

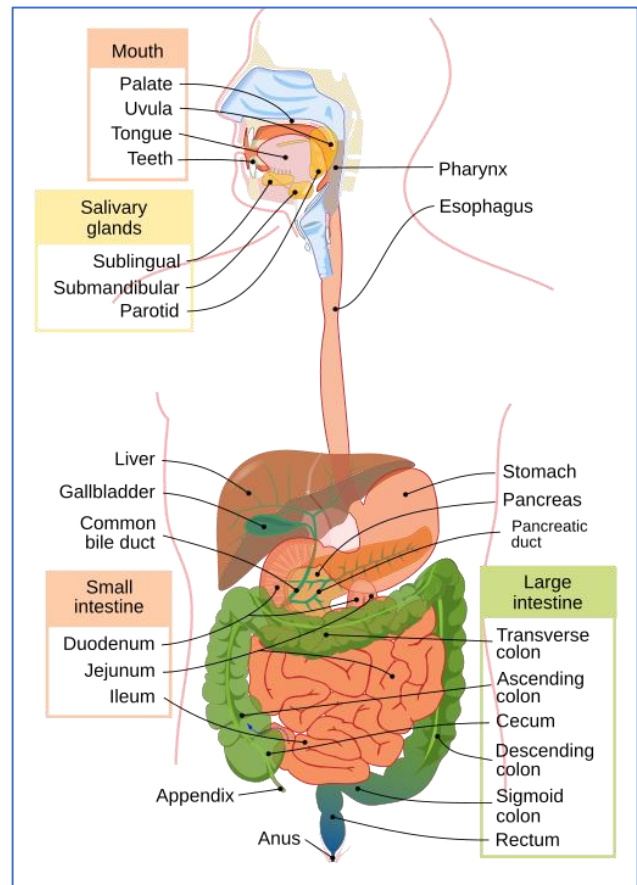
October 14, 2024



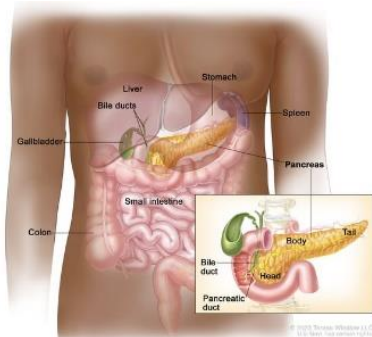
Apple, Balsam Pear Fruit, Fenugreek Seed, Common Siberian Ginseng Root, Gumar Leaf, Lychee Fruit, Malabar Tamarind Fruit, Apple Flavoring

1. Our bodies rely on energy produced by the food we eat to fuel our bodies. In simple terms, would you please explain how the body uses the food we eat to produce energy.

- Providing fuel for the body requires extracting nutrients from our foods during the digestive process. This involves:
 - Salivary enzymes to break down foods during chewing or mastication.
 - Swallowing allows the peristaltic action of the esophagus to push the food mass down to reach the stomach.
 - The stomach secretes hydrochloric acid to further reduce the food bolus to smaller molecular substances during digestion.
 - The mouth, stomach, and the small intestine reduce animal proteins to peptides, then eventually, amino acids that are then released into the blood stream.
 - Starchy, complex carbohydrates are reduced to progressively simpler sugars down to the most basic sugar molecule, glucose (blood sugar).



