Are Artificial Sweeteners Safe?

There has always been controversy about the safety of AS. There are about 30 different types on the market. AS are found not only in diet drinks but toothpaste, mouthwash, dairy products, candies, fruit spreads to name a few. You are consuming many of these every day without knowing it. Between 1999-2004, 6,000 new products were released on the market that contained artificial sweeteners. By now that is in the 10s of thousands. In fact, there is so much used that studies on the Great Lakes have found that sucralose, cyclamate and saccharin measurements are the **highest of anywhere in the world!** Acesulfame is extremely high, partly because there is no breakdown of this substance. It has gotten into the surface water and can be measured a distance of 300 km away from the water source. They now use this chemical as a marker for assessing human wastewater contribution to the lakes. It is not known what effect this may have on wildlife.

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Why have we started to use so much of this stuff?

We know that there is a high association between sugar- sweetened drinks and obesity, metabolic syndrome and cardiovascular disease so many people thought that drinking beverages with fewer calories would protect them from this.

Several credible long term observational studies have shown that diet drinks are associated at increased risk of Metabolic Syndrome, the precursor to CVD. The Framingham Heart Study, Atherosclerosis Risk in Communities Study and the Multiethnic Study of Atherosclerosis all showed an increased risk. The Multiethnic Study showed a 36% greater risk of metabolic Syndrome and a 67% increase in risk of type 2 Diabetes!

The theories of why this happens are that once you are on these, perhaps you think you will lose weight and continue to make other bad choices. Having developed a "sweet tooth", this may alter your preferences for healthier choices, avoiding them as a consequence. Some of them may be addictive. Some have other biochemical influences on our natural hormones.

An article in Scientific American in March 15, 2015 suggested the real reason why. A study from Israel on mice showed that aspartame, sucralose and saccharin brought about a change in the composition of the bacteria in the gut that encourages the growth of the bacteria that turns energy into fat. 90% of the gut bacterial species are Bacteriodites or Firmicutes. In obesity, others researching humans have found a reduction in B and increase in F, similar to what was demonstrated in the mice trial. They also found a reduction in leptin, the hormone that reduces appetite

The WHI is a huge study that has had a number of studies associated with it. A very interesting study appeared in Journal of Internal Medicine Dec 2014 by Dr Ankur Vyas et al from the University of Iowa. While all the previous studies show an increased risk from diet drinks, this has OUTCOME measures which makes it that much more credible.

They looked at 60,000 women with a mean age of 62.8 over 6-11 years. The primary outcome they looked at was CAD, Heart Failure, MI, bypass surgery, ischemic stroke and peripheral vascular disease. Secondary endpoints were deaths from CAD or stroke. This study showed a 30% increase of events, 30% increase in cardiovascular death and 30% increase in all cause mortality if you had 2 or more diet drinks/day than if you had 0-3/month.

This to me is the kicker! These artificial sweeteners are in so many things that we are not even aware of. There are many different kinds and their effects are not all the same. They are poorly regulated by the FDA in the US and I suspect the same can be said for Canada. They use the term "Generally Recognized as Safe" which can be translated into MSU (making stuff up!). We can try to simply drink water but unfortunately, especially in densely populated areas it is in the ground water and AS can be measured in drinking water.

My advice; Since so much of this use is hidden from us, to reduce further exposure do your best to avoid anything that has artificial sweeteners if at all possible until further information is available!

References;

1. Artificial Sweeteners in a Large Canadian River Reflect Human Consumption in the Watershed; John Spoelstra, Sgerry Schiff and Susan Brown.

ARTICLE in JOURNAL OF GENERAL INTERNAL MEDICINE · DECEMBER 2014
Impact *Factor: 3.42 · DOI: 10.1007/s11606-014-3098-0*

2.   *Fung TT,Malik V, RexrodeKM, Manson JE,WillettWC,Hu FB. Sweetened beverage consumption and risk of coronary heart disease in women. Am J Clin Nutr*. 2009;89(4):1037–1042. doi:10.3945/ajcn.2008.27140.

3. Dhingra R, Sullivan L, Jacques PF, et al. Soft drink consumption and risk of developing cardiometabolic risk factors and the metabolic syndrome in middle-aged adults in the community. Circulation. 2007;116(5):480–488. doi:10.1161/CIRCULATIONAHA.107.689935.

4. Malik VS, Popkin BM, Bray GA, Després J-P, Hu FB. Sugar-sweetened beverages, obesity, type 2 diabetes mellitus, and cardiovascular disease risk. Circulat ion. 2010;121(11):1356–1364. doi:10.1161/CIRCULATIONAHA.109.876185.

5. Qi Q, Chu AY, Kang JH, et al. Sugar-sweetened beverages and genetic risk of obesity. N Engl J Med. 2012;367(15):1387–1396. doi:10.1056/NEJMoa1203039.

6. Schulze MB, Manson JE, Ludwig DS, et al. Sugar-sweetened beverages, weight gain, and incidence of type 2 diabetes in young and middle-aged women. JAMA. 2004;292(8):927–934. doi:10.1001/jama.292.8.927.

7. Fakhouri THI, Kit BK, Ogden CL. Consumption of diet drinks in the United States, 2009–2010. NCHS Data Brief. 2012;109:1–8.

8. Fowler SP,WilliamsK,Resendez RG,HuntKJ,HazudaHP, SternMP. Fueling the obesity epidemic? Artificially sweetened beverage use and long-term weight gain. Obesity. 2008;16(8):1894–1900. doi:10.1038/oby.2008.284.

9. Nettleton JA, Lutsey PL, Wang Y, Lima JA, Michos ED, Jacobs DR. Diet soda intake and risk of incident metabolic syndrome and type 2 diabetes in the Multi-Ethnic Study of Atherosclerosis (MESA). Diabetes Care. 2009;32(4):688–694. doi:10.2337/dc08-1799.

10. Lutsey PL, Steffen LM, Stevens J. Dietary intake and the development of the metabolic syndrome: the atherosclerosis risk in communities study. Circulation. 2008;117(6):754–761. doi:10.1161/CIRCULATIONAHA.107.716159.