

Bruxism and clenching



What is it?

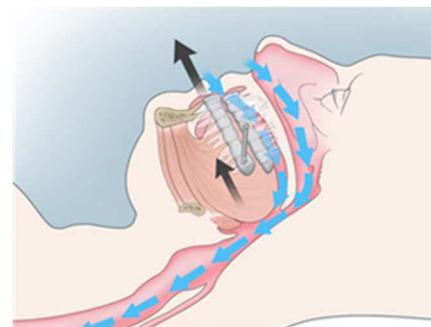
Bruxism is a condition where an individual grinds their teeth together with a large amount of pressure. This typically occurs when you are not aware of it, for example, when you are sleeping. You may also clench and grind your teeth during waking hours, however, because you are awake, you are usually able to notice it and stop. Additionally, the forces used to clench, or grind are less while you are awake compared to when you are asleep. Night-time grinding tends to be a very big problem for several reasons;

1. You may not be aware that this is occurring and as such may not realise the implications on both your dental and overall health. Grinding is often a symptom of an underlying health issue. This may range from snoring, to sleep disordered breathing to obstructive sleep apnoea.
2. There is accelerated wear of your teeth and a dramatically increased risk of cracked tooth syndrome, broken or chipped fillings, crowns, etc. Due to this increased pressure and force, your fillings or crowns may break within a short time despite being 'fixed' recently.
3. Jaw joint and facial pain can develop from the excessive forces and from the changes induced by the excessive wear on your teeth. These changes may include alterations in your bite and backward placement of your jaw. If these issues are not treated promptly, it can cause long-term damage to your jaw joint (TMJ) and it becomes more difficult to treat and manage.

What causes it?

The exact cause of grinding is individual and multifactorial. Stresses within your life may cause your anxiety levels to increase and cause unconscious clenching or grinding. This is particularly true for daytime clenching and grinding. For night-time grinding, the underlying cause is often airway related.

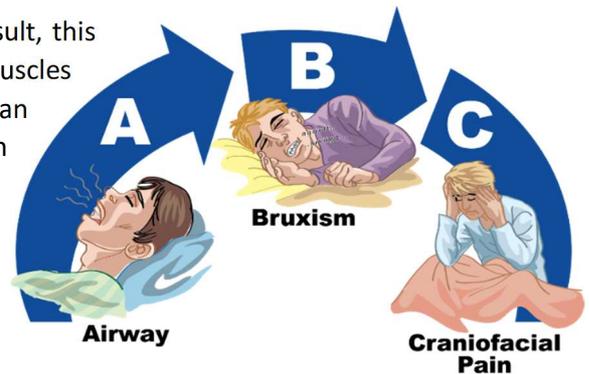
Your air tube sits behind your mouth and nose. If this air tube becomes narrowed for any reason and as such the air supply is decreased, this can cause your body to send out alarm signals in order to increase the air supply. The alarm signals that your brain sends your body tells your jaw to open and move forward causing you to grind your teeth together. By moving your jaw forward, you are opening up your airway and allowing more air into your system, thereby relieving the alarm signals that your body is sending out. As long as this air tube remains narrowed and the air supply is reduced, your body is going to continue to send out these signals and you will continue to move your jaw (thus grinding your teeth) to supplement the air allowed into your body.



The narrowing of the air tube may be due to a number of reasons. These include excessive soft tissues, such as enlarged tonsils or adenoids, elongated soft palate, congested nasal turbinates, lack of jaw growth and development resulting in narrow dental arches & crowded or rotated teeth, and **poor muscle and tongue tone**. The exact cause of this narrowing of the air tube may be from one or more of the above mentioned causes. Your dentist may suggest a three dimensional scan (I-CAT) of your head and neck in order to investigate if there is narrowing of your airway, the extent to which it is

narrowed, the cause of the narrowing, if there are any associated degenerative changes (i.e. jaw joint displacement), sinus inflammation, and abnormal growths among others.

If your air tube is narrowed and you are grinding as a result, this places additional stress upon your jaw joint and the muscles surrounding and supporting it. This additional stress can cause jaw joint dysfunction. This dysfunction may result in the following symptoms; headaches, jaw aches, migraines, clicking and/or popping of the jaw on opening or closing, jaw locking, muscle aches, sore neck and shoulders, and bone grinding within the joint. These symptoms may be mild or severe with some individuals unable to open or close their mouth without significant pain.



As stated above, bruxism is typically a sign of an underlying issue. Without investigating this possible underlying issue, there may be severe health implications, including but not limited to; increased risk of cardiac problems such as hypertension, stroke, coronary heart disease and heart arrhythmias.

What are the consequences?

There are multiple consequences associated with bruxing.

1. Temporomandibular dysfunction

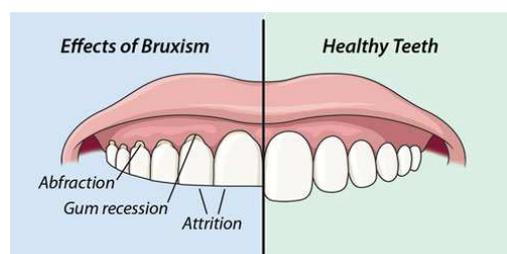
If you leave your bruxism untreated, this may cause long-term irreparable jaw joint damage. As mentioned previously, the additional stresses placed upon your jaw joint due to the bruxing forces, can cause damage to the joint and if left untreated, this damage may be irreparable. This grinding pattern may cause your jaw to sit in an abnormal position, such as further back within the joint space, compressing the disc that protects your joint. This disc prevents the jawbone from rubbing directly onto the base of your skull and allows for smooth movement when opening and closing your jaw. If this disc becomes displaced or compressed, it can cause jaw clicking or popping, headaches and a wide variety of other symptoms.