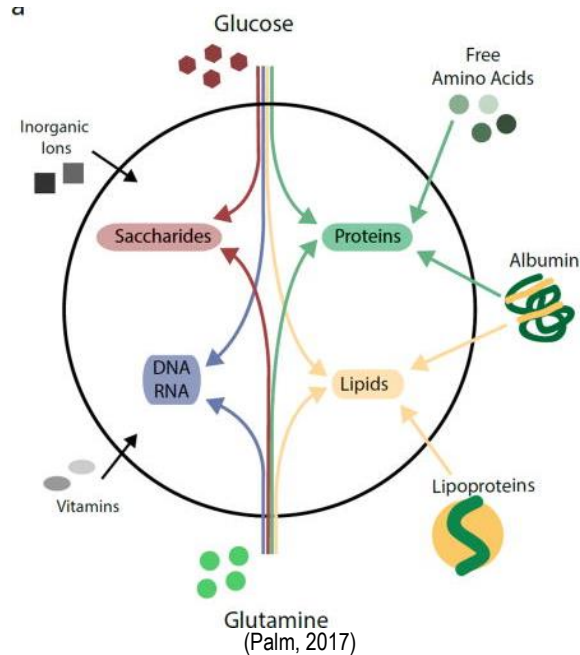
Glucose reaches the blood stream, the pancreas releases the hormone insulin to take up glucose into the cells for fuel. Excess glucose is stored in the muscles, liver, and is converted to fat, stored in fat cell deposits under the skin and around organs.



When blood sugar levels fall (skipping meals, fasting, starvation dieting), the pancreas releases the hormone glucagon, stimulating the liver to convert glycogen (a complex carbohydrate) into glucose (the fundamental blood sugar) via the process of glycogenolysis.

The liver can produce glucose that is moved into cells for energy via insulin secretions from the pancreas.

Blood sugar is therefore kept in balance through the actions of insulin (preventing hyperglycemia) and glucagon (preventing hypoglycemia) throughout the day.



- Dietary fats (both animal and plant oils) are reduced to fatty acids when processed through pancreatic and liver enzymes. The liver produces bile, which helps absorb fats, and is stored in the gallbladder until fatty acids are needed.

Fat deposits are the body's energy reserves that are tapped into during various metabolic processes and through exercise, especially aerobic or sustained (fat-burning) exercise actions.

- Only through reducing food molecules to the above most basic nutrient substances through proper and complete digestion can those nutrients enter the cells for producing energy, cellular repair, growth and regeneration.
 - All processes of digestion require the presence of vitamins, minerals, active enzymes, and the phytonutrients or phytochemicals from whole, energy-active, viable, whole, unprocessed foods.
 - It is important to maintain a proper protein intake in order for the body to produce the enzymes needed for digestion, and all metabolic cellular processes.

2. There is a new best seller by Calley Means called Good Energy. It is a deep dive into metabolism, cellular health and longevity. She spends a lot of time talking about blood sugar and the dangers of poor metabolism. Now that we know how the body uses food for fuel, would you briefly explain what happens when the body does not get proper nutrition?

- Chronic nutrient deficiencies lead to:
 - Causing any kind of cellular metabolic processes to come to a halt.
 - Protein deficiencies (missing amino acids) that force the body to break down the body's protein tissues of less vital systems (muscle tissue, connective tissue, cartilage, bone tissue) in order to meet the energy needs of the vital systems (the brain, heart, lungs, kidneys, liver).

Protein or amino acid deficiencies result in what is known as a negative nitrogen balance.
 - Chronic fatigue, as the body is forced to break its own protein tissues down to glucose for basic cellular fuel (catabolism), creating a further nutrient/calorie/energy deficit.
- Nutritional deficiencies occur from eating highly refined or processed foods (instead of whole, nutrient-rich foods), which:
 - Have been stripped of their original nutrient complexes through heat, chemical molecular denaturation or molecular distortions that can cause cell damage.
 - Contain heat-altered fats known to cause atherosclerosis or hardened plaque accumulations in the arteries, obstructing circulation; destroy cell structures, and impair hormone production and create glandular malfunctions.
 - Contain highly refined, nutrient-stripped, fiber-less carbohydrates (white flour, white rice, sucrose or white sugar) that:
 - Increase illness-causing microorganisms in the gut or colon, impairing communications to the brain and glands that produce the hormones that affect mood, learning, thinking and cognition.
 - Damage the stomach lining microvilli and its cells' ability to secrete critical digestive acids and enzymes, impairing digestion.
 - Deprive the body of critical fiber, food enzymes, vitamins, minerals, phytonutrient chemical compounds and chemically pure water—all required for maintaining proper blood sugar levels and functioning organs (pancreas, liver and all other organs).
 - Results in obesity and associated health problems known as metabolic syndrome known to be associated with cancer, heart disease, diabetes, arthritis, and other inflammatory conditions in various organs.
 - Create a high-acidic environment (lowered pH) in the body, leading to inflammatory reactions via the production of stress biochemicals, leading to various degenerative, inflammatory physical conditions.
 - Leads to chronic dehydration, toxicity, higher likelihood of various system malfunctions.
 - Leads to lowered brain capacity, moods, perceptions and cognition. energy levels, and lack of motivation.

