

GC Tooth Mousse

Portfolio

2ND EDITION





TOOTH MOUSSE INFORMATION

Prof. Laurie Walsh, University of Queensland

GC Tooth Mousse is an exciting addition to the preventive dentistry armamentarium of the modern dental practice, offering the ability to deliver biologically available calcium and phosphate ions in exactly the 5:3 ratio required for regeneration of hydroxyapatite (10 calcium ions, 6 phosphate ions and 2 other ions, such as carbonate, hydroxyl or fluoride). Each molecule of the casein phosphopeptide in Recaldent[®] (the active ingredient of Tooth Mousse) binds 25 calcium, 15 phosphate and 5 fluoride ions in the correct 5:3:1 ratio. In a live in vivo situation nanoclusters of amorphous calcium phosphate in Recaldent[®] release calcium and phosphate ions under low pH conditions in a unique soluble diffusible form (CaHPO₄) which is transported into the tooth structure and enables regeneration of demineralized enamel or dentine.

GC Tooth Mousse has substantial buffering capabilities and binds well to dental plaque as well as teeth and oral soft tissue, giving a sustained release of ions. Recaldent[®] is retained at significant levels in plaque on the tooth surface for at least three hours after application. The ability of Recaldent[®] to bind to dentine and soft tissues makes it effective for desensitization of exposed dentine and the palliation of oral wounds and ulcerations.

GC Tooth Mousse contains no lactose, the carbohydrate in milk that can cause gastrointestinal upsets with some dairy-based products. Lactose intolerant patients can use it safely, however, it is contraindicated for patients with milk protein allergies.

Expanding uses for GC Tooth Mousse

Prevention

- Dental caries in high risk patients
- Erosion in patients with reflux or other disorders
- Decalcification in orthodontic patients

Regeneration of enamel

- White spot caries and orthodontic decalcification
- Fluorosis
- Pre/post tooth whitening

Desensitization

- Sensitive dentine in dental erosion
- Exposed root surfaces after professional tooth cleaning

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MOUSSE FOR THE MUM TO BE

Prof. Laurie Walsh, University of Queensland

During pregnancy, hormonal changes result in a dramatic decrease in the buffering capacity of the saliva. At the same time, nausea from morning sickness can lead to frequent reflux of low pH acidic contents of the stomach, particularly in the second and third months of pregnancy.

Reduced protection from saliva, combined with frequent acid challenges, means that many pregnant women are at high risk of demineralization during pregnancy.

Without additional protection of tooth structure, frequent reflux can lead to loss of enamel and exposure of sensitive dentine. This typically begins on the palatal surfaces of the maxillary incisor teeth, adjacent to the palatal gingival margins.

Regular use of GC Tooth Mousse during pregnancy helps to maintain elevated levels of calcium and phosphate in the saliva, protecting the teeth from dental erosion. Tooth Mousse will help soothe sensitive teeth and protect areas of exposed dentine. There is also an



Over time, frequent reflux will dissolve enamel and expose underlying dentine.

additional benefit because Tooth Mousse will inhibit the growth and adhesion of mutans streptococci, which would otherwise flourish in an acidic oral environment. Reducing levels of mutans streptococci is important during pregnancy since high levels increase the chance of transmission to the newborn child from transient salivary contact.

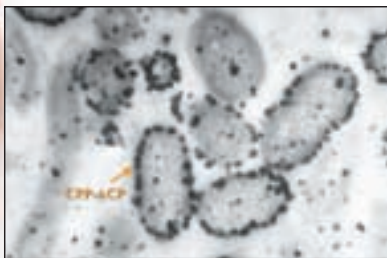
Prof. L Walsh



BABY MOUSSE

Prof. Laurie Walsh, University of Queensland

Newly erupted teeth have yet to complete their enamel maturation and until this occurs they are more vulnerable to acid attack. Boosting levels of calcium and phosphate in the saliva facilitates the normal post-eruption maturation process and replaces mineral loss on a daily basis. Recaldent® is derived from cow's milk and is ideal for protecting deciduous teeth at a time when oral care is difficult.