2. Broken teeth

When you grind your teeth the additional forces, which can be up to three times as much as the normal chewing forces, cause undue stress on your teeth. Your teeth are not typically flat; they are made up of hills and valleys which allow your teeth to fit together neatly as well as allowing you to eat properly. However, it also means that the additional forces from grinding can cause the teeth to flex and bend from this stress. This flexing and bending that occurs means that over time the teeth may chip, crack or fracture. Depending on the location and severity of the damage, the teeth may or may not be able to be saved.

3. Accelerated wear of your teeth

Where you grind your teeth together, a flat patch will develop. This flat patch develops because you have ground **through** the tough outer surface of your tooth, and you may have even uncovered the softer underlying core of the tooth. If this is the case, your teeth may be sensitive, and they will wear at a faster rate. This is because the inner core structure of your tooth is not designed to be exposed to your mouth and the heavy forces put upon your teeth, so it wears significantly faster than the tough outer material of the tooth.



4. **Unattractive smile**

Due to these flat patches on your teeth, your smile instead of being even, rounded and smooth may be sharp and rough. The edges of your teeth will start to become sharp corners rather than rounded edges. These sharp edges and flat patches on your teeth mean that when you are eating, you may find it harder to chew your food into small pieces because you don't have the required contours of the teeth to eat effectively and efficiently.

5. **Your dental work doesn't last very long**

When you are grinding your teeth, you are putting additional stress and forces upon the fillings or crowns that your dentist has placed. Additionally, because these forces are not directly vertical, but rather diagonal in nature, this can cause the tooth and filling to flex and bend in opposing ways. This flexing may cause the filling and/or the tooth to break, crack, fracture and fail. Depending on the nature of this breakage, the tooth may or may not be able to be saved. Furthermore, your dentist is likely to recommend crowns to protect your teeth from the grinding forces, however, these crowns have a shorter lifespan because of the additional forces placed upon them.

6. **Increased costs**

As your dental work has a reduced lifespan and may require several re-treatments of the same area, you may end up spending more money on your teeth to have the same work done multiple times. The same filling may end up needing to be done more than once and may continue to break if nothing is done about the underlying condition causing the grinding.

7. **Tori**

You may notice bony growths developing in your mouth over a period of time. This may be due to the additional stresses placed upon the bone supporting your teeth. Your teeth are supported in the bone by something called the periodontal ligament. This ligament acts like a mini-spring and connects your teeth to the bone. It also allows for some minor movement of the teeth to help combat the forces used when chewing food. Over a period of time, with the heavy bruxing forces, this mini-spring becomes compressed and doesn't recover as well. This places additional forces on both the teeth and the underlying bone **as they are unable to absorb this as well as previously**. The bone, in order to accommodate for this additional force, then lays down additional bone for support. These are called tori or bony exostoses (depending on where they are located in the mouth). These may be small and not impact on your normal function or they may be very large and obstructive causing multiple issues such as difficulty with food management. These extra bony growths may also impact on the dental treatment available to you.

8. **Generalised tooth sensitivity**

Your teeth may become overly sensitive to pressure if you have been bruxing. This is because that ligament that supports your tooth becomes bruised over a period of time and if you keep putting pressure on it, it becomes unable to recover properly. Similar to if you have a bruise on your arm and you poke it; it hurts. Unfortunately, because you need to use your teeth to eat, the ligament doesn't have the ability to take a rest and heal properly causing increased sensitivity of your teeth over time because of the continual forces placed upon this ligament.

What are the symptoms?

There are many symptoms associated with bruxism and the associated damage it can cause. These include but are not limited to;

- Jaw aches

- Head aches
- Generalised sensitivity of teeth
- Worn teeth
- Fractured or cracked teeth
- Temporomandibular joint disorders
- Muscle pain
- Neck pain
- Short lifespan of dental work

What are the treatment options?

There are a number of treatment options available for bruxism. Firstly, when treating this disorder, we need to determine the underlying cause for it. Often, by treating the underlying cause, we can reduce and sometimes even eliminate the bruxing behaviour.

Firstly, if the underlying cause is related to sleep disordered breathing, (i.e. sleep apnoea), we need to treat that first. This is because we need to ensure any appliance that we place in your mouth does not exacerbate your condition. In fact, depending on the cause of the bruxing the ideal treatment option may be an oral appliance. For sleep apnoea, a mandibular advancement splint (MAS) is often recommended. This splint positions your lower jaw forward, opening up your airway and reducing the pressure on your jaw joint, allowing an increase of airflow into your air tube.

Secondly, if the underlying cause is not related to sleep disordered breathing, we may suggest a protective night splint. This splint simply sits over your teeth to protect them and distribute the grinding forces. This splint does not stop the grinding behaviour but rather protects the teeth from the negative consequences of this behaviour. This splint is not designed to help with sleep disordered breathing and your dentist may not recommend this option if you have any underlying sleep disorder.

Lastly, if the underlying cause is due to underdevelopment of the jaw and facial structures, your dentist may suggest orthodontic and orthopaedic intervention. This treatment option allows for additional bone growth to occur, thus moving the soft tissues forward, widening your air tube and allowing adequate airflow. By obtaining this increased airflow, we eliminate the need for the grinding behaviour and thus the negative consequences thereof.

As you can see, bruxism and clenching are not simple issues that can be easily rectified. They require additional testing and information gathering to establish the underlying cause, if there have been any associated consequences and then determine the best possible treatment option for you. If you have any further questions regarding this, please feel free to discuss this with your dentist.