

ORTHODONTICS

THE KLEARWAY™ ORAL APPLIANCE

3



Frontal view of Klearway™ appliance. Soft thermoplastic material conforms to the shape of patient's teeth.



Posterior view of Klearway™ appliance to show activation mechanism and provision for lateral and vertical movement.

It has been estimated that 9% of women and 24% of men aged 30 to 60 have some degree of Obstructive Sleep Apnea (OSA). Surveys tell us the incidence rate of snoring is several times those numbers. With a total of 80 million prospective patients across North America, the treatment of sleep disorders is one of the largest economic opportunities ever presented to the dental profession.

In severe cases, OSA can be life-threatening. OSA may also be responsible for hypertension, stroke and heart attacks.

While snoring may not be life-threatening, it is still a significant concern for the sufferer and bed partner. Snoring occurs when the tongue is posteriorly displaced but does not contact the posterior pharyngeal wall. This narrows the airway and causes air to move rapidly through the passages, causing the vibrations of snoring.

Now, with the Klearway™ Appliance (available exclusively

from Space Maintainers Laboratories Canada), you can offer a proven, non-invasive, reversible solution for these problems.

Proven Through Clinical Trials

When effective, dental appliances cause an increase in airway space; the provision of a stable anterior position of the mandible; advancement of the tongue and/or soft palate and possibly a change in genioglossus muscle activity.

Developed by Dr. Alan Lowe, Head of the Department of Clinical Dental Sciences at the University of British Columbia. Klearway has been tested through extensive multi-centre research funded by the Canadian government. Two clinical trials were conducted comparing various oral appliances and Nasal Continuous Positive Airway Pressure at the University of British Columbia. Other tests have proven the superior effectiveness and covert acceptance of Klearway

when compared to other oral appliances in the treatment of snoring and OSA. In a sample of 49 subjects evaluated in three centres across Canada, 78% were deemed to be effectively treated with the Klearway™ appliance.

Superior To Other Options

Klearway™ is constructed from a unique, clear thermoplastic material with memory. Once warmed under hot water and inserted, the acrylic resin contracts as it cools, conforming to the shape of the patient's teeth. This allows the use of natural buccal and lingual interproximal spaces for reliable retention. The soft nature of the retentive portion of the appliance completely eliminates pressure points. Lateral and vertical jaw movements permit patients to yawn, swallow and drink water without dislodging the appliance. Soft tissue and tooth discomfort are significantly decreased.

Indications:

- At least 10 teeth in each arch.
- Periodontally sound lower incisor teeth.
- Stable posterior teeth suitable for clasping.
- Since added retention for the Klearway appliance may depend on four Adams clasps, the patient should have at least one clinically sound tooth in each quadrant.
- Able to open jaw minimum 30 mm for easy appliance insertion.
- At least 7 mm of AP straight forward jaw movement.

Contraindications:

- Significant periodontal disease.
- Severe TMJ disorders associated with chronic pain.
- Severe restriction in lateral jaw movement.

Preparation:

1. A stone model of both arches from impressions must accompany the prescription sent to Space Maintainers Canada.
2. Take full arch impressions of both arches. Note on the prescription, based on the intraoral examination, which teeth should be clasped. Pour up impressions in dental stone.
3. A bite registration must also be taken and included with the stone models. This bite registration should show two-thirds of the distance from centric occlusion to full protrusion with a 2 mm incisal vertical opening. A George Gauge (available from Space Maintainers Canada) is particularly useful for this procedure. An accurate bite registration is critical in fabricating an appliance that will not impair the teeth, soft tissues or TMJ/occlusion.

Suggested Therapy Sequence:

1. Medical assessment by the attending physician or sleep specialist.
2. Overnight polysomnogram as required by physician or sleep specialist.
3. Written referral or prescription and diagnostic report sent by physician and/or sleep specialist to dentist or dental specialist.
4. Dental examination to include:
 - a medical/dental history
 - soft tissue/intraoral assessment
 - periodontal evaluation
 - temporomandibular joint (TMJ)/occlusal examination
 - intraoral habit assessment
 - examination of teeth and restorations
 - dental radiographs as required
 - diagnostic models
 - the Epworth Sleepiness Scale may also be used as a screening tool at the initial examination
5. Klearway™ design, fabrication, fitting, instructions and training.
6. Klearway™ evaluation during regular use including required adjustments, supervised enhancement and subjective symptom assessment.
7. Refer patient to attending physician for repeated overnight sleep study when there is a significant reduction in snoring and/or symptoms or when the patient cannot tolerate any further mandibular advancement.
8. Possible modification, redesign or remake of appliance as required.
9. Repeated adjustment and evaluation process.
10. Refer to physician for ongoing evaluation.

11. Recall appointments and maintenance as requested by patient or physician. Generally patients who wear Klearway™ appliances should be monitored monthly for the first 12 months and at least annually thereafter.

Appliance Care:

1. Never allow the appliance near high temperatures.
2. Keep the appliance moist when not in use. A retainer case works nicely. The patient should simply place the appliance in the case with a small piece of wet paper towel.
3. Harden the appliance under cold tap water prior to cleaning. Clean with a soft brush and toothpaste, or by soaking in a denture cleaner.
4. Removal of the appliance is best accomplished by using equal pressure on both sides of the mouth. This will minimize the chance of damage.

Easily Adjustable

The Klearway appliance facilitates slow and gradual forward movement of the mandibular jaw position by permitting the patient to adjust the appliance according to his or her own comfort level (with the guidance of the attending dentist). A total of 44 positions are available in increments of 0.25 mm covering a full 11 mm range. These small increments help avoid quick forward jaw movement that can cause significant patient discomfort.

A Medical/Dental Team Effort

It is important that, when prescribing any oral appliance for the treatment of snoring or OSA, dentists interact professionally with medical specialists with extensive training in sleep disorders medicine who are directly affiliated with accredited sleep centres.

Calgary 1-800-661-1169 Edmonton 1-800-661-2745 Saskatoon 1-800-665-8815 Vancouver 1-800-663-1721 Victoria 1-800-663-6364 Kelowna 1-800-667-4146 Vernon 1-800-663-5413 Ottawa 1-800-267-7040 Toronto 1-800-268-4294



© Aurum Ceramic Dental Laboratories Co. (2008).
Reproduction of this work in whole or in part, by any means whatsoever, is strictly prohibited
without the express written consent of Aurum Ceramic Dental Laboratories Co.



Prepared in conjunction with the Aurum Ceramic/Classic Dental Advisory Board.