Mandibular Advancement Device

Objective

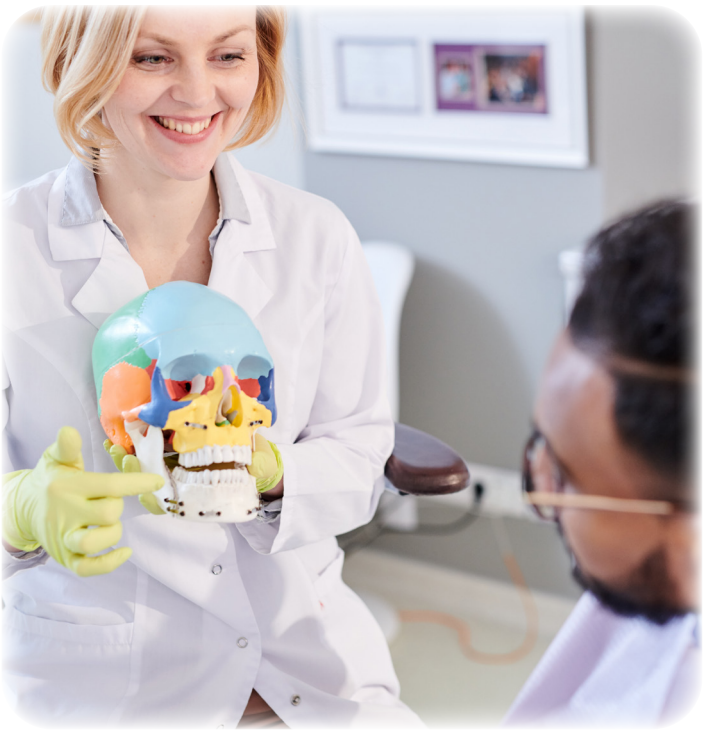
To guide healthcare providers in the appropriate use of Mandibular Advancement Devices (MAD) for the management of Obstructive Sleep Apnea (OSA), particularly in patients who prefer first line MAD therapy, or those who are unsuccessful with Positive Airway Pressure (PAP) therapy and seek to use MAD therapy as alternative or combination therapy.

MADs are recommended for:

- First line therapy for mild or moderate OSA
- Alternative therapy for severe OSA or those unable tolerate PAP Therapy
- Patients who have travel, work, or lodging situations that complicate or prevent PAP use (Military deployments, uncertain power availability, need to travel light)

MADs are not recommended for:

- First line therapy for Severe OSA
- Patients with severe dental disease or inadequate dentition
- Patients with severe gag reflexes or that prevent MAD use



TMJ / Joint Pain Considerations – Mild to moderate joint pain is often resolved by MAD therapy by improving breathing and protecting the joint from trauma during sleep. Severe TMJ issues that alter normal daily activities and quality of life have a higher risk of being exacerbated by MAD and are best treated with first line PAP therapy. However, in PAP intolerant patients a trial of MAD therapy is reasonable prior to or as an adjunct to OSA surgical options.

Implementation Steps

1. Patient Assessment

- Evaluate OSA severity and patient suitability for MAD therapy.
- Consider patient preference, and lifestyle/ job requirements
- If in doubt allow dental sleep specialist to evaluate dental or TMJ status

2. Referral to Dental Sleep Specialist

- Refer to a qualified dentist specializing in dental sleep medicine for evaluation and treatment.
- Ensure dentist communicates patient progress and titrates appliance for therapeutic benefit.

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3. Dental Evaluation, Records Capture, Appliance Selection/Design

- Evaluate patients teeth, joint range of motion, relevant medical history, and suitability for MAD therapy.
- Capture impressions or scans of teeth and the target initial jaw position for therapy.
- Discuss patient preferences, metal or other allergies, ability to nasal breath, history of clenching or grinding teeth and other factors that will impact appliance design.
- Schedule patient for custom appliance delivery (usually 1-3 weeks later)
- Design and custom fabricate a mandibular advancement device to fit specific patient needs.