Prof. Eric Reynolds

CPP-ACP attaching itself to mutans streptococci

Tooth Mousse is fluoride free

Tooth Mousse is especially useful for under 2's, where toxicological issues mean normal or high strength fluoride products are contraindicated.

Tooth Mousse is applied to the teeth twice daily with the finger to provide a surface film that will raise levels of essential minerals (calcium and phosphate), as well as inhibit the growth of caries causing bacteria.

GC Tooth Mousse is a safe product to use for babies' teeth, is well tolerated by children and tastes delicious.

JUNIOR MOUSSE

Prof. Laurie Walsh, University of Queensland

For youngsters with white spot lesions on deciduous teeth, brush with a low fluoride toothpaste (400-500 ppm) specially designed for children and then apply a nightly coating of Tooth Mousse using the finger to cover the white spots and leave in situ whilst sleeping.

For children with early childhood caries, Tooth Mousse can be used nightly before sleeping.

A weekly application of 0.2% chlorhexidine gel will also help to decrease bacterial growth and reduce the incidence of caries lesions.

Once children reach 6 years of age, GC Fuji VII can be applied to the fissures of the erupting first molar teeth to protect them from fissure caries.

Unlike placement of resin sealants, this technique of tooth surface protection does not require moisture control and is specially recommended for partially erupted teeth at a time when these surfaces are most at risk.

As soon as all the teeth are fully erupted there are many choices to keep fissures protected from acid attack, such as resin sealants, Tooth Mousse and diet control of carbohydrate intake. Starting early means healthy teeth and a healthy lifestyle for the future.





ORTHO MOUSSE

Prof. Laurie Walsh, University of Queensland

Fixed or removable orthodontic appliances are plaque traps because cariogenic bacteria prefer growing on hard, non-shedding surfaces. With increased levels of cariogenic bacteria in the mouth, caries risk increases during orthodontic treatment as seen opposite.

GC Tooth Mousse can help prevent plaque accumulation around brackets, archwires, springs and other appliances, and can assist the saliva in buffering acids produced by dental plaque.

In this way, a regular application of Tooth Mousse during orthodontic treatment can prevent areas of decalcification developing. White spot lesions can be arrested and reversed but it is important to use Tooth Mousse routinely throughout the full course of orthodontic treatment.



Prof. L Walsh

Extra-oral and intra-oral views of the baseline situation after debanding.

Using Tooth Mousse after orthodontic debanding

At the end of fixed orthodontic treatment, GC Tooth Mousse offers the perfect finishing treatment to optimize the appearance of the enamel, particularly of the maxillary incisor teeth. It is common for small residues of bonding resin to remain on the teeth after the removal of brackets, which lower the reflectivity of the surface. These residues are not visible to the naked eye, but are easily seen in contrast if the tooth surface is etched for 10-15 seconds. After further surface polishing, re-etch the teeth to check that all resin has been removed. Finally, a gentle microabrasion prepares the enamel for the action of Tooth Mousse. This treatment is ideally undertaken at the debanding visit, with the patient being given a tube of Tooth Mousse to use at home over the following weeks.

Tooth Mousse after orthodontic debanding



1. Application of phosphoric acid etchant gel to the maxillary incisor teeth, just short of the gingival margin.



2. Residues of resin are easily seen contrasting with the etched enamel.



3. After removal of the resin, a second etch confirms that the enamel surface is even.



4. The situation immediately after microabrasion. Some minor odontoplasty was then done to smooth and align the incisal edges.



5. When GC Tooth Mousse is applied immediately after microabrasion, a favourable change can be seen at the end of the same appointment.



6. After applying GC Tooth Mousse each evening for one week, the final appearance shows further improvements in surface texture and more even reflections, giving a lighter appearance without a whitening treatment.



