Faculty Disclosure

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Ms. Turner has listed no financial interest/arrangement that would be considered a conflict of interest.

Temporomandibular Dysfunction: Physical Therapy Management

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Fellow in Training, EIM’s Fellowship in Orthopedic Manual Physical Therapy
Who We Are

- Physical therapists are evidence-based health care professionals who offer cost-effective treatment that improves mobility and relieves pain, reduces the need for surgery and prescription drugs, and allows patients to participate in a recovery plan designed for their specific needs.¹

- Physical therapists are now graduating with a Doctor of Physical Therapy (DPT) degree.²

Why us?

- TMD is common condition that limits the natural function of the jaw, such as talking or chewing, and major cause of non-dental orofacial region pain.³

- Describes pathologies or disorders effecting the temporomandibular joint (TMJ), masticatory muscles, and related structures.

- Neuromuscular system has a central role.⁴

- Physical therapists help people with TMD ease pain, regain normal jaw movement, and decrease daily stress on the jaw.
Who gets it?

- 35% of the population report symptoms (all ages)
  - Women > Men
- 5-10% actually seek care
  - Age 20-40

Okeson et al

Classification

- Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD)$^4,6,7,8$
- Classification system based on an integration of impairments and symptoms.
  - Updated in 2010 by an inter-professional consortium
  - DC/TMD
Masticatory Muscle Disorder

- Temporalis, Masseter, Lateral pterygoid, and Medial pterygoid
- Overuse or tensile Strain
- Trigger Point pain referral

Harrison et al.
Disc Dislocation with Reduction

Normal:
https://youtu.be/fyHGOOhxHOs
DDxR:
https://youtu.be/KjB01-ljDvk

Harrison et al

Disc Dislocation with OUT Reduction

DDwoR:
https://youtu.be/QT7u99W4tks

Harrison et al
Joint Disorder

- Arthralgia, Osteoarthritis, Osteoarthrosis
- Treatment guided by symptoms not diagnosis
- “It is important to note that the TMJ does demonstrate normal age-related changes such as slight flattening of the condyle, but age-related adaptive processes do not predispose one to pain or dysfunction in this region.”

Harrison et al

Special Questions

- Key Questions to rule in TMD:
  - “Have you had pain or stiffness in the face, jaw, temple, in front of the ear, or in the ear in the past month?”
  - If yes, “Are symptoms altered by any of the following jaw activities: chewing, talking, singing, yawning, kissing, moving the jaw?”
- Key Questions indicating disc disorder:
  - “Have you ever had your jaw lock or catch so that it would not open all the way?”
  - If so, “Is this limitation in jaw opening severe enough to interfere with your ability to eat? Have you ever noticed clicking, popping, or other sounds in your joint?”

Harrison et al
Special Questions

- Recent dental behaviors?
- Headache present? If so, how does it relate to symptoms
- Parafunctional activities? (eg, clenching, chewing pencils, chewing gum, chewing fingernails, or grinding teeth)

