Therapeutic Protocol Trouble Shooting

Goals of the NTI Therapy

1: Minimize the muscle contraction intensity.

Method: **Allow for incisor contact only, in any excursive/protrusion position**.

2: Minimize the joint strain/load during masticatory parafunction.

Method: **Minimize condylar rotation during occluding events by minimizing the VDO and posterior freeway space.**

During initial consultation, review #8. Prior to dismissing patient following initial delivery or follow-up adjustment, confirm that they can't remove the device without using their hands and cannot "make it hurt" while clenching in all excursions (if they can do either, you're not done).

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PROBLEMS AND SOLUTIONS

Painful incisors.

- If it's the incisors that the device is attached to are painful, relieve the internals by "flame-brushing" (alternatively, dipping in just-boiled water for 2 seconds) and re-inserting and allow to cool/harden on the teeth. If that leaves inadequate retention, extend the distal flanges to incorporate additional teeth. (flame brush the distal ends of the flanges to create a sticky surface, then add new blobs of heated thermal plastic, re-insert on the teeth and adapt to putty to include next distal teeth). The device must feel like a part of their jaw, not something gripping their teeth or feeling "too tight". Otherwise, the device becomes part of the nociceptive input that the device is trying to minimize.

- If it is the incisors that oppose the device that are uncomfortable, place an Auxiliary Slider over those incisors. *You may need to slightly reduce the height of the Discluding Element on the original device so as not to overall increase the VDO.*

Sore jaw/TMJ

The problem is most likely excessive vertical dimension. Intensely clenching on the device should not illicit joint pain. If so, reduce the height of the Discluding Element and check in all excursions (by having them clench), *especially in protrusive*. (The patient may have never had protrusive movements included in their parafunctional movements, but now with the NTI device they may developed new activities…so don't believe them if they claim, "I don't do that"). The slope of the Discluding Element may need to change dramatically in order to prevent excessive VDO in protrusive.

- For an upper device, the DE may need to slope "up" considerably beyond the incisors' edges.

- For a lower device the DE may need to slow "down" into the floor of the mouth considerably.

Continuing headaches

If employing opposing sliders, confirm that they are not comprised of two flat surfaces. Sculpt the distal ends so that the upper slider looks like a smile, and the lower slider looks like a frown, creating a tangent point contact between the two.

Check for occluding contacts in excursive movements.

- If there is a posterior contact in an (extreme) excursive movement, reduce the height of the opposing cusps so as to maintain disclusion. Do not increase the VDO of the DE. Discuss with the patient the complications that the contact presents prior to do any cusp tip reduction.

- If employing an upper device, look for lower canine contact on the DE in extreme excursion. The patient may never have moved that far prior to using an NTI, but range of motion increases with use, therefore, switch to a lower device.

- Check for posterior contacts in retrusive movements. If the condyles have been allowed to migrate towards CR, the freeway space may have decreased allowing for cusp contact in slight excursions.

The preferred remedy, which maintains minimal VDO, is to reduce the occluding cusps (following patient's consent), or;

- Employ an opposing slider, or add acrylic to the surface of the DE. Following any increase in VDO, confirm lack of joint strain/load by having patient clench intensely is all excursions.

- Increase the vertical dimension. If the patient is a "primary clencher" and does not have the habit of moving exclusively, this is not an unsafe remedy. As vertical dimension increases, clenching intensity decreases (but can put the joint at risk in excursive movements)

"I'm still having headaches"

The patient may be complaining that they "still have a headache" (when they may not realize that their intensity and or frequency has decreased). Assuming all listed remedies have been accounted for, remind the patient that intense clenching is a lot like speeding on the freeway. We have taken our foot off the gas, while not employing the brakes, so the reduction in speed is gradual.

- Ask the patient, "How many mornings per week do you wake up feeling fabulous? That is, with a *zero* out of 10", and, "When you wake up with a number, what's the number that you have?" (hopefully you have recorded these two answers at your initial visit). Record these numbers in your chart and have the patient return in two weeks and ask the same questions again.

- Published research shows that clenching intensity and bite force with an NTI is reduced by 50% within six months of use. It is not unusual for a patient to say that they are "slightly better" at their first two week reevaluate, and then when you see them six months later for their prophy visit, they tell you (surprisingly without any fanfare) that their headaches have been gone for a while.

Teeth feel fat or itchy.

Assure the patient that this is not uncommon and is due to the reestablishment of normal PDL health. Prior to using the NTI, the patient had been compacting their teeth within their sockets on a regular basis. Explain to the patient that it is similar to the tingly sensation one gets after ones "foot falls asleep" from sitting on it wrong. As the PDL regains its normal state, it can be hypersensitive, creating the sensation of fatness". The sensation will resolve within two or three days.

Can't seal lips / drooling

Reduce the facial walls as much as possible. Reduce the facial bulk of the DE. A primary-clenching patient should be reminded that their assumption that lip seal is necessary is really their parafunctional muscular condition trying to fool them into thinking that it's so. Many of these patients' clenching habits include tight lip seal and creating a vacuum within their mouth. When they no longer can do that, they feel that something is wrong, when in fact, what they have been doing is part of their parafunctional disorder. Also, with a new foreign object in their mouth it is normal for excess saliva production for a period of time. Suggest placing a towel on their pillow for a few nights. Sculpting the device to make it as natural as possible will help.

"My teeth have moved"

The first assumption a patient usually makes when becoming aware of a change in mandibular position is that is that individual teeth must have moved. They are somewhat convinced of this based on their identification of just one tooth that is contacting prematurely. They should be reassured that as their musculature normalizes, the horizontal flexibility of their mandible and seating of their condyles (which can happen unilaterally), will present as a lone posterior molar hitting prematurely.

- Reducing the DE considerably will reveal the new prematurity. See 3B1. This usually has occurred as the patient's symptoms are improving. A posterior contact that occurs with the NTI device in place should be reduced.

"My jaw is sore/tired after eating".

As posterior interferences are revealed as the musculature normalizes, the patient's jaw gets tired, as the lateral pterygoids are charged with the responsibility of "putting on the brakes" during masticatory elevation, so as to prevent traumatic occluding. Look for new interferences and reduce them (with patient consent).

"I can't bite with my front teeth"

INSIGHT: When initially consulting with the patient, note the degree of incisal overlap on those patients with minimal to no incisal overlap, discus the circumstance of muscular

normalization (as symptoms improved) where the condyles may be allowed to superiorly seat to their most braced, protected position and note it in their chart. The mandibular shift may fulcrum on the most posterior molars (making it appear as if the upper molar(s) have extruded), thereby preventing the incisors from meeting (for patients with normal to considerable incisal overlap, this is typically a non-issue). This may go completely unnoticed by the patient.

So as to prevent any claim that "the patient's teeth have moved", some practitioners will provide dual "full coverage" NTI devices, where one arch includes a Discluding Element. Glidewell Lab and any National Dentex affiliates can fabricate these)

REMEDY:

Because the patient is wearing an NTI at night, there is no functional purpose for the occluding scheme to provide "immediate posterior disclusion via canine rise with transition to incisal guidance", as the NTI provides instant incisal guidance. What the patient simply needs is the ability to acquire incisor edge-to-edge contact. Instruct the patient to protrude and close as if they were trying to incise on a piece of paper. *In that position*, mark the contacting posterior cusps, and reduce them (typically the palatal cusps). Continue the process until incisor's edges can touch in protrusion (when the patient retrudes, they will most likely still appear to have an AOB, as there may be little to no anterior coupling). The patient will now be able to functionally to be able to incise and chew food.