

# Acidity of food and drinks

Many people do not realize that acids in their diet can lead to acid erosion, which could change the shape, texture and appearance of their teeth over time. Everyday foods and drinks, such as fruit juices, sports drinks and wine can contain acid which can soften tooth enamel.

Erosive tooth wear, or acid erosion, is a two-stage process. The first stage occurs when exposure to dietary acid softens (demineralization) the surface of enamel to a depth of around 3 – 5 microns, in a process that takes only seconds.<sup>1</sup>

Although these softened surfaces may re-harden (remineralization) through the action of saliva and fluoride, the process will take 1 to 2 hours. If during this vulnerable period the softened enamel is subject to frictional or abrasive forces, such as brushing with an abrasive toothpaste, the second, irreversible stage of acid erosion will take place: the enamel surface will be permanently removed resulting cumulatively over time as an erosive lesion.<sup>1</sup>

Laboratory experiments indicate that tooth enamel can begin to dissolve at pH 5.5 and below and dentin at pH 6.7.<sup>2</sup> Typical pH ranges of some common foods and drinks are listed in the table below.<sup>†</sup>

Lemon Juice <sup>3</sup>	2.0 – 2.6
Wine <sup>4</sup>	2.3 – 3.8
Sports Drinks <sup>4</sup>	2.3 – 4.4
Tonic Water <sup>5</sup>	2.5
Soda <sup>4</sup>	2.7 – 3.5
Oranges <sup>4</sup>	2.8 – 4.0
Plums <sup>4</sup>	2.8 – 4.6
Iced Tea <sup>4,5,6</sup>	2.9 – 3.0
Strawberries <sup>4</sup>	3.0 – 4.2
Grapefruit Juice <sup>5</sup>	3.1 – 3.2
Vinegar <sup>5</sup>	3.2
Lemon Lime Soda <sup>6</sup>	3.2 – 3.3
Apple Sauce <sup>5</sup>	3.4
Pineapple Juice <sup>5</sup>	3.4
Apple Juice <sup>4</sup>	3.5
Apples <sup>4</sup>	3.5 – 3.9
Salad Dressing <sup>5</sup>	3.6
Orange Juice <sup>5</sup>	3.7
White Wine <sup>5</sup>	3.7
Diet Lemon Lime Soda <sup>6</sup>	3.7
Tomatoes <sup>4</sup>	3.7 – 4.7

Root Beer <sup>6</sup>	3.8 – 4.0
Honey <sup>3</sup>	3.9
Tomato Ketchup <sup>3</sup>	3.9
Vegetables <sup>4</sup>	3.9 – 5.1
Seedless Raisins <sup>4</sup>	4.0
Beer <sup>4</sup>	4.0 – 5.0
Yogurt Kiwi <sup>5</sup>	4.1
Yogurt Lemon <sup>5</sup>	4.1
Pears <sup>3</sup>	4.1
Carrot Juice <sup>5</sup>	4.2
Tea (Black) <sup>4</sup>	4.2
Sour Milk <sup>5</sup>	4.2
Yogurt Natural <sup>5</sup>	4.2
Yogurt Drink Orange <sup>5</sup>	4.3
Probiotic Yogurt <sup>5</sup>	4.3
Bananas <sup>4</sup>	5.1
Natural Cheese <sup>4</sup>	5.1
Carrot Sticks <sup>3</sup>	5.5
Eggs <sup>3</sup>	6.6
Whole Milk <sup>4</sup>	6.7
Water <sup>4</sup>	7.3

<sup>†</sup>These are approximate and can differ