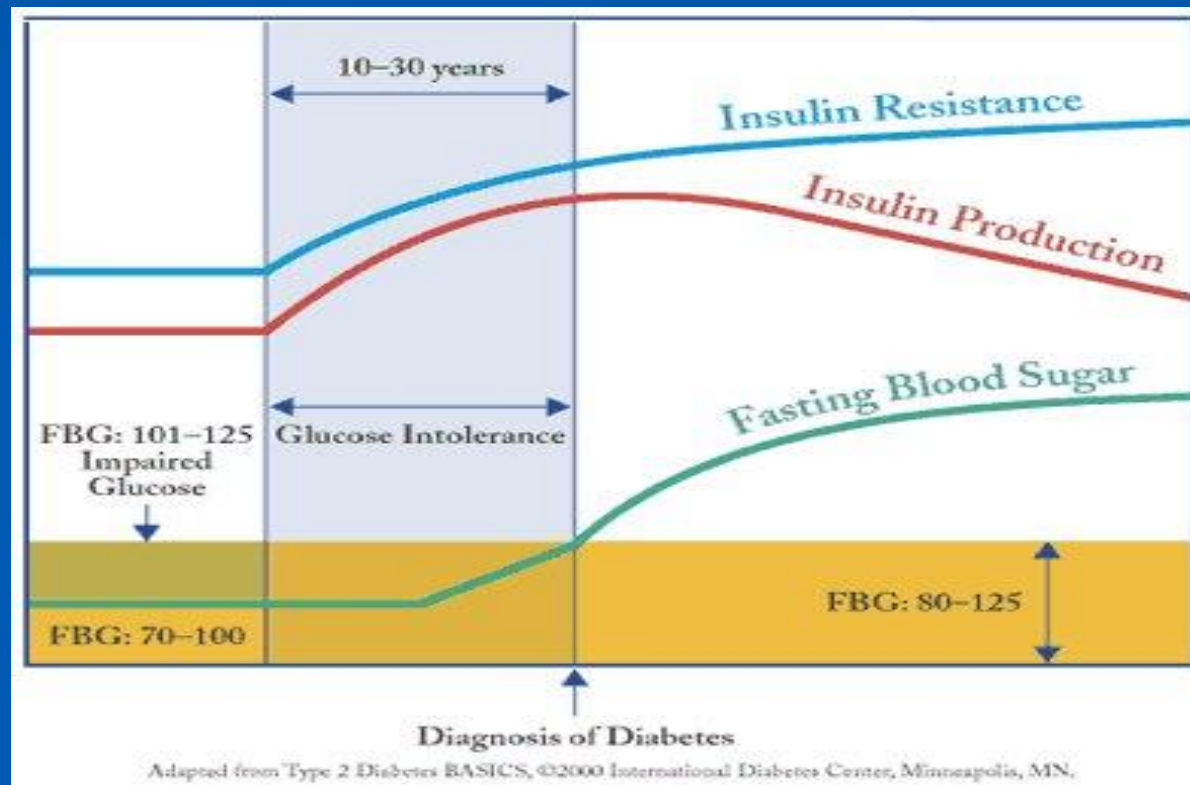
Treatment options

Our treatment options then are aimed at the 2 causes of Type 2 diabetes

1. Insufficient insulin production

2. Insulin Resistance

Many patients are treated with a combination or medications that work on both causes.

Lifestyle changes

1. Weight loss of 5-10% of body weight causes a significant decrease in insulin resistance.

2. Decreasing insulin resistance decreases the demand for insulin for the pancreas, therefore improving glucose control

Medications that stimulate production of insulin

- Sulphonylureas – glyburide, glipizide, and glimiperide these medication have been used for many years and are effective for many patients
- Meglitinides- repaglinide (Prandin) and nateglinide (Starlix), - these are shorter acting and have less risk of hypoglycemia, often used in patients whose kidneys are not working well.
- Sitagliptin- (Januvia) Newer medication that also can be used in patients that had kidney problems and does cause weight gain
- Exenatide- (Byetta) which is given by injection, is associated with decreased food intake and is associated with modest weight loss.

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Medications for insulin resistance

- Metformin – glucophage, this is a common first medication but it can be associated with upset stomach and diarrhea and cannot be used in patients with severe kidney problems, it is not associated with weight gain.

- Thiazolidiones- pioglitazone and rosiglitazone these medication cause increase glucose uptake in muscles and other cells in the body.

  Can not be used with significant heart disease. Sometimes cause swelling in the feet, and are often associated with weight gain.

