

# Sleep Centre



## Oral Appliances for Sleep Apnoea

### Clinical Sites:



Singapore  
General Hospital  
SingHealth



Changi  
General Hospital  
SingHealth



Sengkang  
General Hospital  
SingHealth



KK Women's and  
Children's Hospital  
SingHealth

# What is a Dental Splint or an Oral Appliance?

A dental splint or an oral appliance (OA) is an alternative to continuous positive airway pressure (CPAP) therapy in managing snoring and mild-to-moderate obstructive sleep apnoea (OSA).

OA looks like the removable functional braces worn by children, or mouth guards that protect the teeth during sports.

There are many names for an OA, including:

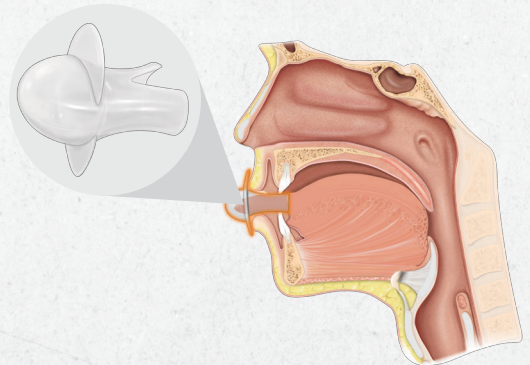
- Mandibular advancement device
- Mandibular advancement splint
- Sleep apnoea mouth guard
- Sleep apnoea dental appliance
- Sleep apnoea oral appliance

An OA is different from a dental splint that is used to protect the teeth in bruxism (tooth grinding).

Proper examination and diagnosis are needed to determine the jaw structure and nature of airway obstruction, before prescribing an OA. Those who mouth breathe will not be able to use an OA as it fills the oral cavity and obstructs mouth breathing.

One type of OA is the **tongue stabilising device (TSD)**. It also goes by many names, such as tongue retaining device, sleep apnoea tongue device or tongue guard.

It is a silicone suction cup that clips over the front of the tongue. Lip shields protrude from the device to keep the tongue positioned outside the mouth.



A tongue stabilising device clips onto the front of the tongue and pulls it forward to open the airway.

# How Do Oral Appliances Work?

## Tongue stabilising devices

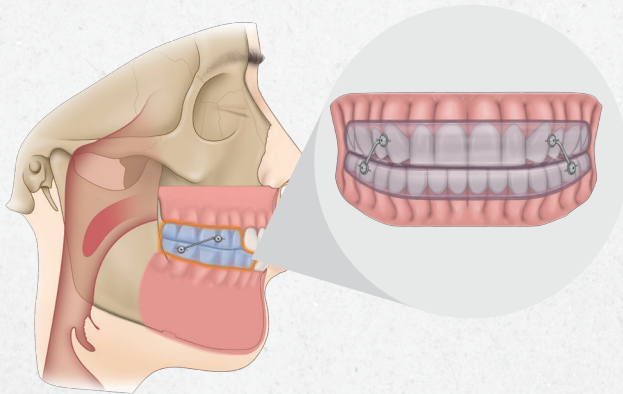
The **tongue guard** or **TSD** holds onto the tongue and prevents it from falling backwards into the airway during sleep.

## Customised OAs

A **customised OA** is made of acrylic-like dental splints and is anchored on all teeth in both the jaws.

There are built-in mechanisms in the OA, such as screws, connectors or bite blocks, to thrust the mandible (lower jaw) forward. The tongue, soft palate, other muscles and soft tissues in the mouth and throat become stretched and taut as the mandible is repositioned anteriorly.

With the tongue and soft palate shifted forward and away from the airway, the calibre of the airway increases.



An oral appliance reduces snoring and OSA by posturing the lower jaw forward to open the airway.

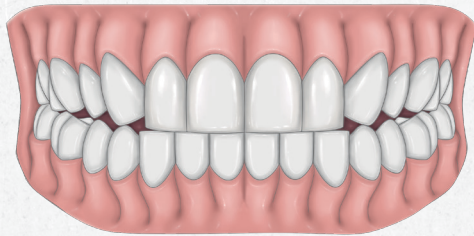
Sometimes an OA may be used together with a CPAP machine to reduce the air pressure for easier breathing. There is an OA adjustment (titration) period of four to six months, when the mandible is gradually advanced into an optimum position, before a second sleep study is done to determine the effectiveness of the OA.

