

Chalky teeth: a silent epidemic damaging 1 in 6 children's teeth

Melbourne researchers call on parents, dentists and other health professionals to act to save children's teeth.

**Media call: Royal Children's Hospital
Saturday 24 August 2013 at 12 noon**

At the ground floor dental suite with doctors, dentists, researchers and patients

A recent study has shown that at least one in six children is affected by 'chalky teeth', placing them at a heightened risk of tooth decay. Many of the affected children are losing their adult molars and are on a path to years of expensive dentistry and orthodontics.

There's currently no cure, but with early detection and dental treatment, tooth decay or tooth extraction can often be avoided. However, many cases aren't getting to the dentist quick enough.

"Parents think they've done everything right for their child's teeth – good hygiene, fluoride and diet. Then they take them to the dentist and amongst a mouthful of healthy teeth are a few bad ones. They want to know what's gone wrong," says David Manton, Professor of Paediatric Dentistry at the University of Melbourne.

The answer is that some of the teeth were damaged while they were still developing inside the jaw, most likely by a childhood illness.

"The commonest sign is creamy-brown or extra-white spots on your child's teeth. You may see them on their baby teeth, and that could be a sign of trouble later when the adult molars come through, which are the teeth most at risk."

"Ideally, children should have regular dental check-ups from the time their baby teeth first erupt into the mouth and particularly when the child's adult teeth appear around the age of six", says Professor Manton.

"Parents and health professionals seeing children now need to be aware of the condition," says Sharon Goldfeld, a paediatrician and chair of the child and adolescent oral health working group of the Royal Australasian College of Physicians.

"If you or your doctor think that your child may have chalky teeth, check with your dentist promptly", she says.

A website has been set up to tell parents, children and health professionals more about chalky teeth and how to recognise them. This world-first education resource is at <http://www.thed3group.org> and was launched today in Melbourne.

The website is part of a national research and awareness program organised by *The D3 Group* – an interdisciplinary research network focused on developmental dental defects.

Chalky teeth's formal name is molar hypomineralisation. "The condition results in teeth that have abnormally low amounts of calcium mineral," says Mike Hubbard, Professor of Oral and Facial Science. "So even in mildly affected teeth you can see some extra-white patches – that's a key sign."

Chalky teeth is not related to a child's diet, dental hygiene or lifestyle. "In first world countries around 10 per cent of the total health budget goes on treating dental caries," says Professor Manton. "With greater awareness of chalky teeth symptoms by parents and healthcare professionals, and timely visits to the dentist, a lot of that money could be saved and used elsewhere."

The research network is now working to understand the underlying links between chalky teeth and childhood illnesses, with the hope of preventing the development of the condition.

The chalky teeth campaign is supported by the Melbourne Research Unit for Facial Disorders, a joint initiative between the University of Melbourne and the Royal Children's Hospital. The website development was funded principally by Melbourne philanthropists Allan and Maria Myers.

For further information visit <http://www.thed3group.org/what-is-molar-hypomin.html>

For interviews contact: Niall Byrne, 0417 131-977; Laura Boland, 0408 166-426



Better understanding
and care of people with
Developmental Dental Defects

Chalky Teeth Background Information

Overview of main points of research

- There are a number of causes of dental caries (tooth decay) in children; the most widely known include poor dental hygiene and dietary factors. New evidence from The D3 Group suggests that a condition known popularly as 'chalky teeth' is likely to be an overlooked but significant cause of dental caries and toothache in children. As such, regular dental precautions (dental hygiene, fluoride and diet) may not be enough to prevent toothache and cavities.
- Chalky teeth, more properly called molar hypomineralisation is a defect where the tooth (usually a molar tooth) forms abnormally before it is 'born' into the mouth.
- New information: The D3 Group have brought together fragmented research from 42 studies around the world to show that on average, 1 in 6 children are affected by chalky teeth. The D3 Group consider this problem to be of an 'epidemic' scale.
- The research also suggests that chalky teeth is likely to be caused by illness during infancy.
- As childhood illnesses are a normal aspect of growing up, and thus may not be preventable, any child may be prone to this condition regardless of their socioeconomic background or dental hygiene and dietary habits.
- Dental caries in children are thus not necessarily the parent's fault or a product of parental neglect.
- The type of infant illnesses that may be associated with the onset of chalky teeth remains to be identified.
- Chalky teeth are particularly susceptible to wear and decay, and usually affect the first adult molars, which come through at about 6 years of age.
- If identified early there is a much better chance the tooth can be saved through dental care.
- If not identified early, chalky teeth may decay and/or become painful to the point where extraction of the tooth becomes necessary.
- Dental work can be costly for parents of affected children, and the condition may increase the need for ongoing orthodontic work.
- Very few parents and healthcare professionals outside of dentistry are adequately aware of the significance of chalky teeth, and few children are screened for the condition during routine child health examinations.
- The D3 Group has developed a new online resource that provides useful information to parents and healthcare professionals, helping them to recognise and seek appropriate dental care for children affected by the chalky teeth condition.