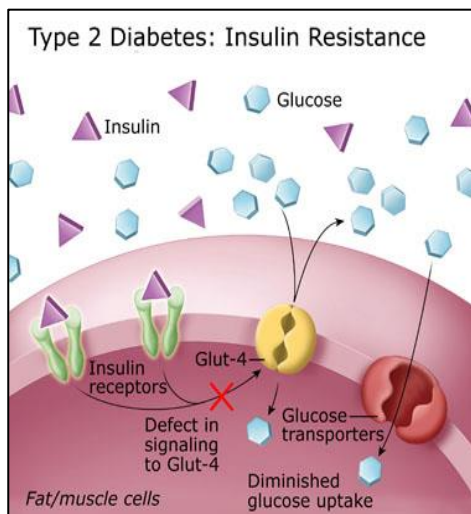
- Makes one more prone to injury and slowed or prolonged healing.
- Accelerates aging.

3. To build on what we have learned about energy and the dangers of eating highly processed foods, too much sugar, etc., please explain the difference between insulin resistance, pre-diabetes and diabetes.

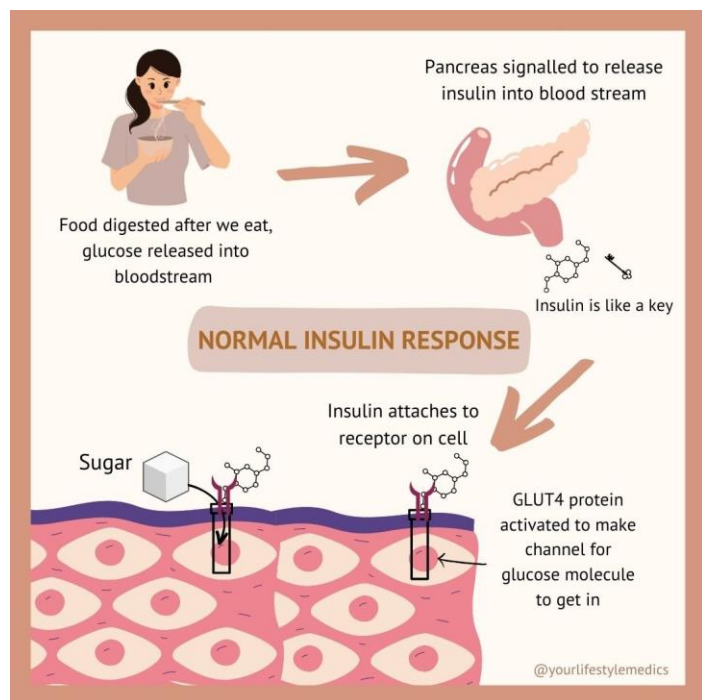
Insulin resistance

- Occurs in type 2 diabetes
- Occurs when the insulin receptors at cell membrane sites do not respond to the hormone insulin, which normally stimulates the process of glucose entry into the cells.
- Glucose or blood sugar levels rise in spite of the pancreas increasing its production and secretion of insulin into the blood stream in the attempt to activate the uptake of glucose into the cells.
- **Glucose absorption into the cells is resisted due to the specific proteins that identify insulin at the cell membranes remaining locked, not allowing enough glucose to enter the cells.**
 - The GLUT4 insulin-regulated glucose transporter responsible for insulin-regulated glucose uptake into fat and muscle cells, becomes **down regulated** or blocked from taking up glucose molecules into the cells.
 - **Complete cellular nourishment and regular exercise is a key factor to help unlock this mechanism or upregulate this process.**
 - *Physical activity is a dominant activator for the utilization of glucose for muscular power and energy production in the cells (Joslin, 2018).*

