= Meth mouth =

Meth mouth is severe tooth decay and loss of teeth , as well as tooth fracture , acid erosion , and other oral problems potentially symptomatic of extended use of the drug methamphetamine (colloquially termed " meth " , " crystal meth " and many other names) .

The condition is thought to be caused by a combination of side effects of the drug (clenching and grinding of teeth , dry mouth) and lifestyle factors (infrequent oral hygiene , frequent consumption of sugary drinks) , which may be present in long term users .

However , the legitimacy of meth mouth as a unique condition has been questioned because of the similar effects of some other drugs on teeth . Images of diseased mouths are often used in anti @-@ drug campaigns .

The condition is difficult to treat , and may involve fillings , fluoride to fight tooth decay and drugs that increase saliva for dry mouth , as well as oral hygiene instruction . It can be medically dangerous for active methamphetamine users because of the cardiac problems that can result from the interaction of local anesthetic with the drug .

= = Signs and symptoms = =

Methamphetamine (meth) , a highly addictive drug that produces a dramatic increase in energy and euphoria , can have negative health effects that include serious dental problems . As of 2012 , it is the most discussed illegal drug in dental literature .

The most notable effect of long @-@ term use of methamphetamine on dental health is the development of caries (tooth decay) ; the teeth of some drug users appear to be dark and in the process of disintegrating . Caries often occur in the cervical regions of teeth , where the tooth surface narrows at the junction of the crown and the root . It is usually found on the buccal (cheek) side of the teeth and on tooth surfaces that are adjacent to incisors and canines ; eventually , the coronal tooth area , near the crown , can be affected by the decay and erosion . The dental caries of meth mouth often progress slowly , perhaps because their advancement is hindered by intermittent hygienic practices . The decay can lead to tooth fractures and severe pain . In some cases , teeth are permanently damaged and must be removed . Along with malnutrition and weight loss , the dental effects of methamphetamine use contribute to the appearance of premature aging seen in some users . The effects of meth mouth are similar to those of Sjögren 's syndrome , an autoimmune disease that causes a lack of saliva , which results in tooth decay .

Methamphetamine users sometimes experience soreness in the joint of the jaw and dental attrition (tooth wear) , owing to bruxism (grinding of the teeth) caused by the drug . This bruxism can occur continuously . Chronic use of the drug might also cause trismus , the inability to open the jaw . Long @-@ term users often experience xerostomia (dry mouth) .

= = Causes = =

The hypothesized causes of meth mouth are a combination of MA side effects and lifestyle factors which may be present in users :

Dry mouth (xerostomia)
Clenching and grinding of the teeth (bruxism)
Infrequent oral hygiene
Frequent consumption of sugary , fizzy drinks
Caustic nature of methamphetamine

The dental effects of long @-@ term methamphetamine use are often attributed to its effects on saliva . The reduction in saliva increases the likelihood of dental caries , enamel erosion , and periodontal disease . Although it is clear that use of the drug decreases saliva , the mechanism by which it does so is unclear . One theory is that the drug causes vasoconstriction (narrowing of the blood vessels) in salivary glands , decreasing salivary flow . This constriction is thought to be due to the activation of alpha @-@ adrenergic receptors by both methamphetamine itself and

norepinephrine , the levels of which are dramatically increased by methamphetamine use . These factors can be compounded by dehydration , which occurs in many methamphetamine users after drug @-@ induced increases in metabolism . The characteristics of the saliva produced during use of the drug , which includes high protein content , may also contribute to the sensation of dry mouth .

Long @-@ term methamphetamine use can cause parafunctional habits , routine actions of a body part that are different than their common use , which can result in tooth wear and exacerbate periodontal diseases . One such habit that may affect the development of meth mouth is bruxism , particularly as the drug 's effects wane and stereotypy occurs , a phase that is often referred to as " tweaking " . This bruxism may be due to a drug @-@ induced increase in monoamines . Other behaviors of long @-@ term methamphetamine users that may cause or accelerate the symptoms of meth mouth are the failure to pay attention to oral hygiene and excessive food intake during binges , especially sugary foods ; the drug 's users often report strong cravings for sugar and consume large amounts of high @-@ sugar beverages . The altered mental state that accompanies methamphetamine use lasts longer than that of some other common drugs , increasing the amount of time the user engages in drug @-@ induced behavior .

Hydrochloric acid is used in methamphetamine 's manufacturing process , but academic reviews have not supported the idea that the acid contributes to dental decay . Speculation that oral consumption of the drug causes tooth decay by raising the acidity of users ' mouths is also unsupported . Meth mouth is generally most severe in users who inject the drug , rather than those who smoke , ingest or inhale it .

= = Treatment = =

Meth mouth is very difficult to treat unless the patient stops using methamphetamine ; persistent drug use makes changes in hygiene or nutrition practices unlikely . Many drug users lack access to dental treatment , and few are willing to participate in such a course of action , often because of poverty . Those who are willing to seek dental treatment often resist discussing their drug use . Providing dental treatment to individuals who use methamphetamine can also be dangerous , because the potential combination of local anesthetic and methamphetamine can cause serious heart problems . There is also an increased risk of serious side effects if opioid medications are used in the patient 's treatment .

Treatment of meth mouth usually attempts to increase salivary flow , halt tooth decay , and encourage behavioral changes . Toothpaste with fluoride is very important to the restoration of dental health . Only prescription fluoride rinses can adequately treat the condition . Sialogogues , drugs that increase the amount of saliva in the mouth , can be used to treat dry mouth and protect against dental health problems . Pilocarpine and cevimeline are sialogogues approved by the Food and Drug Administration (FDA) to treat low salivation caused by Sjogren 's syndrome and may have the potential to effectively treat dry mouth caused by methamphetamine use .

Education about oral hygiene for long @-@ term methamphetamine users is sometimes required . Changes in diet are often necessary for recovering drug users that are receiving dental treatment , and the use of sugar @-@ free gum may be beneficial . The consumption of water and the avoidance of beverages with a diuretic (dehydrating) effect can also help patients with meth mouth .

= = Uncertainty = =

There have not been any controlled studies on meth mouth , and several of its aspects are unclear . Although the condition has been popularized by media coverage and case reports , no systematic studies have been conducted to conclusively tie methamphetamine use to symptoms that are commonly described as meth mouth . There are few ties between dental scholars and those who study drug use , and it can be difficult for dental researchers to find methamphetamine users to study .

Whether the drug has a unique effect on dental health has been questioned by a few academics , who note that the long @-@ term use of several other drugs sometimes causes dental problems . Several academic reviews have contradicted this perspective , affirming meth mouth 's status as a discrete condition . In favor of its unique status , these reviews cite the differences between methamphetamine @-@ caused caries and those that occur for other reasons , such as cocaine use , as well as the scope of the tooth decay found in some long @-@ term methamphetamine users .

= = Society and culture = =

Although most methamphetamine users lived in Asia in the early 2000s , the use of the drug increased dramatically in other parts of the world in that decade . In areas where use of the drug has become common , meth mouth is often widespread . The condition is expensive to treat and has strained public health resources , prompting concerns among dental authorities in several countries about the burden of treatment .

Images of meth mouth are usually considered disturbing and have been used in anti @-@ drug campaigns , even being placed on hoardings / billboards . The condition is often mentioned in media coverage of methamphetamine , and it has been included in media portrayals of drug abuse to demonstrate the scope of the drug 's effects or to provoke disgust in the audience . Opponents argue that the term is used to negatively stereotype methamphetamine users , and that it is falsely portrayed as inevitable or characteristic .