

DENTAL EROSION

Dental Erosion is the loss of tooth substance by a chemical process that does not involve bacteria.

Extrinsic Causes: Diet and medications (Vitamin C, asthma, aspirin)

- * **Citrus** fruits, fruit juices and candies with high concentration of citric acid.
- * **Herbal teas & Sour candies**
- * Carbonated beverages– **soft/sports drinks** (citric and phosphoric acid)
- * Vinegar (acetic acid) associated with pickled foods

Intrinsic Causes: Reflux or Vomiting

The Signs of Tooth Erosion

- * Sensitivity occurs when tooth enamel wears away. You may feel a twinge of pain when consuming hot, cold, or sweet foods and drinks.
- * Discoloration is visible as a slight yellow appearance on the tooth surface.
- * Transparency of the front teeth appears along the biting edges.
- * Rounding of teeth occurs along the surfaces and edges of teeth.
- * Cracks and roughness appear along the edges of the teeth.
- * Dents (known as cupping) develop on the chewing surfaces of the teeth. At this severe stage, fillings may actually appear to rise up.
- * Tooth decay is caused by loss of the protective outermost layer of enamel.



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Early cusp tip cupping



Lack of surface ridges



Transparency in the incisors



Erosive wear (cupping) on first permanent molars



Wear of entire chewing surface and into contact spaces between teeth

Dietary acids with potential to cause dental erosion*

Acetic acid
 Ascorbic acid
 Benzoic acid (used as preservative)
 Citric acid
 Lactic acid
 Maleic acid
 Malic acid
 Phosphoric acid
 Propionic acid (used as preservative)
 Succinic acid
 Tartaric acid
 Carbonic acid

* adapted from Milosevic 2004

Preventative Measures to Reduce Erosion Risk from Acidic Foods *

- Diminish frequency of consumption of acidic foods and beverages
- Restrict acidic foods to main meals
- Rinse with water after acidic consumption
- Chew sugar-free gum to stimulate salivary flow
- Use only a soft toothbrush
- Use low-abrasive fluoride and bicarbonate-containing toothpaste
- Avoid toothbrushing immediately following an acid challenge
- Rinse with a low-concentration, non-acidulated fluoride mouthwash two times daily
- Apply pH neutral, highly concentrated fluoride gel or toothpaste two times weekly
- Fluoride varnish to be professionally applied two to four times per year
- Regular dental visits for ongoing assessments

* adapted from Imfeld 1996 and Gandara

•pH and titratable acidity (TA) of various foods and drinks

Foods	Titratable acidity (g/100g)	pH
Seedless raisins	2.59	3.98
Dried apricots	2.49	3.87
Orange squash 50% fruit	2.27	2.82
Pure orange juice- concentrate	1.27	3.66
Organic bio yogurt- concentrate	1.21	4.10
Pure apple juice- concentrate	0.58	3.58
Natural cheese	0.50	5.01
Bananas	0.44	5.15
Apples	0.17	5.47
Pears	0.12	5.72
Strawberry flavored milk	0.12	6.41
Whole milk	0.10	6.69
Water	0.02	7.28

•Acidity, titratable acidity and erosive potential of some drinks

	pH	Titratable acidity	Erosion potential
Cola Drinks	2.5	0.7	Medium
Carbonated Orange	2.9	2.0	Medium
Grapefruit Juice	3.2	9.3	High
Apple Juice	3.2	4.5	High
Orange Juice	3.8	4.5	High
Sparkling Water	5.3	0.1	Low

Acid Erosion Wheels

