**Orofacial & Post-Radiation Rehabilitation**

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CranioRehab is dedicated to the treatment of head, neck and craniofacial patients. Our goal is to be a resource and partner in patient healing by utilizing simple, powerful technologies.

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**SIDE-EFFECTS OF HEAD & NECK CANCER TREATMENTS**

- Trismus (45-55%)
  - Oropharyngeal/Nasopharyngeal (70-94%)
- Xerostomia - 100% when in path of radiation
- Voice, Speech problems (68%)
- Difficulty Sneezing, Laughing
- Reduced social interaction
- Dysphagia, eating, drinking (65-73%)
- Skin and tissue soreness
- Swelling
**Trismus**

**Definition:** Any restriction in mouth opening.

**Synonyms:** Jaw hypomobility, restricted opening, limited range-of-motion (ROM), lockjaw

**Measurements:** MIO/D - Maximum Interincisal Opening/Distance; or ROM - Range-of-Motion

**Normal MIO:** Men 50-60mm, Women 45-55mm

**Trismus:** Decreased function of less than 35mm MIO.

**Trismus Causes**
- Congenital/Developmental
- Trauma and Burns
- TMJ Disorder
- Arthritis and Scleroderma
- Central Nervous System
- Drug Toxicity
- Infections
- Post Surgical - Dental injections (Hematoma formation/ infection) - Nerve damage
- Misalignment
- Damage to muscles
- Hyperextension of joint
- Scarring

**Trismus Complications**
- Poor Oral Hygiene
- Reduced oral access  - Dental Procedures  - Medical Procedures  - Intubation
- Complications cancer treatments
- Dysphagia
- Malnutrition
- Inability to take in/out dentures or oral/ pharyngeal prosthetics
- Aspiration
- Speech Deficits
- Airway Compromised
- Joint dysfunction

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**INCIDENCE**

- 93.8% - RT to Pterygoid
- 61.7 - 85% in NPC Patients
- 79% after HNC SURGERY
- 87.5% - RT to Bilat. Pterygoid
- 54% - in OPC Patients
- 32.2 - 50% in HNC Patients
Trismus Prevention

Trismus can be very difficult to treat, especially when caused by radiation. Preventing its development is imperative for the long-term functionality and quality of the patient’s recovery.

- Therapy and stretching are harder treating radiation induced trismus after it has occurred.
- Trismus (<35mm MIO) at discharge of RT is a strong predictor of trismus at 6 months.
- Preventative early rehab can reduce incidence (by 40%) and severity (by 60%) of trismus.

Trismus - Basic Treatment Decision Tree

Patient has Oropharyngeal or Nasopharyngeal cancer? YES

1) With Radiation to Pterygoid or Masseter Muscles: Yes => Order rehab system
2) Showing Reduced ROM (<35mm/3 fingers) at start or during RT: Yes => Order rehab system
3) Or Observe and ask about loss of function
   a. Reduced ROM or patient reported loss: Yes => Order rehab system
   b. Function is >35mm/3 fingers: Yes => Continue Observation

Patient has Laryngeal cancer: Yes => Continue Observation

Trismus Treatments

Stretching and Physical Therapy*

- Jaw Motion Rehab Systems - OraStretch Press & Therabite
  o Passive range of motion for improved circulation, joint health, reduced inflammation, tissue elongation/ flexibility
  o Standard protocols: 7-7-7, 5-5-30, muscle stretch
  o Positives: Patient controlled, Single-patient purchase for long-term use, easy, portable, documented efficacy
  o Negatives: Requires patient or caregiver force to squeeze open
  o Recommendation: Order for prevention/treatment of all trismus.

- Continuous Passive Motion - TheraPacer CPM device
  o Passive range of motion for improved circulation, joint health, reduced inflammation, tissue elongation/ flexibility
  o Positives: patient controlled, no user force required,
  o Negatives: Expensive rental (especially for long term use), older equipment
  o Recommendation: Order for patients unable to perform manual stretching therapy.

- Dynamic Rehab System - Dynasplint Jaw device
  o Spring loaded stretch, requiring no hands, Standard protocol: 3 x 30min per day, 3-5lbs weight
  o Positives: Patient controlled, portable, no patient or caregiver force required,
  o Negatives: Expensive Rental (especially for long term use), heavy, no documented efficacy
  o Recommendation: Order for treatment of unresponsive severe trismus.

- Static Stretching - Stacked tongue blades
  o Positives: patient controlled, portable, inexpensive
  o Negatives: Not shown to be effective, dental damage possible
  o Recommendation: Do not use.