(Gilbert, 2024)



Sigma Nutrition



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Pre-diabetes

- Measured by a fasting blood sugar level.
- A measurement of 99 mg/dL or lower is normal, where insulin is able to normally uptake excess blood sugar out of the bloodstream and into the body's cells and tissues.
- A post-fasting blood sugar level of 100 to 125 mg/dL indicates a *certain amount* of insulin resistance or the inability to remove excess blood sugar.
- A post-fasting blood sugar level of 126 mg/dL or higher indicates a diabetes condition (Pai, 2019).

Diabetes, Type I (Diabetes mellitus)

- Occurs when the body's pancreas is unable to produce insulin, the hormone that helps uptake blood sugar or glucose out of the blood stream and into the body's cells, which is the basic fuel for powering all metabolic processes in those cells.
- Too much glucose in the blood stream or hyperglycemia can lead to circulatory problems that affect the heart, kidneys, nervous system, teeth and gums, and eyesight.
- In this type of diabetes, an individual must take in insulin their whole lives (Cleveland, 2018).

Diabetes, Type II

- Known as adult onset diabetes, it is the more common form of diabetes.
- A person can have type II diabetes and not know it.
- Over time, insulin production increases as the body attempts to remove the high blood glucose levels out of the blood stream and deliver the glucose into the cells.
- Eventually, the pancreas is unable to keep up its insulin production and is therefore unable to maintain safe and normal ranges of blood glucose (American, 1995-2018).

(Gilbert, 2024)

4. That brings us to the power of NRM! Please give a quick rundown of NRM and how this amazing drop supports healthy blood sugar.

Systems Facilitated	Phytonutrients
Glucose, Carbohydrate Metabolism, Aid Insulin Functions	Alkaloids, phenolics, triterpenes, saponins, monosaccharides, aglycone.
Assists Insulin Production	Gymnemic acid.
Antihyperlipidemic, Fat, Cholesterol Metabolism	Tannins, pectin, organic acids malic, tartaric, citric, chlorogenic, salicylic, arabic, boric, ascorbic.
Cell Protective Antioxidants, Anti-inflammatory	Polyphenols, phenolic acids, flavonoids, isoflavones, terpenes, anthraquinones, genistein, glucosinolates, quercetin, apigenin.
Energy Efficiency, Anti-fatigue	Eleutherosides, lignans, coumarins, phenylpropanoids.

(Gilbert, 2024)

5. Who should use NRM?

- A. I have seen information that over 85% of Americans and Canadians have some form of insulin resistance but do not know it, how will NRM support their metabolism? **See the chart in item 4, and the chart below.**
- B. Pre-Diabetes and Diabetes- how will NRM support folks that have been diagnosed with either of these? Any suggestions for use? **See Item 5.**

5. We are going into the sweetest time of the year starting with Halloween. How can NRM help support the average person through Halloween, Thanksgiving, Christmas and New Years with this product?

- Maintain steady blood sugar levels via balancing the energy macronutrients: animal-derived protein, whole food carbohydrates and whole food fats.
- Maintain a balanced diet that aids in sugar and fats metabolism:
 - Whole food phytonutrients, vitamins and minerals: raw fresh enzyme-active fruits, all berries, vegetables, leafy super greens, fresh herbs, raw whole nuts and seeds high in omega 3 fatty acids (always refrigerate omega 3 foods in airtight containers), 100% whole grain products, root vegetables.
- Revisit question number 4.
- See the NRM chart below.

