Diabetes Condensed Version

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Estimated in 2005, 7% of the population has diabetes
Type 1: Insulin dependent
Type 2: Adult onset; prevented by diet and decrease in inflammation situations and oxidative stress

- Mechanism- sugar in the blood stimulates secretion of insulin from the pancreas. Insulin binds to receptors on the membrane triggering an intercellular communication. The Insulin signal on the membrane stimulates production of Glut-4 molecules which surface to the membrane of the cell and provide transport for sugar into the cells to be utilized for production of energy by the mitochondria.
- Insulin's ability to bind to the receptor is **depended upon Vitamin D, chromium, vanadium, magnesium, alpha lipoic, acid Omega 3(EPA-DHEA).** When it binds and brings the sugars into the cells, the cells signal the pancreas to shut off insulin production.
- When this mechanism doesn't work there is an increase in insulin which increases inflammatory processes. ** Insulin increases free radicals these damage the cell wall of blood vessels the **WBC'S-(Foam Cells)** attack and inflame the walls. Scar tissue forms and cholesterol attaches.
- **Omega 3** improves the ability for the transport of products through the cell.
- **I**nsulin signals can be affected by inflammatory mediators
- High glycemic index foods/meals initiates period of high blood glucose in insulin levels
- ****** Need a diet- high protein, good fats and low in carbohydrates along with reducing the oxidative stress and exercise**
- ** 60 percent improvement of insulin sensitivity with use of **Vitamin D** on a regular basis. Recommended dosage of Vitamin D is between 5,000-10,000 IU
- Each cell is affected with just one pound overweight. Increasing Leptin resistance which then they become insulin resistance creating a diabetic.

Sugar is also the major player in increasing free radicals. The sugar actually creates greater free radicals, which damages the lining of the blood vessels. Then the oxidized cholesterol attaches to the cell wall, which thickens and scars it causing angina and claudication in the legs.

- There is a surprising link between inflammation and heart attacks, cancer, and Alzheimer's
- Diabetes decreases the nitric oxide (vasodilator-keeping your blood vessels open for better flow) and shuts down the mitochondria in the cells leading to fatigue.
- On average American's consume 139 pounds of sugar a year, after a while the body ignores the constant signals of the insulin and does not realize it is on, so the pancreas keeps producing more insulin which is when a person becomes diabetic.

Eat meals 6x a day versus 3, reason being that if you eat 2-3 big meals a day your insulin levels spike. Insulin increases triglyceride and cholesterol storage, so you will gain weight. By eating 6 smaller meals a day your insulin doesn't spike and this event won't occur. Using chromium will also regulate insulin levels

Blood Sugar

- Glucagon in the opposite of insulin which they give you to reduce your insulin.
- The best diet would be high in protein with some good fats along with fruits and vegetables.
- The heart derives most of its energy from fat.
- **Statin drugs** inhibit cholinesterase an enzyme that is used to make steroidal hormones such as testosterone. Therefore, a man on statin drugs will also have a decrease in testosterone production which ends up leading to and **erectile dysfunction** which has increased the selling of Viagra and Cialis.
- The problem with carbohydrates (breads) is that they release a hormone called serotonin which is a "feeling good" hormone in the brain so it makes you want more of it.

Insulin

- Insulin is an anabolic hormone which is for growth. In our bodies we want an anabolic and catabolic relationship in order to have a normal metabolism. Insulin has a potent up-regulating effect on muscle protein synthesis when adequate amino acids are available.
- Most effected by blood sugar.
- You need to have insulin but you need to use it to your advantage.
- *** You can take drugs to give you insulin but there is no drug that would make your insulin decrease. That can only be done by diet.
- *** You want cells to be insulin sensitive as the insulin will bind to the sugar and put it in the cells thus shutting the pancreas off which decreases pancreatic stress.
- *** Increased inflammation also decreases insulin sensitivity which leads to increased insulin levels and later diabetes and other health conditions.
- Insulin spikes with high carbohydrates and low protein.

- **** **Keep Insulin Sensitivity High**: Omega-3 fatty acids, vitamin D, keeping lower body fat (BMI), avoiding processed refined carbohydrates and sugars, eating regular meals 5-6 times a day including protein, good fats, vegetables, nuts and some fruit.
- Vitamin D has a great importance with insulin sensitivity.
- 60 percent improvement of insulin sensitivity with use of Vitamin D on a regular basis. A recommended dosage of Vitamin D is between 5,000-10,000 IU's.

Type 2 diabetes increases the risk for hypertension and heart attack

- Nutritional support would consist of: **green tea to increase glucose metabolism.**
- **Cinnamon** which stimulates glucose uptake and glycogen synthesis, it also reduces glucose, triglyceride, LDL, cholesterol, and diabetes
- **Alpha lipoic acid** which stimulates glucose transport, and vitamin/mineral blend to promote healthy blood sugar levels. It improves insulin receptors sensitivity and increase glucose metabolism in mitochondria.
- **Green Tea**:-is an antioxidant which regulates appetite, stimulates respiration and energy expenditure, and is fat burning.
- **Chromium** stimulates glucose uptake, enhances cell membrane fluidity, and reduces oxidative stress (p. 72- 73)
- **Vanadium i**s used in Type 1 diabetes which regulates uptake reciprocals

- **Linoleic Acid**- supports glucose and fat metabolism, improves insulin sensitivity, and also reduces fat reduction in the abdomen and legs

- Most diets contain less than 80 percent of the RDI for calcium, magnesium, iron, zinc, copper, and all the essential vitamins. Most people cannot consume optimum amounts of vitamins from diet alone
- Diabetes will increase the risk of aging by 15 years.
- When a person is obese, they become insulin resistant. This decreases mitochondrial DNA which produces 95% of the cells energy also decreasing metabolic rate. C-reactive protein increases which causes inflammation, so it is vital to keep your mitochondria healthy.

- Diabetes is affecting our children at the highest rate.
- Insulin reduction doubles longevity.
- Being insulin resistant decreases your HDL (which rids the body of cholesterol) and increases LDL/VLDL which stores fat.
- Diabetics: The disease expresses itself in different regions. If it's in the eyes, a person will go blind. If it's in the legs, the person will lose circulation and lose a limb. An overweight person is hypertensive which compresses the kidneys and makes profusion more difficult. Research shows that excess sugars are more damaging than excess fat.
- Increase in sugar causes an increase in insulin, which increases fat in our bodies.
- It is actually the sugar that is pathological to the blood vessels. It traps oxidized cholesterol, which leads to arthrosclerosis.