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Sugar and Nutrient Depletion

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Excess sugar in the diet results in larger than usual amounts of insulin release into small intestine. Then a surge of increased blood sugar results. The insulin takes glucose into cells and when no more can be taken up this way, the liver stores the excess as glycogen and creates fatty acids which are stored as lipids. Because there was an EXCESSIVE increase in the blood insulin level over normal there is further lowering of blood sugar levels than would normally occur so that the person then becomes hypoglycemic. Then the body is stressed from insufficient glucose for proper functioning (of the brain for example) and neurotransmitters cause the adrenal glands to produce stress hormones which promote glycolysis to convert glycogen to glucose. But then we have the downside of excess corticosteroid production on the other body systems. One of those effects is to slow down intestinal function and increase constipation. The increased refined sugar concentration in the food (without minerals and fiber) combined with the increased intestinal transit time results in overgrowth of harmful bacteria and yeast in the intestinal tract which take up valuable nutrients for themselves and can create toxins which can cause damage locally and then be absorbed into the body. This taxes the immune system whose cells have to utilize important minerals for functioning which diverts those minerals away from normal body metabolic reserves. A frightening aspect of chronic excessive sugar meals is that the pancreas learns to "expect" high sugar intake, thus when even a low sugar meal is eaten, the pancreas still overproduces insulin in response to the more normal carbohydrate food in the intestine, resulting in even a worse hypoglycemia and the cerebrum starts to shut down processes such as are involved with thought, learning, moral and social behavior.

The average body blood pH is 7.4. There is a narrow margin for normal pH range to maintain cellular health. For example, in cats, a pH of 7.12 is a severe metabolic acidosis. When there is a sudden blood sugar uptake after a high sugar meal, the blood becomes more acidic and forces the body to quickly dump alkalinizing substances into the bloodstream. The majority of the alkalinizing is done by taking calcium from tissues (largely bone and teeth) and other alkaline minerals from body tissues (such as potassium). We also find excess calcium and phosphorus excreted in the urine after excess sugar intake. Alkalinizing minerals are necessary for bone health and as cofactors for enzymatic metabolic cellular reactions. Pasteurized milk is acidic so this would not assist in providing calcium for alkalinization of the blood. A University of Rochester School of Medicine study found that a vitamin-mineral supplemented 300 cal liquid protein diet with high sugar content caused magnesium, calcium, potassium and phosphorus depletion in tissues of mice and the losses occurred mainly through the urine. In another study, after a sugar-loaded diet was fed, there was an increased chromium loss

in the urine by 300% over 24 hours. There was also increased loss of calcium and magnesium in the urine. High protein meals and sugar both increase blood acidity so it would be helpful to also eat dark leafy green veggies containing high alkaline mineral contents (organic) and fiber with those meals. Sulphur (mineral) and thiamine and biotin are involved in sugar metabolism. These nutrients are also needed for many other body functions which may suffer when these minerals are being utilized for excess sugar metabolism.

Excess sucrose (refined sugar) mobilizes sodium, potassium, magnesium and calcium for metabolism of the sugar and for storage or elimination. Sucrose is metabolized into glucose and fructose. Fructose is processed in liver to glucose but excess fructose is metabolized into triglycerides. Excess triglycerides can be incorporated into cell membranes and create insulin resistance.

Refined foods bind chromium and zinc so these minerals are less available for enzymatic metabolic reactions in body cells.

Vitamins are also depleted by excess sugar in a meal. Toxic sugar metabolites kill symbiotic bacteria which results in decreased bacterial formation of B vitamins. Less B vitamin enzymes are then available to the brain. This reduces the brains ability to breakdown glutamic acid into the normal compounds that regulate stop and go functions in the brain. So a multitude of behavioral changes can occur both from decreased functioning and from the excessive adrenal hormones produced with chronic sugar intake.

Sources

Lick the Sugar Habit, Dr. Nancy Appleton, Avery Publishing Group, 1996.

Feed Your Kids Well, Dr. Fred Pescatore, John Wiley and Sons, Inc., 1998.

Gut and Psychology Syndrome, Dr. Natasha Campbell-McBride, Medinform Publishing, UK, 2010.

The Schwarzbein Principle – The Program, Dr. Diana Schwarzbein, Health Communications, Inc., 2004.

Ritalin Free Kids, Judyth Reichenberg-Ullman and Robert Ullman, Prima Publishing, 2000.