

THE ROLE OF THE MATRx IN PREDICTING WHICH PATIENTS CAN BE TREATED SUCCESSFULLY WITH ORAL APPLIANCES

Brock Rondeau, D.D.S. I.B.O., D.A.B.C.P., D-A.C.S.D.D., D.A.B.D.S.M., D.A.B.C.D.S.M.

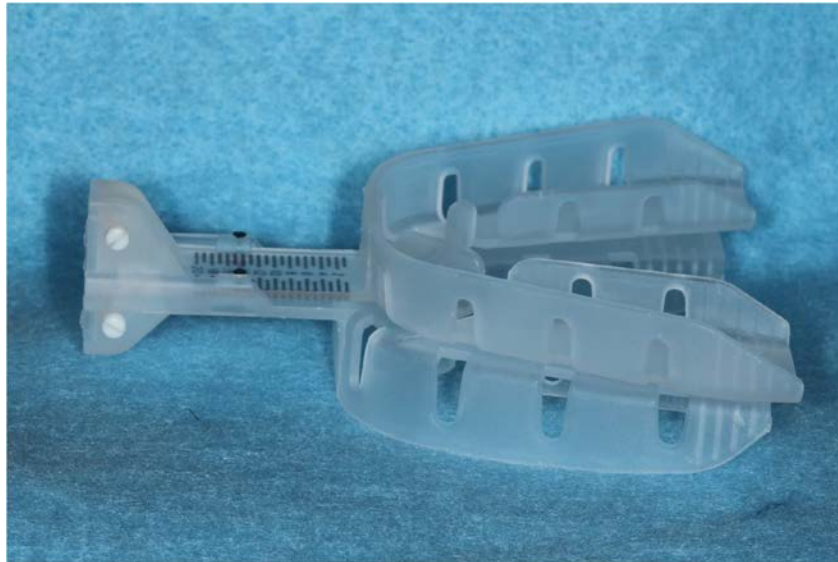
Oral appliance therapy is expensive and may not be covered by medical insurance and therefore patients are reluctant to proceed with treatment. The answer is simple: refer the patient to a sleep lab that has the MATRx System trained to work with dentists who are familiar with MATRx. The procedure starts in the dental office where the dentist adds impression material, (polyvinyl siloxane) to two disposable trays that fit the patient's teeth. The dentist asks the patient to move their lower jaw forward to maximum protrusion (approximately 10-12 mm, normal). Then the dentist will ask the patient to move forward 4-5 mm to a comfortable protrusive movement. That measurement is recorded and put on a prescription and given to the patient. The patient takes the prescription and the temporary upper and lower trays to the sleep lab when they go for the overnight sleep study (polysomnogram).

At the sleep lab, the upper and lower trays are placed in the patient's mouth which are attached to a remote controlled mandibular positioner so that the mandible can be progressively protruded under polysomnographic observation without disturbing the patient ^{1, 2}. This MATRx device is commercially available through Zephyr Sleep Technologies Inc, Calgary, Alberta, Canada. It is presently being used at approximately 150 sleep labs.



This remote controlled device allows small, precise movements in the anteroposterior dimension while restricting movements in other dimensions. The purpose is to try and determine a target position for the oral appliance to be effective. While the mandible is being slowly titrated forward without waking up the patient the polysomnogram will reveal whether or not the obstructive sleep apnea is being treated successfully. The criteria that

is used for treatment success is a 50% reduction in AHI or an AHI less than 10. In an article published in *Sleep* in 2013 entitled “Remotely Controlled Mandibular Protrusion during Sleep Predicts Therapeutic Success with Oral Appliances in Patients with Obstructive Sleep Apnea” results were very positive. The results of this study demonstrated clearly the efficacious target protrusive position for 87% of the patients were predicted to be therapeutically successful with oral appliances. The oral appliance used in the study was the Somnodent Appliance.³



MATRx TRAYS

Patients, dentists and sleep specialists should be pleased with this new technology that will demonstrate prior to the fabrication of the oral appliance that patients will be positive responders to treatment. The technique for determining what pressure must be attained during the polysomnogram in order to reduce the AHI and eliminate the obstructive sleep is used routinely prior to the treatment with CPAP. Using a sleep study to determine what degree of mandibular advancement will reduce the AHI and eliminate the obstructive sleep apnea seems to be a similar concept and one that should be utilized by more sleep labs and patients.



**CHECK PROTRUSIVE
MOVEMENT WITH TRAYS**



**RECORDS PROTRUSIVE
MOVEMENT**

The sleep study is an essential part of the income for sleep specialists. The addition of the MATRx system will increase the number of diagnostic and final sleep studies done by the sleep lab.

Another advantage of this temporary MATRx appliance is that it can also serve as a temporary appliance after the sleep study. It is important that temporary appliances be placed to maintain a patent airway when patient's oral appliances are remade or repaired.



MATRx TRAYS POLYVINYL SILOXANE

At the outset I mentioned one of the main objections I get from patients is the fee when they do not have medical insurance. They are also concerned about the prognosis for success with the oral appliance, therefore the MATRx can be an excellent solution to try and identify patients who will respond positively to oral appliance therapy. Patients do not know what to expect regarding the fee for custom oral appliances. On TV and the internet they see they can get an appliance for \$79 and are obviously shocked when they learn the cost of the oral appliance could be \$2,500. To receive these appliances from either the internet or TV the patients must state that they have no TMJ problems or obstructive sleep apnea.

Research states that 85% of patients who have obstructive sleep apnea are not aware of the problem. The disadvantage of the TV appliances are that they are often much bulkier than the custom appliance and there are no sleep studies to prove the efficacy of the TV oral appliance. One solution is to have the patient spend \$250 to determine, by using the MATRx system, if the oral appliance, at a predetermined mandibular advancement position will be effective in treating their obstructive sleep apnea.



At the present time it is shocking to hear that only approximately 5% of patients are referred from sleep labs for oral appliances when the patients are unable to wear CPAP devices. With this new technology (MATRx), hopefully more sleep specialists will recommend this diagnostic tool for determining in advance the efficacy of oral appliances. Most sleep specialists and medical doctors prefer to recommend CPAP therapy over oral appliance therapy. While extremely effective, particularly in the treatment of severe obstructive sleep apnea, adherence to this treatment with CPAP is reported to be low, increasing the need for alternative treatment.^{4, 5} Oral appliances are recommended as a CPAP alternative for mild or moderate obstructive sleep apnea.^{6, 7} Perhaps the ideal situation might be for the medical doctors, sleep specialists or dentists to ask the patient what treatment they would prefer. If they prefer CPAP, if the patient has co-morbid health problems or they are obese, then encourage the patient in that direction. If the patient prefers to try the oral appliance then have the sleep lab contact a dentist who is familiar with the MATRx technique. The MATRx trays costs \$100 and I charge \$250 to examine the patient, fill the trays with polyvinyl siloxane and determine the maximum protrusive movement that I want the sleep lab to protrude the mandible safely during the sleep study. This is a minimal expense for the patient to try and see if the sleep study can determine if the oral appliance will effectively reduce the obstructive sleep apnea at a predetermined mandibular advancement.

Dental sleep medicine and the entire dental profession owes a debt of gratitude to two outstanding inventors of the MATRx, Dr. John Remmers, world renowned sleep specialist and researcher and Dr. Shouresh Charkhandeh, dentist and researcher. They both deserve recognition for their important contribution.

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