



Unwind_{MD}

Unwind MD is a prefabricated muscle deprogrammer (anterior deprogramming splint) that is to be relined with a hard setting material (like self-cure acrylic or bite registration paste) and custom fit on to the patients maxillary incisors. It is permissive in nature and allows for physiologic relaxation of most elevator muscle groups along with the lateral pterygoid (depressor/ positioner) muscle.

INDICATIONS

1. Differential diagnosis: Unwind MD helps diagnose the possible etiology of oro-facial pain. If a patient with symptoms (in the head, neck, shoulder or back region) were to wear the deprogrammer, one of three diagnosis can be drawn on the basis of following symptom response:

a. Improvement of symptoms suggests of an occluso-muscle disorder (OMD). This points towards the patient's occlusion as being the causative factor for the symptoms and is well within the purview of dental correction (via occlusal equilibration, orthodontics, direct/ indirect restoration, surgery or a combination approach).

b. Worsening of symptoms suggests of a Temporomandibular Joint Disorder (TMD). This points towards the causative factor as being an intra-capsular disorder and is also within the purview of dental correction (via full-arch splint therapy, occlusal correction, surgery or a combination approach).

Unwind MD directs the mandibular condyle in an antero-superior direction (towards centric relation) almost immediately on seating. In a TMD patient, such loading aggravates the pain multifold as the condyle compresses the highly innervated retro-discal tissue (instead of the non-innervated TM disc) and provides the diagnosis of TMD.

c. No symptomatic change suggests of a non-dental etiology and management of such a patient is beyond the purview of a dentist as the cause often has a systemic origin.

2. Prevention of migraine headaches: Often migraine and/or tension-type head-aches can have a muscular origin, particularly those involving the pericranial area. Unwind MD helps eliminate/reduce the activation of the sympathetic nervous system that cause muscle spindles to over-contract and cause migraine pain.

3. Prevention of muscular parafunction (bruxism/clenching): During regular masticatory function, naturally occurring reflexes protect the joints from any acute trauma. However, those reflexes are not present during nocturnal parafunctional activity and the joints are at considerable risk during this time. Unwind MD is a better option for patients with parafunctional habits as compared to a soft night guard that merely cushions the impact. It is human nature to bite frequently into anything soft in the oral cavity, thereby causing the night guard to perforate under continued muscular activity. On the other hand, Unwind MD keeps the posterior teeth apart at all times thereby eliminating any possibility of frictional tooth contact and subsequent attrition. Simultaneously it also relaxes the oro-facial musculature, thereby alleviating spasmodic symptoms that are a common stay in such patients (especially upon awakening). In addition, it also helps reduce parafunctional activities associated with periods of stress (during day time wear).

4. Prevention of oro-facial (neck, shoulder, back) pain:

It is an established fact that changes in head posture can affect occlusion and changes in occlusion can affect head posture. An individual with a discrepancy between CR and MIP (owing to a high crown, interfering wisdom tooth, etc.) tend to develop an anterior head position. It is postulated that for every inch of forward head posture, the weight of the head on the lower spine increases by about 4.5 kgs. This often warrants the spine to alter its curvature in an attempt to center these unnatural forces. Such changes affect the physiologic contraction of the massive trapezius muscle along with allied musculature. It is not uncommon for such a patient to develop head, neck, shoulder, upper and lower back pain, especially in episodes of stress.

Muscle deprogramming using Unwind MD allows the trapezius muscle to relax, thereby allowing for neutral head posture and better alignment of the spinal column. Such improvement in posture helps alleviate neck, shoulder, back muscle spasm and thus associated symptoms (as long as the deprogrammer is worn by the patient).

5. To achieve centric relation: When treating patients who require occlusal equilibration or complex full mouth rehabilitation procedures, it is important to start with a stable, comfortable and repeatable position, i.e. CR.

6. As a protective splint for night-time wear following completion of full mouth rehabilitation procedure: A successfully treated patient can wear the deprogrammer indefinitely in order to keep parafunctional intensity to a minimum and to protect the restorations, including implants. It can also be used over provisional restorations to protect them during the interim phase of full mouth rehabilitation cases.

7. As a preventive appliance in patients with TMJ clicking with/ or without symptoms: TMDs are often progressive in nature and Unwind MD can help avoid or delay such progression. Unwind MD in such a patient is a part of active prevention, rather than actual management. (Note, a click may not resolve with wearing of the appliance). It can also be used for patients suffering from epilepsy as a protective device during an episode.