NRM – Nutrient Factors and Health Attributes

Glucose, Carbohydrate Metabolism, Aid Insulin Functions		Found In
Alkaloids	Anti-obesity, help prevent nerve cell degradation. Help lower excess blood glucose.	Molasses, Fenugreek Seed, Balsam Pear Fruit.
Phenolics	Help improve or reduce insulin resistance.	Balsam pear fruit, Siberian Ginseng Root, Molasses
Triterpenes	Prevent the development of insulin resistance and other complications. Help lower blood triglycerides, anti-obesity.	Siberian Ginseng Root, Balsam Pear Fruit
Saponins	Aid in suppressing glucose absorption when needed. Help control sweets cravings. Help regenerate pancreas functioning. Help reduce blood cholesterol and triglycerides when ingesting high concentrations of sugar. Help control blood sugar levels. Improve pancreatic function. Increase insulin receptors in red blood cells (erythrocytes). Improve glucose utilization or fueling of cells in various body systems.	Gumar Leaf, Fenugreek Seed, Molasses
Monosaccharides	Provide strong antioxidant actions. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5622752/	Lychee Fruit
Aglycone	Aids sugar metabolism.	Gumar Leaf
Proanthocyanidins, Oligonol	Involved in gluco-lipototoxicity (sugar-fat metabolic) oxidative stress and inflammation. Help lower cholesterol, promote weight loss (Gilbert, 2024). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5622752/ https://pubmed.ncbi.nlm.nih.gov/26724817/	Lychee Fruit
Assists Insulin Production		Found In
Gymnemic acid.	Assists in insulin production in cells of the pancreas.	Gumar Leaf
Antihyperlipidemic, Fat, Cholesterol Metabolism		Found In
Tannins	Protect against free radical oxidative (cell-damaging) actions. Lower serum lipid levels. Inhibit the production of anaerobic (oxygen-lacking) free radicals.	Apple, Balsam Pear Fruit, Molasses
Pectin	Controls cholesterol levels in blood and liver.	Apple
Eleutherosides	Improve conversion of carbohydrates and fats to energy. Help regulate blood glucose and cholesterol levels.	Siberian Ginseng Root
Organic, Inorganic Acids		Found In
Malic		Apple
Tartaric		Apple, Molasses
Citric, Hydroxycitric acid	Helps reduce visceral (abdominal) and subcutaneous fat. Reduces the formation of fatty acids and cholesterol. Prevents conversion of carbohydrates to body fat (lipogenic brake).	Malabar Tamarind Fruit
Chlorogenic	Antioxidant (protects against free radical oxidative or cell-damaging actions, including ultraviolet radiation), bacteriostatic (halting of growth and reproduction) and bactericidal, inhibits the body's excess production of uric acid that leads to arthritic conditions, lipid-lowering properties.	Apple
Salicylic	Anti-inflammatory.	Apple
Arabic	Help lubricate eye fluids and synovial joint fluids,	Apple
Boric	Converted in the gastrointestinal tract from the essential mineral boron; it is the main form of boron present in	Apple

