



PHYSIOTHERAPY A BOON TO OPERATED PATIENTS OF HEAD AND NECK CANCER

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ABSTRACT This article highlights the importance of physiotherapy and the home based exercises that can help in rehabilitation of postoperative cases of head and neck cancer patients. Following Head & Neck surgery, stiffness and weakness of Muscles of Face, Jaw, Neck and shoulder is a common consequence. To begin strength and moment, it is important do specific exercises, regularly. Period immediate after surgery is the best time to start exercises.

KEYWORDS : physiotherapy, home based exercises, head and neck cancer, post operative.

INTRODUCTION

Oral cancer is the sixth most common cancer across the world combined with the oral squamous cell carcinoma (OSCC). Squamous cell carcinoma (SCC) of the buccal mucosa is a usual malignant tumor in Southeast Asia including India, Taiwan, and China (Reddy RK, et al). Buccal mucosa squamous cell carcinoma is aggressive malignant form of tumor in the oral cavity. It is associated with more rate of regional recurrence which affects higher the inner lining of the cheeks, lateral border of the tongue, oropharynx, floor of the mouth, and lips. The most usual postoperative oral problems occurring after radiation and chemotherapy are mucositis, infection, pain, bleeding, difficulties in swallowing, injury to the glands that produce saliva (xerostomia) or damage the muscles and joints of jaw and neck (trismus), loosening teeth, difficulty wearing dentures, painful swallowing (odynophagia), speech impairment (dysarthria), and development of neck mass as a sign of lymph node metastasis. (Huang CH, et al).

Pain, spinal accessory nerve dysfunction, muscle weakness, shoulder movement restraint, deformity, and inability to perform abduction of upper extremity above 90° occur as results of denervation of the trapezius muscle. Shoulder dysfunction with physical activity changes such as muscular atrophy, capsular adhesions, fibrosis and resisted functional and overhead movements as well as cervical disability, chronic neck pain with muscle spasm, numbness and restriction further causing forward head posture and cosmetic changes occur in following surgeries. Neurologic complications involve injury to the phrenic nerve causing paralysis to ipsilateral diaphragm, which related as pulmonary complications such as breathlessness, chest pain, bronchopneumonia, pneumothorax, pulmonary embolism, and cardiopulmonary distress (Guru K, et al).

Physiotherapy plays a major role in the rehabilitation of patients with oral cancers who undergo multiple treatments including head and neck exercises, mouth opening exercises using theraband devices, and shoulder mobility (Mittal BB, et al). It prevents and treats multiple complications arising because of cancer treatments. Physiotherapy rehabilitation program prevents mainly postoperatively such cancer survivors in physically, emotionally, and socially to gain proper functional range of the motion (ROM) and improve the quality of life (Balamurugan J, et al). This article highlights the importance of physiotherapy and the home based exercises that can help in rehabilitation of postoperative cases of head and neck cancer patients

Why you will need to do Physiotherapy :

Following Head & Neck surgery, stiffness and weakness of Muscles of Face, Jaw, Neck and shoulder is a common consequence. To begin strength and moment, it is important do specific exercises, regularly. Period immediate after surgery is the best time to start exercises

What can happen if you don't do physiotherapy :

The muscles and joints of face, jaw, neck and shoulder can go on stiffness if not exercised. This can lead to long term or permanent stiffness, limited range of movement and chronic pain.

Introduction

This booklet has exercises to help you prevent the loss of:

- Movement Strength Endurance.
- This can occur due to decreased activity while you are in the hospital. The arm exercises will help you work on a range of muscle groups. Do the exercises as your occupational or physical therapist taught you.

General Instructions :

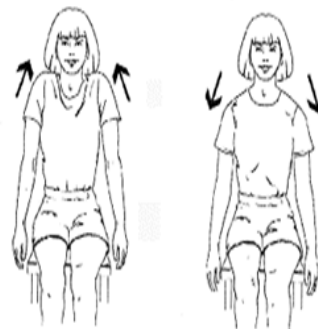
- Do these exercises slowly to get the most from them.
- Wear clothes that are comfortable and do not restrict your movement.
- Do the exercises lying in bed or sitting up straight in a chair. You can also try to do them while sitting at the edge of your bed or standing. If you do them this way, make sure another adult is around. This will help to ensure your safety and to reduce your risk of falling.
- Breathe deeply throughout all exercises. Try to breathe from your diaphragm. This will relax your body. It may enable you to have a greater range of movement with your arms. Counting out loud will help you remember to breathe.
- Stop and/or alter the exercises if you feel any pain. You can alter any exercise by doing only part of the movement.
- If you have weakness in one arm, adapt the exercises. Do this as described in the instructions.
- Discuss any questions or concerns about this exercise program with your Doctor or Physiotherapy.

UPPER EXTREMITY EXERCISE PROGRAM

Exercise 1

Shoulder Elevation/Depression :

Shrug your shoulders up towards your ears and then drop them down.
15 repetitions: 3 times per day.



Exercise 2

Composite Shoulder Circles :

Roll your shoulders forward in a circle 5 times and roll them backwards 5 times. Relax and repeat the exercise. 15 repetitions; 3 times per day.



**Exercise 3
Shoulder Flexion/Extension**

(A) Begin with your arms at your side. Extend your arms in front of you with your palms facing each other. Raise your arms up as far as you can and then return to starting position. Repeat
(B) Begin with your arms at your side. Raise your arms behind you as far as you can. Return to starting position. 15 If one arm is weaker than the other, adapt the exercise. Do this by clasping your hands together and raising them over your head, 15 repetitions; 3 times per day



**Exercise 4
Internal Rotation**

Place your hands behind your back and use one hand to grasp your other wrist. Slowly slide your hands up the center of your back as far as possible. Hold 10 seconds, then return to starting position. Repeat 10 times.