8. Chronic sensitivity to cold or sweet that does not respond to regular anti-sensitivity regimes: In such situations the cause of sensitivity can be an interference (to mandibular closure or during excursive movements). Resolution of symptoms with the wear of Unwind MD helps conclude this diagnosis. This protocol can also be applied to identify whether the cause of toothache is dental (needing RCT) or traumatic in nature (needing occlusal correction).

For some patients the use of Unwind MD may be the entire treatment; while for others, it may be the initial step towards definitive occlusal treatment.

MODE OF ACTION

An occlusal interference such as a high crown or defective tooth inclines activate muscle hyperactivity. Pain often gets focused in the masticatory muscles to give the impression of a TMD. A high percentage of misdiagnosed TMDs are occluso-muscle disorders that are readily reversible.

Unwind MD separates the interfering tooth from contact, thus allowing the condyle-disc assembly to seat up into centric relation. This substantially releases the hyperactive contraction within the elevator muscle groups and also allows the lateral pterygoid to release its contraction. Co-ordinated muscle function can be achieved quickly and peaceful muscle activity resumes quickly with the use of this appliance.

A correctly made Unwind MD is close to 100% effective in getting patients comfortable, usually within minutes or hours.

CUSTOMIZATION OF THE APPLIANCE

In its correct position, Unwind MD fits snugly on the maxillary incisors and allows only the mandibular incisors to contact the Discluding Table (DT) of the deprogrammer during all static and excursive movements. This ensures posterior separation at all times.

To achieve this, the following steps are to be followed: (video for same available on youtube under title 'Unwind MD: The story')

1. Seat the appliance in its correct anatomic position over the maxillary incisors and ensure that it fits passively. (In case of any obstruction, reduce the internal surface of the deprogrammer using an acrylic trimming bur). Note: For patients with Class I and II occlusion, position the maxillary incisors as far forward within the fitting surface of the appliance as possible. Conversely for Class III or edge-to-edge occlusion, orient the maxillary incisors in the middle or further behind within the fitting surface of the appliance as per the requirement of the given situation. Such placement would allow for adequate length of the DT to be available for the mandibular incisors to make protrusive-retrusive movements without slipping off the deprogrammer.

2. Hold the appliance in place (ensuring its DT is parallel to the maxillary occlusal plane) and have the patient bite gently onto the discluding table. Ideal placement of the appliance provides uniform intensity contact of two mandibular central incisors on the DT of the appliance. In this position, check for separation between the canines and all posterior teeth bilaterally. Next, have the patient make excursive movements (forward, right lateral, left lateral) and ensure canines and all posterior teeth continue to stay out of contact bilaterally. In such a situation where separation cannot be achieved, add acrylic onto the discluding table vertically to increase its height or optionally reduce the interfering contact(s).

3. Mix self-cure acrylic to a thick consistency and load into the fitting surface of the deprogrammer when it reaches the dough stage.

4. Following this, seat the deprogrammer onto the maxillary incisors and ask the patient to bite slowly. In order for the appliance to work best, the DT of Unwind MD should be aligned parallel to the occlusal plane (and thereby perpendicular to the mandibular incisors). To achieve this, it is advisable to use the DT Aligner from MIK Dental.

5. Prior to complete polymerization of the material, remove the deprogrammer (as the set material could make retrieval of the appliance difficult and often painful). This deprogrammer should immediately be placed in a container with hot

water as this allows for rapid polymerization, decreased voids and reduced polymerization shrinkage of the self-cure resin.

6. Once set, trim and polish the excess material beyond the confines of the deprogrammer using acrylic trimming and finishing burs. Often the internal embrasures need to be selectively trimmed to ensure snap-in and snap-out retention of the appliance. It is important that the patient is unable to dislodge the appliance using lip or tongue force (as this could cause the appliance to inadvertently fall out while the patient is asleep). Alternately the same procedure can be performed using bite registration paste as the relining material (Note: Coat the fitting surface of the appliance with tray adhesive prior to relining).

At completion ensure:

- The DT of the appliance contacts the two mandibular central incisors in static closure.
- In maximum protrusive-retrusive movement the lower incisors does not slip off the DT of the appliance and that there is at least 1 mm A-P room available at the edges of the DT.
- There is complete separation of canines and posterior teeth bilaterally during all excursive (forwards, right and left lateral) movements.
- Ensure the vertical opening is minimal, thereby allowing for adequate freeway space. If the vertical opening is excessive, the joint gets strained during excursive movements and this may not allow for symptom relief (on the contrary it can cause the pain to aggravate). Trimming the DT vertically helps reduce the vertical jaw opening.
- Also ensure all excursive movements are smooth without the mandible having to jump or lock over any lower incisors. In such a scenario, the DT of the appliance can be trimmed in height. The appliance is designed such that decreasing the height of the DT progressively increases its width, thereby ensuring smooth transition of crowded or irregularly placed lower incisors along a wider DT.