	blood, urine, and other body fluids, involved in bone, hair, skin, nail health.	
Ascorbic	Required for growth and repair of all tissues, wound healing, antioxidant, helps reduce risk of degeneration of macula of the eyes. Aids in production of blood cells.	Apple, Lychee Fruit
Cell Protective Antioxidants, Anti-inflammatory		Found In
Polyphenols	Help improve or reduce insulin resistance.	Balsam pear fruit, Siberian Ginseng Root
Phenolic acids	Help improve or reduce insulin resistance.	Balsam pear fruit, Siberian Ginseng Root
Flavonoids	Anti-diabetic effects.	Balsam pear fruit, Siberian Ginseng Root
Isoflavones	Anti-diabetic effects.	Balsam pear fruit
Terpenes, Terpenoids	Anti-diabetic effects. Help maintain proper blood glucose levels.	Balsam pear fruit, Molasses
Anthraquinones	Anti-diabetic effects.	Balsam pear fruit
Genistein	Prevents oxidation that results in cell damage. Improve conversion of carbohydrates to energy. Help regulate blood glucose levels. Help control blood sugar levels. Improve pancreatic function. Increase insulin receptors in red blood cells (erythrocytes). Improve glucose utilization or fueling of cells in various body systems.	Siberian Ginseng Root, Fenugreek
Glucosinolates	Anti-diabetic effects.	Balsam pear fruit
Quercetin	Prevents oxidation that results in cell damage. Improve conversion of carbohydrates to energy. Help regulate blood glucose levels. Help control blood sugar levels. Improve pancreatic function. Increase insulin receptors in red blood cells (erythrocytes). Improve glucose utilization or fueling of cells in various body systems.	Siberian Ginseng Root, Fenugreek Seed
Apigenin	Prevents oxidation that results in cell damage. Improve conversion of carbohydrates to energy. Help regulate blood glucose levels. Help control blood sugar levels. Improve pancreatic function. Increase insulin receptors in red blood cells (erythrocytes). Improve glucose utilization or fueling of cells in various body systems.	Siberian Ginseng Root, Fenugreek
Rutin	Prevents oxidation that results in cell damage. Improve conversion of carbohydrates to energy. Help regulate blood glucose levels. Help control blood sugar levels. Improve pancreatic function. Increase insulin receptors in red blood cells (erythrocytes). Improve glucose utilization or fueling of cells in various body systems.	Siberian Ginseng Root, Fenugreek
Superoxide dismutase (SOD)	Prevents oxidation that results in cell damage.	Siberian Ginseng Root
Energy Efficiency, Anti-fatigue		Found In
Eleutherosides	Improve conversion of carbohydrates to energy. Help regulate blood glucose levels.	Siberian Ginseng Root
Lignans	Improve conversion of carbohydrates to energy. Help regulate blood glucose levels.	Siberian Ginseng Root
Coumarins	Improve conversion of carbohydrates to energy. Help regulate blood glucose levels. Help control blood sugar levels. Improve pancreatic function. Increase insulin receptors in red blood cells (erythrocytes). Improve glucose utilization or fueling of cells in various body systems.	Siberian Ginseng Root, Fenugreek Seed

Phenylpropanoids	Improve conversion of carbohydrates to energy. Help regulate blood glucose levels.	Siberian Ginseng Root
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(Gilbert, 2024)

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Resources:

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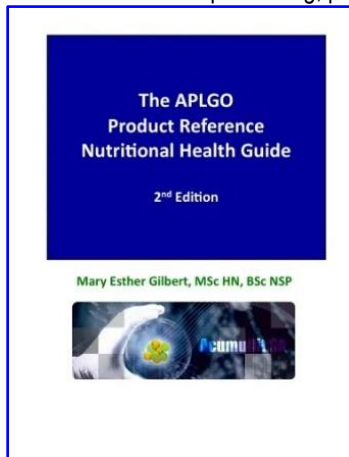
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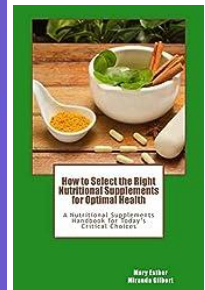
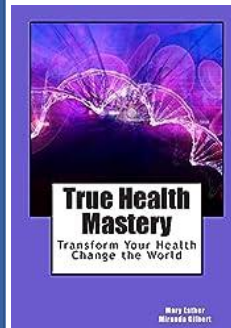
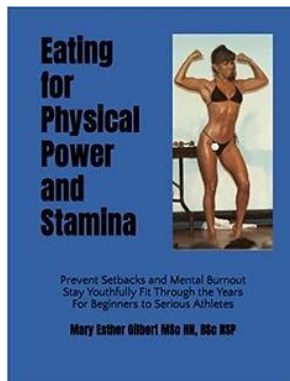
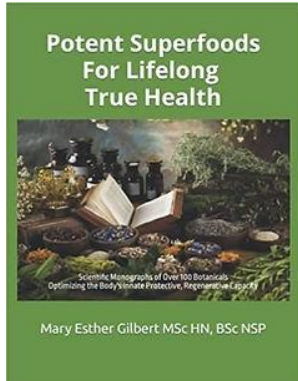
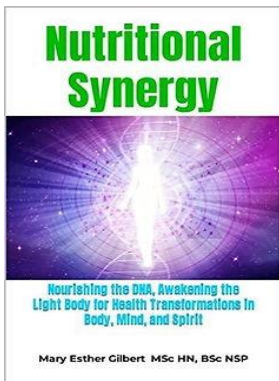
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