MOUSSE FOR TOOTH WEAR

Prof. Ian Meyers, University of Queensland

Jason is a 34 year old electrician:

- Generally healthy – no medications
- Moderate heartburn/gastric reflux
- Smokes 15 cigarettes per day
- Drinks 2 cups of tea per day
- Bike rides 40km six days per week
- Insufficient water intake
- Frequent use of lime juice as flavouring agent
- Moderate consumption of beer and wine
- Mandibular anterior teeth often sensitive
- Nocturnal bruxer in past
- Some bi-lateral TMJ clicking on opening

Diagnosis

Jason has several factors leading to accelerated loss of tooth structure. The major underlying problem is salivary dysfunction. Resting salivary parameters are quite low while his stimulated saliva is quite normal.

This suggests a lack of production of saliva at rest as a major factor in the tooth wear. The level of dehydration experienced during exercise and work has contributed to this and insufficient water intake during the day has caused a fluid imbalance.



Initial Saliva Test

Hydration Levels:	Low	●
Viscosity:	Sticky	●
Resting pH:	5.6 Moderately acidic	●
Stimulated flow:	10 ml/5 min	●
Buffering:	12	●

Prof. Ian Meyers

SOLVING A PROBLEM BY MODIFYING LIFESTYLE






Home care Program

Jason's home care management program included:

- Increased water consumption, particularly before and during exercise and when working in hot environments
- Fewer cigarettes as far as possible with the ideal aim to stop completely
- Decreased consumption of alcohol in later part of day due to diuretic effects contributing to fluid loss
- Chewing Recaldent® sugar free gum to enhance saliva flow, particularly after meals
- Using a high fluoride containing toothpaste 5000 ppm
- Application of Tooth Mousse each evening before sleeping

Restoration

Review of Jason's Saliva 6 weeks after home care treatment commenced.

Hydration Levels:	Good	
Viscosity:	Bubbly	
Resting pH:	6.8	
Stimulated flow:	10 ml/5 min	
Buffering:	12	

Following stabilization and remineralization, Jason's anterior teeth were restored to improve function and aesthetics. The upper and lower canines were fitted with porcelain fused to metal full coverage crowns to provide occlusal guidance, whilst all other anterior teeth were restored with a Bis-GMA free composite resin. Further review and maintenance appointments were made to ensure stability of the oral environment and to ensure Jason continued with the home care regime.





MOUSSE FOR TOOTH SENSITIVITY

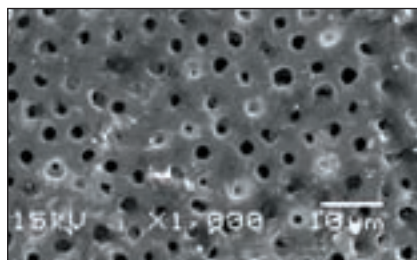
Prof. Laurie Walsh, University of Queensland

Based on the hydrodynamic theory of Brannstrom, exposure of dentine tubules which permit fluid movement will likely evoke a response from odontoblasts. Exposed sensitive dentine typically shows open dentine tubules, particularly when the patient suffers from reflux disease and repeated exposure to gastric contents prevents any protective organic or inorganic surface film from forming.

GC Tooth Mousse exerts a rapid desensitizing effect through immediate protein binding followed by deposition of calcium and phosphate compounds within exposed dentine tubules.

This patient required treatment for severe dentinal hypersensitivity affecting many teeth. She had undiagnosed gastric reflux and considerable destruction of the maxillary incisor teeth had occurred from the erosive effects of hydrochloric acid. The mandibular incisors displayed characteristic supragingival erosion lesions which also were hypersensitive. All teeth were vital.

After recommending a nightly application of Tooth Mousse and a home care program using a sodium bicarbonate mouthrinse to neutralize gastric acid, the sensitivity problem diminished rapidly and the hardness of the exposed dentine increased. The teeth were then restored with glass ionomer (Fuji IX GP) and veneered with composite resin. The situation at the 3 month post-treatment review is stable. The patient is now comfortable and able to eat.