MAINTENANCE OF THE APPLIANCE

After overnight wear the patient can clean the appliance using soap and brush (just like for removable dentures). Also denture cleansing powders/ tablets/ pastes can be used to disinfect the appliance.

Unwind MD is available commercially in a specially customized case that are to be given to patients for keeping the appliance safely when not in use. The case is small and allows the patient to conveniently carry the appliance in their pockets/ purses for day-time use, if indicated.

PERIODIC FOLLOW-UP

As the musculature relaxes and the condyles seat upward into their CR position, there is possibility for a posterior interference to present itself (that was earlier not apparent) even whilst the appliance is placed intra-orally. It is thus important to follow-up with the patient around one week from initial insertion. This is because maximum changes in jaw position can be observed within the first 8 days and is the result of normalization of masticatory musculature. At this appointment it is important to check for interferences in exaggerated excursive movements as well.

DURATION OF WEAR

The duration of wear is dependant on the intended use of the appliance:

- Differential diagnosis: Often symptom improvement/deterioration is quick and thereby helps diagnose the etiology. Over-night wear is usually adequate for this purpose, however day-time use may sometimes be needed based on the time of symptom presentation.
- Migraine: A trigger for migraine can present at any time during the day or night. For the same reason along with night-time wear, the appliance may have to be worn by the patient during the day-time as well at least for the first 4 to 6 weeks. Following this, day-time wear is optional while the patient continues to regularly wear the appliance during night-time. As the nocturnal parafunctional intensity continues to decrease progressively over nights, the ability to trigger a migraine during the day also decreases. This provides for stable and predictable results.
- Bruxism/ Clenching: The deprogrammer is to be worn until the patient gets definitive treatment.
- For CR: Usually a few hours of over-night wear allows for the condyles to seat into their musculo-skeletally stable position.
- Post treatment care: Parafunctional excursions during day-time are less intense and involve less translatory movement. Thus, night-time wear is often what is required for such patients.

WITH LONG TERM WEAR OF THE APPLIANCE

Following is a common sequence of events following long-term night time use of the appliance:

- As the appliance allows the condyles to seat in CR position, the masticatory musculature becomes co-ordinated and peaceful.
- Now when the splint is removed, the previously unnoticed interferences becomes evident and the patient finds it difficult to close into the Maximum Intercuspal Position (MIP).
- This patient may put the appliance back in and keep it there to maintain comfort in the presence of occlusal disharmony. A better option would be to correct the occlusal discrepancy such that the appliance would no longer be needed.

ABUSE OF THE SPLINT

It is important to understand that Unwind MD is a diagnostic/ preventive splint and not a treatment device. It is ideal for night-time use and may also be used day-time as and when indicated. It is important to remove the device when eating as this provides occlusal stimuli to the dento-alveolar complex thereby ensuring positional stability of individual teeth.

Using this appliance as a treatment device over extended periods of time (without removal of appliance) can cause extrusion of the teeth that are not in contact while also simultaneously intruding the teeth in contact with the DT of the appliance. This results in a stepped-occlusal table that worsens the long-term prognosis.

LIFE OF THE APPLIANCE

This is subject to the intensity, frequency and duration of the patients clenching/bruxing activity. Although the anterior deprogrammer eliminates hyper contraction of the elevator muscles, it does not inhibit their physiologic activity. In long-term users who have intense parafunctional habits, a small notch like defect can be created on the DT. This would require periodic repair with self-cure acrylic resin to recreate a smooth DT and allow restriction-free mandibular movements.

EFFECTIVENESS OF THE APPLIANCE

It is not uncommon for some patients to report significant symptom relief overnight; while others may need weeks to experience the calming influence of the device on oro-facial musculature. However, the rapidness and depth of relief in symptomatic patients is directly related to the chronicity and intensity of the etiology.

Patient complaints including combinations of headache, migraine, face pain, jaw pain and/or restriction, neck pain and/or restriction and sinus pain may present a seemingly complex and multi-factorial diagnosis, when in reality they may all be a direct result of varying degrees and orientations of nocturnal masticatory function. The cornerstone of successful patient care is a diagnostically driven therapeutic protocol. Unwind MD is an effective tool in such patient care.



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