Selecting your Mandibular Advancement Device

There are 5 main types of mandibular advancement devices classified by the mechanisms that stabilize the mandible, distribute forces on the teeth, and incrementally advance the mandible to maintain an open airway. These devices are fabricated from several different materials. The models below are the most commonly used appliances in DoD/VA clinics. The dentist will consider patient preferences and needs, and select the best appliance and material available for the patient. Metal allergies, manual dexterity, nasal breathing, bruxism, dental conditions, and oxygen or compliance monitoring requirements are considered in appliance selection and design.

Appliance	ProSomnus EVO	ProSomnus Herbst	Somnodent Classic	Airway Labs TAP	Panthera EMA	Panthera X3
Appliance Type	Interlocking (precision post)	Bilateral Push (compression)	Interlocking (dorsal post)	Midline Pull (traction)	Bilateral Pull (compression)	Interlocking (dorsal post)
Manufacturing Location	USA	USA	USA	USA	Canada	Canada
Material	Medical Grade 6 (MG6) used for heart valves	MG6 w/Metal	Dental Acrylic (PMMA) used for dentures w/Metal	PMMA w/Metal	Nylon	Nylon
Production Method	Milled	Milled	Hand fabricated	Hand fabricated	Printed	Printed
Mechanism of Advancement	Change to included extra arches to move forward 1mm at a time	Advance screws 4 rotations per mm with included wrench	Advance screws 10 rotations per mm with included wrench	Advance screw 2 rotations per mm with included wrench	Change to included extra straps to move forward 1mm at a time	Insert included extra pieces into the upper arch post to move forward .5mm at a time

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4. Device Fitting and Adjustment

- Ensure MAD is comfortable and fits well enough to stay in place during sleep. Mild soreness the first few nights is expected.
- Initiate therapy at a mandibular position expected to manage OSA.
- Deliver a morning occlusal guide (MOG) and demonstrate how it prevents bite changes or jaw soreness/self injury from clenching prior to normal bite return each morning.

5. Patient Education

- Explain the proper use, care, and lifecycle replacement of the MAD.
- Explain the plan to monitor progress, titrate to maximum benefit, and seek efficacy testing.
- Discuss adjunctive options to improve outcomes such as weight management, positional therapy or myofunctional exercises.
- Discuss potential side effects and the importance of adherence to therapy.

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6. Titration, Follow-Up, Efficacy Testing and Monitoring

- Schedule follow-ups such as virtual encounters the first 24-48 hours, a face to face appointment within
- 30-days and a second within 6 months for adjustments and titration.
- Refer to sleep medicine provider for efficacy testing (preferably with in-lab titration) as soon as therapeutic benefit is perceived (restorative sleep, resolution of snoring, and therapy compliance reported).
- Monitor annually for adverse side effects, need for adjustment due to dental changes, or life cycle replacement (2 to 4 years depending on material used)
- Return for additional titration if you begin snoring again or your sleep quality worsens. Minor adjustments to your mandible position are often indicated as you age, or with changes in body weight or certain medications.

Expected Outcomes
► Reduction in the Apnea-Hypopnea Index (AHI)
► Resolution of snoring
► Improvement in sleep quality, alertness and quality of life
► Rapid adoption and high adherence to therapy

Potential Risks and Side Effects
► Dental discomfort or bite changes
► TMJ Pain or transient soreness
► Excessive salivation
► Dry mouth (if mouth breathing/unable to nasal breathe)

Did you know?

1. Mandibular Advancement Devices are recommended as first line therapy for mild or moderate OSA, but they can also be used with PAP machines as combination therapy, or as alternative therapy for those that cannot sleep well with PAP.
2. The best therapies are the ones that work for you. Do not be afraid to try several options if the first one you try does not improve your sleep. One size does not fit all.
3. Whatever therapy choose, you can use it for the entire night, every night, to live a longer, healthier life!