

**GLOSSARY**

<b>Glycans</b>	Sugars
<b>Glyco</b>	Greek for sweet
<b>Glycobiology</b>	The science studying sugar
<b>Glycocalyx</b>	The forest of sugar structures on the cell membrane
<b>Glycosylation</b>	The linking of individual sugars via enzymes to form more complicated chains of sugars
<b>Glyconutrients</b>	Sugar nutrients
<b>Genetically Modified Organism (GMO)</b>	Plant (or other living) matter that was altered from it's original form by inserting the genes of one species into the genetic material of another species
<b>Hybridization</b>	Crossbreeding two varieties of plants or animals to form a third
<b>Inorganic</b>	Not deriving from living matter (ex. rock)
<b>Synthetic</b>	Made by chemical synthesis to imitate a natural product (man-made)

**KEY**

**ALTERED FOOD**

53, 65, 99%, 94%, 88%

**WHAT'S NATURAL ABOUT BEING SYNTHETIC**

tar, 95%, black, vitamins, 46% and 26%, 400%, 5%, E, "ide," 5-7%

**GLYCOBIOLOGY**

glucose and galactose, 6, B, cell, humans, every, viruses, communication, nutrients, "letters," death, missing, communication, significant

# A Wellness Journey Study Guide

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**ALTERED FOOD**

It took 2 peaches in 1951 to meet the minimum RDA for vitamin A; it took \_\_\_\_\_ peaches in 1999 to meet the same level.

It took 1 cup of spinach in 1951 to meet the minimum RDA for iron; it took \_\_\_\_\_ cups in 1999 to meet the same level.

Dwarf and semi-dwarf wheat represent \_\_\_\_\_% of world-wide wheat production.

\_\_\_\_\_ % of soybean production in the U.S. is GMO.

\_\_\_\_\_ % of corn production in the U.S. is GMO.

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**WHAT'S NATURAL ABOUT BEING SYNTHETIC?**

Synthetic vitamins are man-made chemicals derived from petroleum or coal \_\_\_\_\_.

As of 2012, \_\_\_\_\_% of vitamins sold on the market contain synthetic vitamins.

What color do synthetic vitamins turn to when you bake them in the oven? \_\_\_\_\_

Natural vitamins come with other \_\_\_\_\_, minerals, enzymes, flavonoids, antioxidants, carotenoids, phytosterols, etc.

Synthetic vitamin A and synthetic beta-carotene increased the rate of death from lung cancer by \_\_\_\_\_% and death from cardiovascular disease \_\_\_\_\_%.

Synthetic vitamin A increased the number of birth defects by \_\_\_\_\_%.

Ascorbic acid is only \_\_\_\_\_% of the Vitamin C Complex molecule.

The natural form of vitamin \_\_\_\_\_ is d-alpha tocopherol and the synthetic form is dl-alpha tocopherol.

Inorganic minerals typically end with "ate" or "\_\_\_\_\_."

If you take 1200 mg of inorganic calcium supplements, only \_\_\_\_\_ is actually absorbed.

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## **GLYCOBIOLOGY**

The two sugars readily available in our modern diet are \_\_\_\_\_ and \_\_\_\_\_.

The other \_\_\_\_\_ critical sugars are gravely missing from our modern diet.

The only difference between type A and type \_\_\_\_\_ blood is the last terminal sugar (one sugar) which has the power over life and death.

Every living \_\_\_\_\_ on the planet is covered with a dense and complex array of glycans (sugars).

Every disease that affects \_\_\_\_\_ significantly involves glycans.

Glycans (sugars) play roles in almost \_\_\_\_\_ biological process.

Glycoprotein cell receptors are surface sugars that serve as points of attachments for cells, bacteria, \_\_\_\_\_, hormones, and many other molecules.

These glycans (sugars) interact with other cells for specific biologic functions including cell-to-cell \_\_\_\_\_ and immune system functions.

French scientists discovered that these sugars represent a new class of \_\_\_\_\_.

$1 \times 10^{14}$  chemically unique "\_\_\_\_\_ " are represented by these eight hexagonal, 3-dimensional sugars in the immune system's biologic, sugar coded alphabet.

Apoptosis is programmed cell \_\_\_\_\_.

When cells turn against the body (as in degenerative and autoimmune), research has shown that sugars are \_\_\_\_\_ from their cell surface sugar structures.

Since 2011, several published studies using glyconutrients in human trials show improvements in immune system, cognitive, memory concentration, attentiveness, mood, irritability, digestive and cellular \_\_\_\_\_ function.

Ingestion of glyconutrients induced statistically \_\_\_\_\_ changes in cell surface sugar structures with no adverse affects.