Harrison et al

Red Flags

<table>
<thead>
<tr>
<th>Classification</th>
<th>Screen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary headaches</td>
<td>History and symptoms (TABLE 3)</td>
</tr>
<tr>
<td>Secondary headaches</td>
<td></td>
</tr>
<tr>
<td>Cardiac, angiia</td>
<td>Cardiac history, blood pressure, heart rate, sudden onset, burning,</td>
</tr>
<tr>
<td></td>
<td>tingling</td>
</tr>
<tr>
<td>Systemic: rheumatoid</td>
<td>Medical history, bilateral pain, multiple joints</td>
</tr>
<tr>
<td>arthritis, fibromyalgia,</td>
<td></td>
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<tr>
<td>systemic lupus-erythematosus</td>
<td></td>
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<tr>
<td>Cervical</td>
<td>History, posture, range of motion, segmental motion, palpation,</td>
</tr>
<tr>
<td></td>
<td>cranio cervical flexor strength</td>
</tr>
<tr>
<td>Dental</td>
<td>Dental history, observation of oral cavity, teeth, bite</td>
</tr>
<tr>
<td>Ear</td>
<td>History, observation, otoscopy, pressure over tragus</td>
</tr>
<tr>
<td>Sinus</td>
<td>History, sinus pain, nasal congestion, reduced smell</td>
</tr>
<tr>
<td>Eye</td>
<td>Acute vision loss, eye pain with eye movement, palpation temporal</td>
</tr>
<tr>
<td></td>
<td>artery</td>
</tr>
<tr>
<td>Cervical neuralgia, CNS</td>
<td>History, burning, tingling, shooting pains, cranial and cervical nerve</td>
</tr>
<tr>
<td></td>
<td>exam, palpatiion occipital nerve</td>
</tr>
<tr>
<td>Peripheral neuralgia</td>
<td>History (possible causal event), burning, tingling, hyperalgesia,</td>
</tr>
<tr>
<td></td>
<td>paresthesia, cranial cervical nerve exam</td>
</tr>
<tr>
<td>Neurogenic pain</td>
<td>History, sudden onset severe headache, vomiting, nausea, altered</td>
</tr>
<tr>
<td></td>
<td>mentation, altered muscle tone and function (pap), paralysis, blisters,</td>
</tr>
<tr>
<td></td>
<td>weakness or sensory loss, slurred speech</td>
</tr>
<tr>
<td>CNS disorder</td>
<td></td>
</tr>
<tr>
<td>Psychological disorders</td>
<td>History, affect, malaise, life stressors, fatigue, Patient Health</td>
</tr>
<tr>
<td></td>
<td>Questionnaire for Depression and Anxiety, Graded Chronic Pain Scale</td>
</tr>
</tbody>
</table>

Abbreviation: CNS, central nervous system.

Harrison et al
Objective Exam

- Neuro Exam + Cranial Nerve Exam (Trigeminal and Facial)
- Cervical and Thoracic spine assessment
- Palpation: comparable sign?
- Range of motion: 2 knuckle quick test
- Muscle Testing: Resisted jaw motions. Bite or loading.
- Accessory mobility testing: Raise hand or grunt if painful.

Cervical Spine

- 70% of patients have TMD and neck pain\(^9\)
- Patients with chronic neck pain have greater masseter EMG activity bilaterally\(^{10}\)
- Patients with TMD have increased fatigability of cervical extensors\(^{11,12}\)
- Bio-mechanical, neurophysiological, and functional association between trigeminal and cervical systems\(^{13}\)
Treatment

• Evidence indicates physical therapy is effective\textsuperscript{14,15,16,17,18,19,20,21,22,23}
• Multi-modal approach is best
  • Manual therapy, Range of Motion, Posture, Neuromuscular Re-Education, Therapeutic Exercise, Cognitive Behavioral Therapy
• Manual therapy Techniques:
  • TMJ distraction mobilization
  • TMJ Anterior glide mobilizations
  • Soft tissue mobilization (extra and intra-oral)
  • Regional manual therapy (neck, periscapula, thoracic spine)

Kraus et al\textsuperscript{9}
### Table 1  Rocabado’s 6 × 6 exercise program

<table>
<thead>
<tr>
<th>Name</th>
<th>Exercise description/purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rest position of the tongue</td>
<td>The anterior 1/3 of the tongue is placed at the palate with mild pressure, which rests the tongue and jaw musculature and promotes diaphragmatic breathing</td>
</tr>
<tr>
<td>Control of TMJ rotation</td>
<td>The jaw is repeatedly opened and closed with the anterior 1/3 of the tongue on the palate, which decreases initiating jaw movements (eg, protrusive movement in opening, talking, or chewing)</td>
</tr>
<tr>
<td>Rhythmic stabilization technique</td>
<td>Gentle isometrics in the resting position are performed for jaw opening, closing, and lateral deviation to promote muscular relaxation via proprioceptive inhibition, which promotes an improved resting position of the jaw through proprioceptive input</td>
</tr>
<tr>
<td>Axial extension of the neck</td>
<td>Combined upper cervical flexion with lower cervical extension, allowing reduction of tension in the cervical musculature</td>
</tr>
<tr>
<td>Shoulder posture</td>
<td>Shoulder girdle retraction and depression to facilitate postural corrections</td>
</tr>
<tr>
<td>Stabilized head flexion</td>
<td>Upper cervical spine distraction via chin tuck (without additional cervical flexion), during which it is recommended that the fingers be placed behind the neck to stabilize 0° while the head nods</td>
</tr>
</tbody>
</table>