Exposed dentine shows open dentinal tubules



Erosive effects of hydrochloric acid



Supra-gingival erosion lesions



3 month post treatment review

MOUSSE FOR TOOTH ROOTS

Prof. Laurie Walsh, University of Queensland



Exposed root surfaces are at risk



Root surface lesions often commence on a broad front, and may attack multiple sites.



Proximal lesions are particularly difficult to restore.

Exposure of root surfaces is a key risk factor for the development of root surface caries. Attachment loss from periodontal diseases, periodontal surgical and non-surgical treatments, and gingival recession, expose root surfaces and thus place them at risk if the salivary environment and lifestyle does not promote remineralization.

Regular application of Tooth Mousse can protect such surfaces by maintaining salivary saturation with calcium and phosphate ions. Tooth Mousse can easily be applied using a finger, and left in place on the root surfaces.

An additional strategy is to protect the exposed tooth surfaces using a high fluoride releasing glass ionomer that can be applied in a thin layer. Fuji VII has been developed specifically for such uses, and has a unique colour which identifies the material to the clinician at recall appointments.

Recent research on the application of Tooth Mousse to root surfaces concluded:

“Caesin phosphopeptide-amorphous calcium phosphate markedly enhanced the resistance of root surfaces to artificial caries formation when compared with fluoride rinsing (0.05% NaF).

Bioavailable calcium and phosphate (CPP-ACP) has been demonstrated to bind hydroxyapatite, and this may be an important factor in reducing susceptibility of root surfaces to a cariogenic challenge.”

*Caesin Phosphopeptide-Amorphous Calcium Phosphate paste: Root Surface Caries formation
Hicks J, Flaitz C. J. Dent Res 2005 Vol.84, Special Issue Abst. 3275



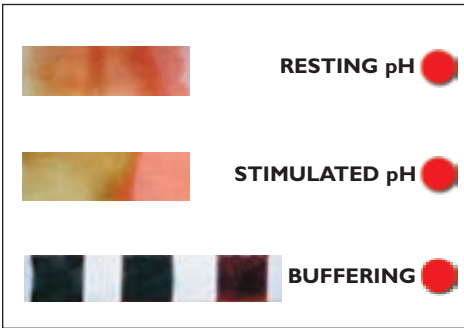
MOUSSE FOR HIGH CARIES RISK

Prof. Laurie Walsh, University of Queensland



Prof. L Walsh

For patients with high caries activity, it is important to control the process of infection and improve the tooth substrate before considering long term restorations. The caries process can be arrested by frequent applications of Tooth Mousse, in combination with an improved home care treatment program. Restorations can then be placed with the confidence that the disease process has been halted.



This 55 year old high risk patient has multiple lesions related to drug-induced salivary dysfunction from prescription medications. Saliva testing (GC Saliva-Check) revealed low hydration, resting flow rate and a low pH.

Early treatment will involve:

- Increasing hydration
- Use of a fluoride toothpaste
- Chewing Recaldent® sugar free gum to increase saliva flow
- A nightly application of Tooth Mousse.



Rick is 62 years old. The dramatic destruction of his maxillary teeth occurred because of caries, and the maxillary incisors are ringbarbed by cervical caries. An acidic oral environment has allowed overgrowth of cariogenic bacteria and caries has progressed most rapidly in areas with limited salivary defence. This explains why the mandibular incisor teeth are unaffected. Direct chairside measurement of acid production by plaque was undertaken using the GC Plaque-Check +pH test kit.

After introducing Rick to a home care program of fluoride and Tooth Mousse to encourage remineralization, the caries process has been halted and the hardness of the dentine has increased.

Home care consisted of a minimum twice daily brushing with a high fluoride containing toothpaste (5000ppm), a weekly application of chlorhexidine gel and twice daily application of Tooth Mousse. 8 weeks later interim restorations were placed, using a high strength glass ionomer (Fuji IX GP) overlaid with composite resin on both incisor teeth. Increasing the levels of mineral in the dentine is essential to maximize the chemical bonding of glass ionomer materials.