What are chalky teeth?

Chalky teeth or 'molar hypomineralisation' ('molar hypomin' for short) is a very troublesome Developmental Dental Defect (D3) that causes lots of suffering and healthcare costs around the world. On the bright side however, there is good reason to expect this widespread problem may eventually go away (i.e. become preventable) once scientists figure out what causes it. This is a quest that many families are helping The D3 Group with.

A key feature of molar hypomin is that it's quite selective for certain teeth. The teeth that are most prone are the '6-year-old molars' – otherwise known as the first 'adult' or 'permanent' molars whose eruption into the mouth typically occurs at 6–7 years of age. Other molars can also be affected including the '2-year-old molars' in infants. Sometimes in badly affected children their front teeth (incisors) can have this problem too.

Hypomineralisation is just a technical way of saying "abnormally low amounts of calcium mineral", which leaves the tooth enamel soft and porous rather than hard and shiny white. And it's that softness that can lead to problems such as sensitivity (dental pain or 'toothache'), crumbling and potholes leading to increased risk of decay (dental caries), and unsightly appearance in the case of front teeth. Dentists can also strike problems when trying to fix these defective teeth. So, although kids with chalky teeth can be perfectly healthy in all other regards, it's possible their dental condition can be quite troublesome if not cared for well.

What is D3

"D3" is a simple way of saying "DDD" which stands for "**D**evelopmental **D**ental **D**efect". D3s originate from developmental problems – that is, things going awry when the tooth was being formed inside a child's jaw. So D3s can be viewed as a sort of congenital disorder or birth defect.

Several different types of D3s can occur depending on what actually went wrong (e.g. whereabouts in the jaw, when during development, and how badly the problem struck). And so it can be said of D3s that "some are common and others rare, some affect most teeth, others here'n' there.

Nearly all D3s affect the outward appearance of the tooth enamel – sometimes just a small patch is affected (or "wonky" as a child might say) and other times it's wonky all over. Such discolourations may not necessarily be of concern if the enamel surface remains sufficiently hard. However, when the patches of abnormal enamel are soft and porous, there is increased risk of dental pain and tooth decay (i.e. dental caries) – so dental treatments may be recommended to nip these problems in the bud.

There are four main types of D3, one of which is molar hypomin. Find out more at:
<http://www.thed3group.org/what-is-d3.html>

What is The D3 Group

The D3 Group is a translational research network spanning the developmental dental defect (DDD = D3) sector in Australia and New Zealand. Their members are an eclectic group of individuals whose lives have been touched by D3 problems one way or another. Some of their families have experienced D3s first hand, many care for people with a D3 either as dental practitioners or public health professionals, and many others are engaged in D3 research and education. The Group includes a growing number of medical experts and D3-savvy individuals from industry.(see [Representatives of The D3 Group](#)).

The D3 Group believes that collaboration will help get D3 problems such as molar hypomin better recognised, understood, and cared for. Their ultimate goal is to make many of these problems go away through prevention.

To achieve these goals their primary mission is to help educate people about D3s as it pertains to them – families and patients, the public health sector and politicians, practitioners and industry, researchers, educators and students. They hope an improved foundation of knowledge and understanding will lead to widespread benefits across societies.

Apart from education and advocacy, The D3 Group aims to foster improved research and healthcare of D3s. To do so, The D3 Group aims to further develop and exploit a translational research network that connects Australasia and beyond. Specifically, The D3 Group:

- holds scientific/network meetings and workshops of interest to their diverse membership;
- disseminates information to D3G members, students and the public;
- undertakes strategic planning and development – strengthening global efforts toward D3;
- fosters research and training – build teams, support researchers and trainees; and
- aims to improve the health and well-being of people afflicted with D3s.