Other:

- Surgical:
  - Manual Adjustment
  - Coronoidectomy

- Icing/heat
- Massage
- Ultrasound

- Manual lymph drainage
- Other with small effects:
**Xerostomia**

**Definition:** Decrease or stop of saliva production  
**Synonyms:** Hyposalivation, dry mouth, cotton mouth, doughmouth, dooth, pasties, des,  
**Normal salivation rate:** 1.0+ ml/min  
**Xerostomia:** <0.7 ml/min, <.0.1 ml/min is considered xerostomic.  
**Paraffin Expectorate Test:** Chew paraffin for 5 mins, expectorating into measuring container.  
**Symptoms:** Dry mouth, thick or stringy saliva, cracked lips, oral sores, bad breath, sore throat, altered taste, oral fungal infection, tooth decay

### Xerostomia Causes
- Medication - antihypertensives, antidepressants, analgesics, tranquilizers, diuretics and antihistamines
- Sjogrens disease – autoimmune disorder  
- Cancer Therapy – Chemo and Radiation  
- Nerve Damage  
- Other – bone marrow transplants, endocrine disorders, nutritional/environmental stresses  
- Sarcoidosis, HIV (often in children), systemic diseases

### Xerostomia Complications
- Dietary, malnutrition  
- Oral sores  
- Infection  
- Caries  
- Speech problems  
- Dysphagia  
- Pain

### Radiation Induced Xerostomia

**Prevention**  
- IMRT and Proton radiotherapy  
- Radioprotectors – Amifostine, Tempol

**Management**  
- Stimulation of residual function  
  - Pilocarpine,  
  - Saliva lubricants and substitutes  
  - Water,  
  - Mucin, xantham gum for moderate to severe hyposalivation  
  - Gels at night

### Xerostomia Treatments

**Palliative Treatments**  
- Medication – pilocarpine (Salagen), Biotene  
- Water – bottle, cups, XEROS system  
- Avoid alcohol mouth rinses  
- Misted water with glycerin  
- Sugarless candies and gum

**Salvate Oral Hydration System** – Programmable external salivary gland replacement  
- Pump system of water into the mouth.  
- Sponge mouthpiece  
- Day and night modes  
- No documentation on usage yet
OTHER TREATMENT PRODUCTS

Facial Burns and Microstomia Prevention
- Microstomia Prevention Appliance – Facial Flex
- E-Z Flex II Exerciser – Static Stretching

Pain and Swelling
- Hot & Cold therapies
  - Gel Packs
  - Moist Heat
  - Cooler Systems
- Compression wraps
  - JawBra
- Skin Care Products

Nutrition and Hygiene Products
- NutriSqueeze Bottles – for liquid diets, and easy storage and dispensing of liquids.
- Feeding syringes – Difficult to fill and dispense. Small quantities.
**ORDERING AND INSURANCE:**

**Ordering**
- Jaw Motion Rehab Systems: *OraStretch* Press or TheraBite or Salvate system
  - Complete Rx-Order Form
    - Fax it to us at 303-433-8770
  - CranioRehab confirms Ins coverage and Bens
  - Contacts patient for delivery and payment
  - Customer support and coordination with provider
- Other Products - Hot/Cold products, NutriSqueeze Pouches and Bottles, Feeding Syringes
  - Call 1-800-206-8381
  - Online at www.craniorehab.com

**Insurance Coverage**
- All insurance coverage, based on:
  - Plan and Process
    - Pre-Auth (Approval from insurer to bill) vs.
    - Pre-Cert (Item will be covered) vs.
    - Pre-Determination (Item is medically necessary)
  - Benefits (In-network, out-of-network, durable medical equipment DME)
  - Diagnosis
  - Medical Necessity and associated medical polices
- No coverage is guaranteed until claim is received and evaluated (even with pre-auth/cert/determination)

**General Insurance Coverage by product**
- **OraStretch press**
  - Medicare: OraStretch press covered as rented item.
  - Selectively covered by BCBS and Aetna for cancer and post-radiation
  - Not covered by United Healthcare and Cigna as “investigational”
  - All coverage is based on plan, diagnosis, benefits.
- **TheraBite jaw motion rehab system**
  - Medicare - Therabite no longer billable to Medicare. Patient must purchase out of pocket.
  - Private Insurance- See OraStretch press.
- **Salvate Oral Hydration System**
  - New device does not have clear coverage under any plan
- **Other products**
  - Generally no DME coverage
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