Sources: TMJ: temporomandibular joint.90 91

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### Table 2  Kraus’ temporomandibular joint exercises96,97

<table>
<thead>
<tr>
<th>Name</th>
<th>Exercise description/purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tongue position at rest</td>
<td>The patient is instructed to maintain a resting tongue position except during function, which involves the tip of the tongue sitting on the palate with the tip resting just posterior to the upper incisors</td>
</tr>
<tr>
<td>Teeth apart</td>
<td>The patient is instructed that maintaining the teeth apart can be therapeutic, which facilitates the resting tongue position</td>
</tr>
<tr>
<td>Nasal-diaphragmatic breathing</td>
<td>The patient is instructed in nasal breathing to facilitate function of the diaphragm, which reinforces positioning of both the tongue and teeth</td>
</tr>
<tr>
<td>Tongue up and wiggle</td>
<td>Patients who are weak but whose teeth do not touch or grind while doing so are instructed to routinely assume the resting position and gently oscillate the mandible side-to-side to interrupt the bracing contractions. If clicking or popping occurs, intensity is decreased</td>
</tr>
<tr>
<td>Strengthening</td>
<td>Resisted closure via self-manual resistance of lower incisors: 5-10 second contractions, 5-6 repetitions, 3-6 x/day</td>
</tr>
<tr>
<td>Touch and bite</td>
<td>Proprioceptive re-education; Lateral deviation – the patient touches the contralateral maxillary canine with the finger (with affected right lateral deviation touch left canine) and then bites the finger, which requires lateral deviation toward the finger. Protrusion – repeat with finger touching the outer surface of maxillary incisors.</td>
</tr>
<tr>
<td>Neuro-muscular control</td>
<td>When excessive anterior movement of the mandibular condyle is noted, instruct the patient to define and range opening by placing the tip of the tongue on the anterior palate while the fingers gently palpate the chin and mandibular condyle. Repeatedly open and close to that range. Progression: incrementally remove feedback</td>
</tr>
<tr>
<td>Isometric exercises</td>
<td>Reciprocal click: isometrics are performed immediately before the closing click. Weakness or AROM deviations not believed to be from a structural anomaly. Isometrics are performed in any position. Muscle inhibition to improve AROM. agonists or antagonists can be contracted gently</td>
</tr>
</tbody>
</table>

Kraus et al9
Yellow Flags

- DC/TMD Axis II \(^4\)
  - Pain behavior, psychological status, and psychosocial functioning
    - If present, early management improves symptoms and disability
    - May reduce the risk of patients developing persistent or chronic pain
  - Outcome measures: Patient Health Questionnaire-4 (PHQ-4), Graded Chronic Pain Scale (GCPS), Patient Health Questionnaire-9 (PHQ-9), Generalized Anxiety Disorder-7 (GAD-7), Patient Health Questionnaire-15 (PHQ-15), Temporomandibular Disorder Disability Index (not validated), FABQ, Depression Screen, Tampa Scale Kinesiophobia, Pain Catastrophizing Scale, Fear of Activities Scale,

Psychosocial Considerations

- “Chronic TMDs are physiologically overreactive to their environment and tend to have substantial psychosocial stressors compared to people without TMDs.”\(^4\)
- Cognitive Behavior Therapy\(^{23,24}\)
  - Either alone or with conservative management is effective for chronic TMD
  - Improvements in pain, function, beliefs and behaviors.
  - “A conservative approach involving counseling and physical therapy resulted in significant improvement in parameters of pain and jaw function in patients with myofascial pain.”\(^{19}\)
Team Approach

- Psychologist, Psychiatrist, LMPH
- Dentist
- Physical Therapist

References

References


