
Tooth care for wine tasters and wine judges

Tasting the fruits of one's labour is one of most rewarding parts of a grapegrower and winemaker's role. However, it can also be an occupational hazard, with a greater predisposition amongst winemakers and wine judges to experience premature gum recession (from harsh toothbrushing), tooth erosion, tooth sensitivity and dry mouth due to greater and more frequent exposure to wine acids. This article addresses some of the dental issues relevant to wine industry personnel, as well as preventative measures that should be taken when tasting large numbers of wines in situations such as wine shows.

What are teeth made of?

The hard, outside layer of teeth is called enamel. Enamel does not contain any living tissue, being made solely of calcium phosphate, a substance that is harder than even bone. Dentin lies underneath the enamel, and is a bone-like tissue made of collagen and calcium phosphate; it provides tooth support and structure. The soft core of the tooth is called the pulp and is the living tissue that contains connective tissue, nerves and blood vessels and is responsible for pain detection (Colgate Oral Care Centre).

What are the effects of wine tasting on teeth?

Tooth erosion and sensitivity

All teeth experience some amount of erosion or wear with time, generally correlating with age, where teeth appear shorter and have worn surfaces. Erosion occurs when tooth enamel is dissolved from the tooth surface (University of Adelaide 1). Acids present in wine, but also in soft drinks, sports drinks and fruit juices, can dissolve calcium and phosphate from the enamel, leading to tooth demineralisation and tooth erosion. Continued erosion, and exposure of dentin underneath, causes tooth sensitivity to temperature changes and touch during brushing.

Erosion is different from dental decay or tooth cavities (University of Adelaide 2). Cavities occur due to a breakdown of the teeth. Plaque, a build-up or biofilm of bacteria, feed on food debris and sugar which anaerobically produce lactic acid that dissolves calcium and phosphorus in the enamel.

Saliva and dry mouth

Saliva produced by salivary glands/ducts neutralises mouth acids, increasing mouth pH above a critical level of pH 5.5, below which demineralisation occurs. It also forms a protective film over the teeth which provides some protection from acids. Note that saliva, however, cannot penetrate plaque or tartar (The Academic Wino).

Red wine tannin has been reported to inhibit the salivary duct transport of fluid and salts, resulting in decreased saliva production and observed dry mouth during tasting red wines. The same effect was not observed for white wines (Imamure et al. 2015). Decreased saliva amounts then limits the acid neutralisation capability in the mouth.

Are winemakers considered high risk individuals for damage to teeth?

Damage to teeth is related to the number and frequency of wine tastings and the effects are cumulative. Tasting more than 50 wines in one week is considered high risk (Ranjitkar et al. 2012). This would be considered normal practice at most wine shows and during vintage and allocation tastings.

Studies at the University of Adelaide (Ranjitkar et al. 2012) found that 50% of wine tasters experience increased tooth sensitivity after 5–10 years. Of tasters that experience sensitivity, a common link was quality and quantity of saliva produced by those individuals. Some medications (used to treat asthma, depression and hypertension) may reduce saliva production. Your dentist can test your saliva to indicate your risk status. Other predisposing conditions that increase the risk of tooth erosion are tooth grinding during sleep, diabetes and gastric reflux.

How can I prevent or reduce tooth erosion and sensitivity?

A summary of preventative steps provided by The University of Adelaide Dental School is included below.

Night before tasting

- Brush teeth with a readily available fluoride toothpaste (1000 mg/L fluoride).
- Apply by toothbrush a 1.5 cm GC Tooth Mousse® (casein phospho peptide-amorphous calcium phosphate) or high concentration sodium fluoride toothpaste such as Colgate Neutrafluor 5000, available from a dentist, and leave for four minutes (alternately use a custom made dental tray). Spit out and avoid drinking for one hour.

Morning of tasting

- Do not brush teeth the morning before tasting, leaving the natural layer of plaque as a protective film on your teeth.
- Apply a 1.5 cm GC Tooth Mousse® with your finger and leave for four minutes. Spit out and do not rinse.

During tasting

- Drink still water to rinse mouth and dilute acids. Sparkling water is acidic.
- Eat cheese or drink milk to enrich teeth with calcium and phosphate.
- Eat crackers to stimulate saliva production. Beware of olives, pickles or other acidic foods.

After tasting

- Do not brush teeth for at least two hours after tasting. Teeth are in a demineralised state and much softer, so even though the teeth are stained, avoid brushing to reduce the risk of damaging the enamel.
- Wash mouth with readily available 0.2% fluoride mouth rinse. Spit out after two minutes.
- Avoid other mouthwashes which are generally acidic. Often mouthwash is used after tasting as a replacement for not brushing teeth, but it can do more harm than good.
- Chew recaldent (calcium phosphopeptide) or sugar-free gum to help stimulate saliva production to neutralise acid.

Stained teeth

Wine tannins can form complexes with calcium and proteins bound to the tooth surface and stain the tooth. Brushing can remove/polish off some discoloration but it's important to avoid brushing when teeth are still soft and in a demineralised state after tasting. Use of whitening toothpaste can have a bleaching action, but may increase tooth sensitivity. Dentists can professionally remove stains and also apply transparent resins to prevent teeth staining after cleaning.

Gum recession

Regular vigorous brushing or scrubbing to remove stains can result in gum erosion and exposure of the roots of the tooth that are at greater risk of decay (The University of Adelaide 3). Note gum erosion is more commonly linked to gingivitis or gum disease, via the buildup of bacteria in plaque which causes gums to become inflamed and bleed during brushing, or later where the gum and bone pull away from the teeth leaving small spaces between teeth and gums that are at greater risk of becoming infected. Gum erosion is also impacted by predisposed genetics as well as tooth grinding. A dentist is best placed to determine the cause of gum recession.

Longer-term prevention

Longer-term preventative strategies include visiting a dentist at least once per year and having a preventive plan in place. Annual topical fluoride applications are also recommended. Fluoride binds to calcium phosphate in the enamel and makes the teeth more resistant to demineralisation.

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For leaflets on tooth care please visit <https://www.adelaide.edu.au/arcpho/dperu/special> or contact the AWRI helpdesk on helpdesk@awri.com.au or 08 8313 6600.

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