



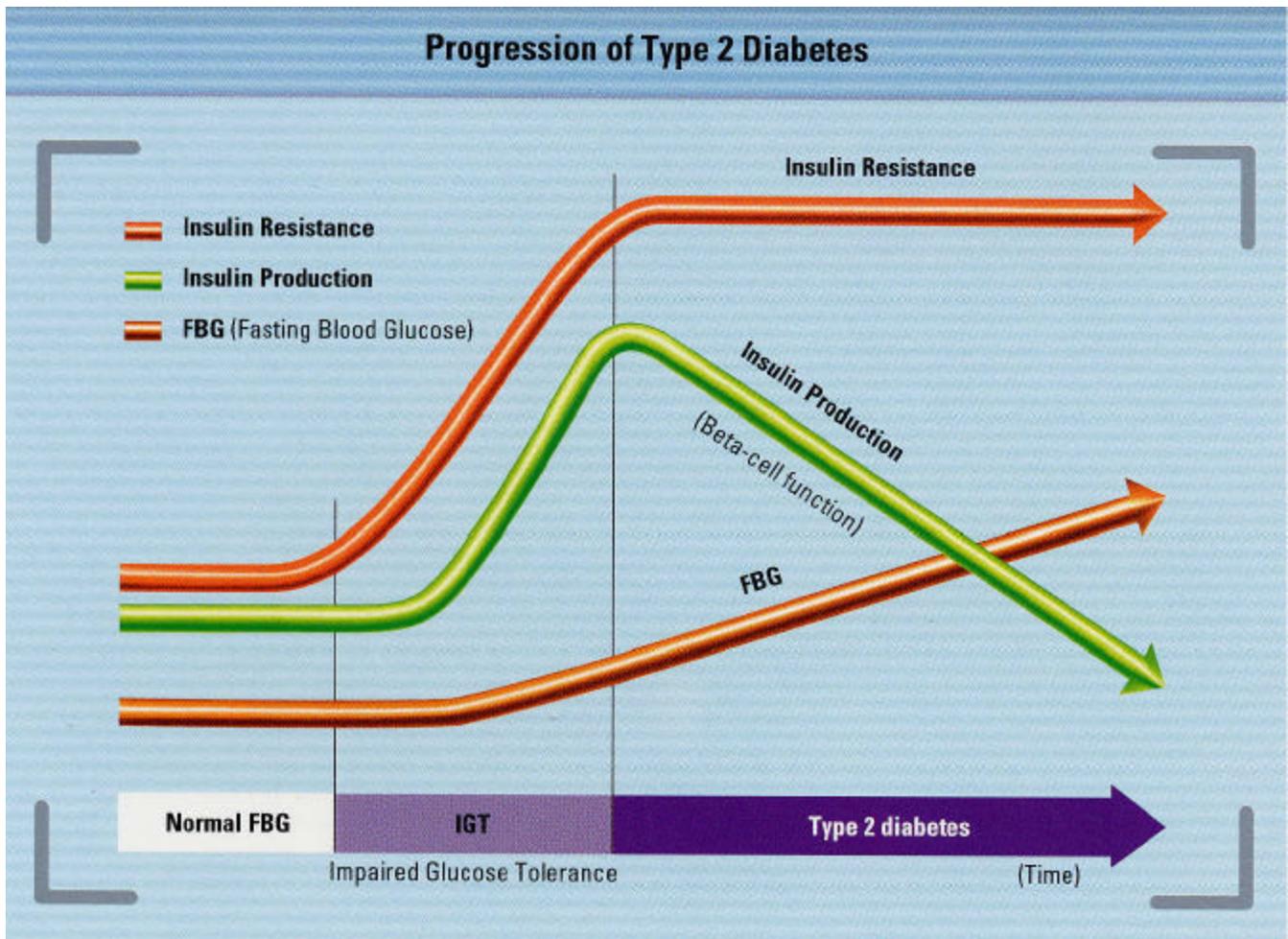
# Diabetes Education

Diabetes is growing by epidemic proportions in the U.S.. Ideal treatment requires that you understand the mechanisms involved in developing it and the choices for treating it. Risk factors for the development of diabetes include: family history, ethnicity, your age, being overweight or obese ([check your BMI](#)), and having elevated triglycerides on your lipid profile. The ideal situation if you have these risk factors is to treat them aggressively and prevent or at least prolong the development of full blown diabetes.

The problem with risk factors as you look at the graph below is that the process of insulin resistance due to overweight or obesity and the body's abnormal ability to properly metabolize sugars causes increased insulin secretion. Insulin is a growth hormone and fuels the fire of weight gain and is theorized to fuel the fire of abnormal changes to the walls of the blood vessels leading to the early development of heart attacks, etc. It is also felt that the excess in insulin underlies the damage to the nerves, kidneys, eyes, and other organs. This explains why once diabetes can be officially diagnosed clinically many people already have the beginnings of heart, kidney, eye, and other organ system damage. We often wondered why seemingly "healthy" people had heart attacks at an early age, and this mechanism explains this nicely - insensible damage to the body is occurring for 10-15 years before clinically detectable disease can be diagnosed!

[See our Diabetes Article for more information.](#)

**Insulin Resistance**



## Diabetic Medication Action

So how do we treat insulin resistance? The answer is best found in prevention -

1) **lose weight** to get to your ideal body weight to decrease insulin resistance.  
 2) **Exercise** regularly to improve your body's metabolism to decrease insulin resistance.  
 3) **Eat a heart healthy or mediterranean diet** that decreases insulin resistance.  
 4) Lastly, if you have the pre-diabetic risk factors of:

- A family history of diabetes.
- You're overweight - a BMI over 25 - **check your BMI now**.
- Your cholesterol levels, especially your triglycerides, are abnormal.

**Then you should strongly consider use of insulin sensitizing medications** BEFORE you are officially labeled a diabetic - why wait that long and let the disease process continue to damage your body internally? This last idea is theoretical, but it makes sense physiologically, and research is underway - the theory is if we decrease insulin resistance we not only "spare" the pancreas and insulin production and delay the development of outright diabetes, but we

prevent the outpouring of ever higher doses of insulin from the pancreas and prevent the target organ damage we have already discussed.

<b>Action of DM-2 Therapies</b>	Reduces Insulin Resistance	Increases Insulin Levels	Decreases Liver Glucose Out
Diet and Exercise	<b>X</b>		
Glitizones (Actos/Avandia)	<b>X</b>		
Biguanides (metfomin)			<b>X</b>
Sulfonylureas (glyburide, etc.)		<b>X</b>	
Insulin Injections		<b>X</b>	