

SUGAR SUBSTITUTES

1. **Saccharine** (300x sweeter than sucrose): Sweet-n-Low, Sugar Twin
 - Discovered in 1879, produced from grapes.
 - Keeps its sweet flavor during heating and can be used in baked goods.

Risks?

Has been shown to cause bladder cancer in mice at very high doses. FDA proposed to ban it in 1977, but a warning was provided instead. It appears to be safe at normal doses.

- ADI (acceptable daily intake) = NA
 - FDA suggests limiting it to 1000 mg/day for adults. 500 mg/day for children.

NOTE: Avg. intake is 50 mg/day. No more than 30 mg is added to any one product.

2. **Aspartame** (200x sweeter than sucrose): NutraSweet, Equal

- Has 4 kcal/gm, but so little is used that it's virtually calorie free.
- Discovered in 1965; approved for use in 1981.
- Consists of two amino acids: phenylalanine and aspartic acid.
- When heated, loses its sweetness. Best added to foods after cooking.



Risks?

People with PKU should avoid it. Has been reported to cause headaches and dizziness in some individuals. Earlier studies with cancer may have been flawed. Appears safe at normal doses.

- ADI = 50 mg/kg body weight
 - (For a 132 lb. person, that's like 80 packets of Equal or 15 diet soft drinks).

NOTE: Avg. intake is only 6% this amount.

3. **Acesulfame K+** (200x sweeter than sucrose): Sunett, Sweet One

- Discovered in 1967, approved for use in 1988.
- Cannot be broken down in body, eliminated unchanged in the urine.

- Heat stable and can be used in baking. When used alone, can be bitter, so often combined with other sweeteners

Risks?

Appears to be safe at normal doses; however, the safety tests conducted in the 1970s were of mediocre quality and two rat studies were suggestive of cancer.

- ADI = 15 mg/kg body weight.

4. **Sucralose** (600x sweeter than sucrose): **Splenda**

- Discovered in 1976. Approved by FDA in Spring, 1998.
- Made by chemically reacting sucrose with chlorine (three -OH groups are replaced with -Cl).
- Not well digested/ absorbed; most is eliminated unchanged in the urine.
- Stable in both cooked and cold foods.

Risks?

None reported at this time.

- ADI = 5 mg/kg body weight per day for all ages.



5. **Stevia & Rebiana**: (100 & 200x sweeter than sucrose, respectively):

SweetLeaf (Stevia) / Truvia, PureVia (Rebiana)

- The rebiana (rebaudioside-A) extract of stevia was granted "Generally Recognized As Safe" (GRAS) status by the FDA in December, 2008. Stevia is not on the GRAS list and is marketed as a dietary supplement.
- Stevia leaves have been used for centuries in South America to sweeten beverages.

Risks?

More testing is needed. Some studies show that stevioside, an extract of stevia, causes mutations and DNA breakage in lab rats. **The rebaudioside-A extract appears to be safe at normal doses.**

* NOTE: *Some research indicates that artificial sweeteners increase sugar cravings. Monitor your individual tolerance if you choose to consume these substances.*