Prof. L. Walsh



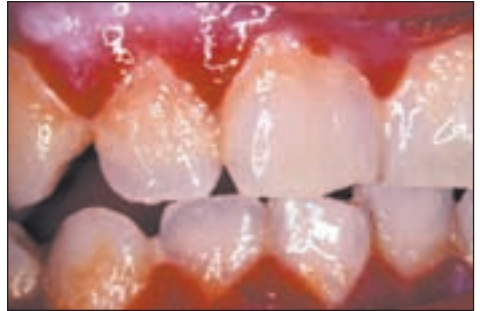


SPECIAL NEEDS MOUSSE

Prof. Laurie Walsh, University of Queensland

Several uses for Tooth Mousse are illustrated for Sam, a 25 year old patient suffering from acute leukaemia. He presented to the accident and emergency department of his local hospital complaining of severe malaise, lethargy and spontaneous bleeding. In addition he had noticed a rapidly developing gingival enlargement over recent weeks and the gingival tissues had become extremely prone to bleeding, to the point where he had stopped all mechanical oral hygiene.

Extensive cervical white spot carious lesions developed during hospitalization for chemotherapy over a period of 4 months. Other contributing factors leading to the development of caries included Sam's inability to brush his teeth (due to severe oral ulcerations from the chemotherapy), high carbohydrate diets (to maintain nutrition), and the side effects of anti-emetic and other medications. During chemotherapy, an application of Tooth Mousse was used to prevent erosive damage to the teeth

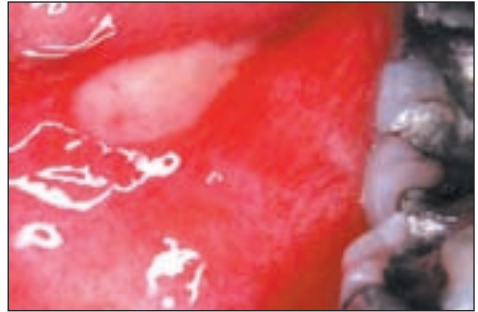


The gingival tissues had become extremely prone to bleeding



Extensive cervical white spot carious lesions developed during hospitalization for chemotherapy

from nausea, and to alleviate discomfort from areas of oral ulceration that develop as a side effect of neutropenia and bone marrow suppression.



Tooth Mousse was used to alleviate discomfort from oral ulceration

Following discharge from hospital, an appropriate strategy for patients like Sam is to encourage them to make changes to their lifestyle and oral hygiene, and to apply Tooth Mousse each night immediately before sleeping.

A simple way to show them active fermentation and acid production of plaque deposits is to demonstrate using the new GC Plaque-Check +pH chairside test, to assist monitoring compliance.

A similar approach can be used for patients who have had head and neck radiation, and Tooth Mousse is recommended for use in a home care program of chlorhexidine gel and a suitable fluoride toothpaste, for example:

- Using a 5000 ppm fluoride toothpaste two to three times per day followed by rinsing
- CHX gel should be applied on a toothbrush once per day, ideally midmorning or midday (It is important that CHX gel is used a minimum of 30 minutes before brushing with the fluoride toothpaste)
- Tooth Mousse should be applied twice daily after brushing the teeth with the fluoride toothpaste. If possible leave any residual Tooth Mousse in the mouth overnight to provide additional protection.



Prof. L Walsh

A glass ionomer restorative material is particularly useful in special needs patients because of the fluoride recharge capabilities. With careful assessment and control of the salivary pH, such restorations can be maintained for long periods, as dissolution will not occur.

Glass ionomer is particularly useful for special needs patients

MOUSSE FOR ALL REASONS

Literature available

Preservation and Restoration of Tooth Structure, 2nd edition, March 2005.
Knowledge Books and Software (www.kbs.com.au).

Professional Information



Patient information



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