## What Can Oral Appliance Wearers Expect?

The common side effects of using an OA are an open mouth posture and drooling during sleep. The jaw muscles and teeth, especially the incisors, may be sore or painful at the start of OA use.

The pain and discomfort will reduce after a wearing-in period of up to six months. The way the teeth fit together may change, and the lower teeth will bite in a more forward position in the morning. The change in bite is transient and lasts for an hour or so after the removal of the OA.

However, after many years of long-term use, there may be a small permanent change to the lower jaw position which becomes a couple more millimetres forward; it does not make a big visible change to the physical appearance.



There may be changes to the bite after wearing an oral appliance for a few years.

The horizontal gap between the upper and lower incisors may be reduced, and the lower incisors will shift to an edge-to-edge bite with the upper incisors. The bite of the molars will also change after a couple of years.

If oral hygiene practice is poor during OA use, tooth cavities and tooth loosening may occur. Dental fillings, crowns, bridges, implants and gum treatment should be done first before the OA is made.

An OA does not last forever. It may be necessary to replace an OA every three to five years depending on the maintenance of the OA and whether it still fits.

## Advice to Oral Appliance Wearers

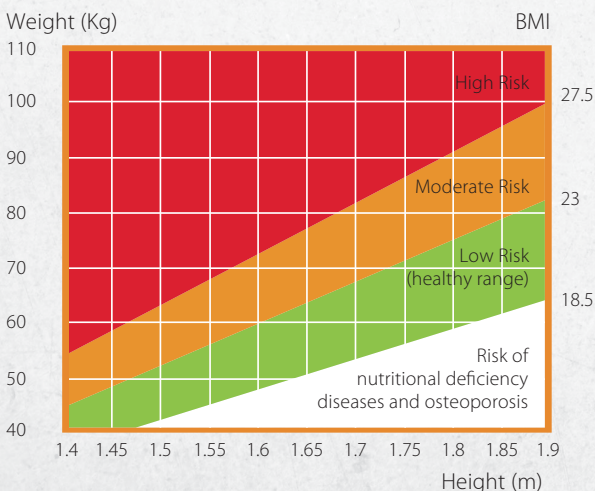
An OA cannot be worn if there is poor oral health maintenance. Teeth are anchors for the OA, and OSA management is not effective when teeth are loose or lost through a lack of oral healthcare.

Sleep studies are necessary every few years to determine if the OA is still effective. OA treatment becomes less effective with weight gain and increased severity of OSA.

The following are advised in OSA treatment using an OA:

- Maintain good oral health and have a dental check-up every six months
- Make sure the nasal passage is patent for breathing through the nose
- Exercise regularly and keep to a healthy weight in the BMI range (below 23)

### BMI Ranges



Note: BMI should not be used to calculate health risk in pregnant women, people with muscular build and the elderly. These BMI ranges also do not apply to youths below 18 years.




# Sleep Centre

## Clinical Sites:



### Sleep Centre




Outram Community Hospital  
SingHealth Tower, Level 3

-  10 Hospital Boulevard, Singapore 168582
-  6321 4377
-  [www.sgh.com.sg](http://www.sgh.com.sg)



### Sleep Medicine Service - Sleep Diagnostics

Medical Centre, Level 6

-  110 Sengkang East Way, Singapore 544886
-  6930 6000
-  [www.skh.com.sg](http://www.skh.com.sg)



### Changi Sleep & Assisted Ventilation Centre

Medical Centre, Level 2

### Sleep Laboratory




Integrated Building, Level 8, Ward 58

-  2 Simei Street 3, Singapore 529889
-  6850 3333
-  [www.cgh.com.sg](http://www.cgh.com.sg)



### Sleep Clinic

Children's Tower, Level 1, Specialist Outpatient Clinic K

-  100 Bukit Timah Road, Singapore 229899
-  6294 4050
-  [www.kkh.com.sg](http://www.kkh.com.sg)