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Progression of type 2 diabetes
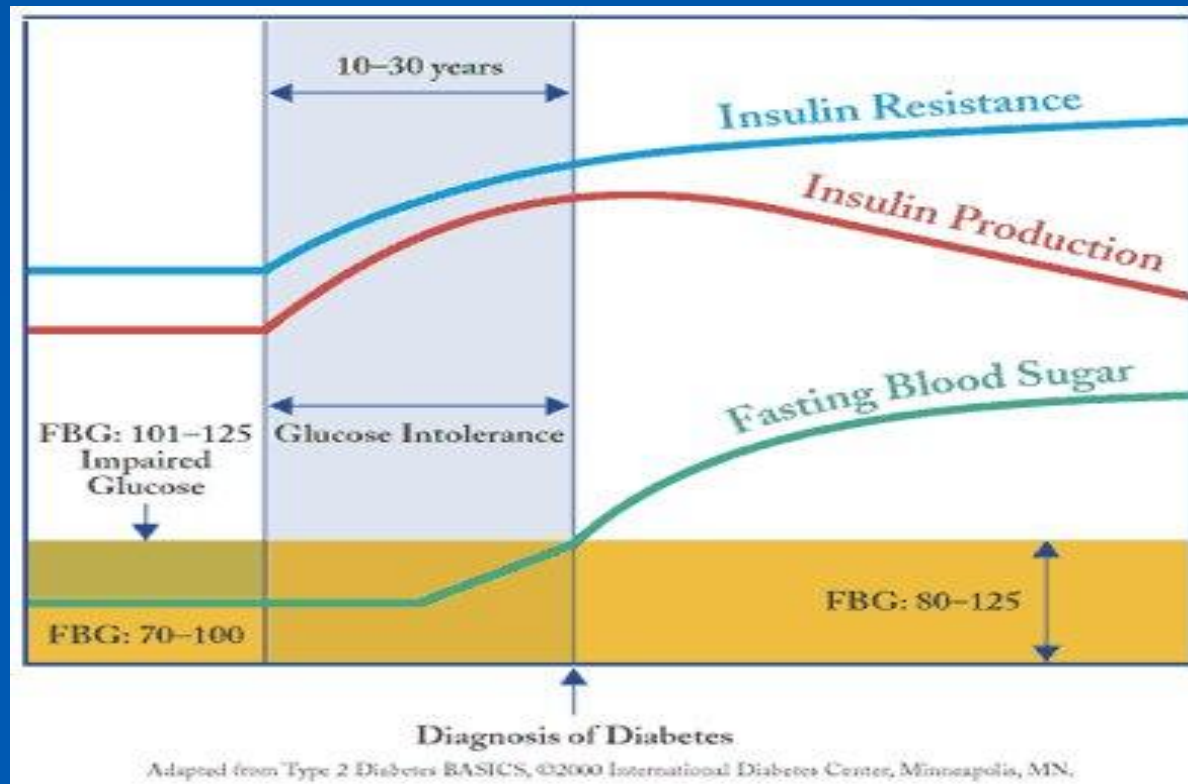
Insulin

- Insulin is a tool to manage Diabetes, just like the other medications.

- The important point is too use the tools you need to control your blood sugar.

- Diabetes is a progressive disease and insulin is not a punishment for not doing well. If your pancreas doesn't/can't make enough insulin then you need to take insulin.

- Most people feel much better when they start on insulin because there symptoms are controlled.

Types of insulins

- There are multiple types of insulins, long acting insulin, intermediate acting and short acting insulin. You and your doctor will come up with the best regimen for you.

Goals of treatment

- **Control High Blood Sugar**
- **Prevent complications**
  - o Heart disease and stroke
  - o Retinopathy - Blindness
  - o Nephropathy- kidney failure
  - o Neuropathy – problems with nerves in different
      parts of the body
  - o Amputation
- **Control other conditions that contribute to diabetes and the above conditions**
  - o Hypertension
  - o Hyperlipidemia

Goals cont.

- **Average Glucose** - Get an estimated Average Glucose (eAG) or an **A1C** test every 3- 6 months, which measures how well you are managing your diabetes over time. It is important to keep your eAG less than 154 mg/dl or A1C less than 7% or lower

- **Blood Pressure** – Keep your blood pressure less than **130/80** mmHg.

- **Cholesterol** – Managing your cholesterol is important. LDL (bad) cholesterol should be below 100 mg/dl; HDL (healthy) cholesterol should be above 40 mg/dl for men and 50 mg/dl for women; triglycerides should be below 150 mg/dl.

Goals cont.

- Visit the eye doctor at least once every year.
- Have a urine microalbumin/cr ratio test every year to be sure your kidneys are doing okay
- Have a foot exam at every visit to the doctor and see the podiatrist regularly if your feet begin to have problems.

You only have one you.

Take the time to take care of yourself!

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