15 repetitions; 3 times per day.

If one arm is weaker than the other, adapt the exercise. Do this by using your stronger arm to help your weaker arm slide up your back.



**Exercise 5
Cane Exercise**

Lie on your back with your arms at your side, holding a cane or stick. Lift the cane up toward the ceiling, over your head, keeping both arms level. Return your arms to the starting position. 15 repetitions; 3 times per day



CONCLUSION :

While you are less active, doing these exercises will help maintain your:

Mobility.
Strength.
Endurance.

Remember to adapt or stop doing the exercises if you feel any pain. Please share any questions or concerns with your occupational or physical therapist.

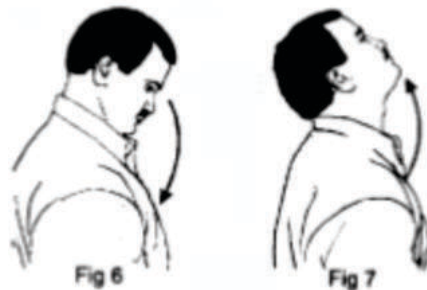
What to do if you develop tightness of muscle when opening your mouth? After above practicing if you specialists and physiotherapist, they

How to perform neck exercises ?

Sit in a relaxed manner, gently turn your head to look to each side as far as possible. Repeat this movement 5 times. (Fig. 3, 4 & 5)



Sit; bring your chin to your chest. Return to the starting position. Repeat 5 times. (Fig. 6)



Sit, in a relaxed manner; gently bring your right ear towards your right shoulder as far as possible. Return to the starting position. Repeat the same on your left side. Repeat 5 times (Fig. 7) What to do if you develop tightness of muscle when Opening your Mouth ?

After above practicing if you still notice any tightening in your jaw call your doctor right away. They can refer you to:

Speech/swallowing specialists and physiotherapists. They can help you maintain and restore your ability to open your mouth. They use many techniques such as exercise, stretching, and massage. They may also recommend special devices to help you open your mouth.

Physiotherapists doctors they will assess your ability to open your mouth. They may use medicine for pain or spasms or suggest other treatments to help you..The earlier you start treatment for trismus the easier it will be to restore your jaw function.

problems :

- Cleaning your mouth and teeth; lead to bad breath, cavities, and infections
- Chewing and swallowing; make it difficult for you to eat and drink Talking

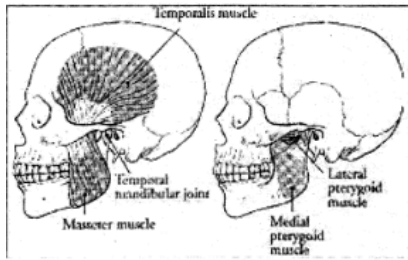
How to prevent Trismus :

- Maintain good oral hygiene.
- Massage your jaw muscle
- Exercise your jaw muscles.
- Maintain good posture.

Trismus can occur when :

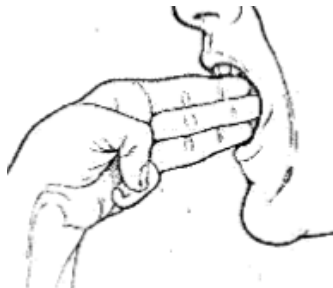
- After mouth surgery.
- Oral Infection,
- After radiation to the head and neck.
- Chewing Tobacco,

Trismus involve the muscles and nerves that open the mouth.



Normal Jaw Function :

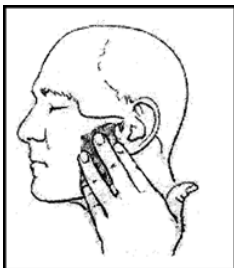
- The jaw is a pair of bones forming the framework of the mouth and teeth.
- The upper jaw is called maxilla; lower jaw is called mandible.
- The mandible connects to the skull at the temporomandibular joint
- Several muscles and nerves around the jaw area work together to open and close your mouth.
- Mouth opening ranges are varied from person to person.
- Average is 35-55 millimeters which is equal to the width of three fingers.



- Surgery and radiation can injure the tissues involved with opening the mouth.
- Fibrosis can cause muscle and other fibers shorten and tighten as the tissues begin to heal from surgery.
- Fibrosis can also build up and become apparent years after radiation. This makes it harder to open your mouth.

Massage Your Jaw Muscle (Masseter Muscle)

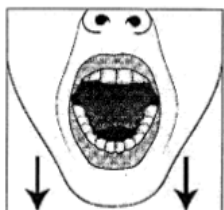
- Place your index and middle finger on your cheek bone. Run your fingers downover your masseter muscle infront of your ear, which ends at your bottom jaw.
- As you move your fingers find points that feel tender or tight.
- Massage each area in a circular direction for 30 seconds



Exercise Your Jaw Muscles :

- Use a mirror for these exercises to help you do them correctly.
- Sit or stand. Hold your head still while doing these exercises.
- At the time of during below exercises keep your breath normal.
- Active range of motion and stretching exercises :

- Open your mouth wide.
- Hold position for 5 seconds.
- Repeat 10 times twice in a day.



- Move your Jaw to the left.
- Hold position for 5 seconds.
- Repeat 10 times twice in a day.



- Move your Jaw to the Right.
- Hold position for 5 seconds.
- Repeat 10 times twice in a day



Passive Stretching Exercises :

- Place one thumb on your upper teeth in the middle of your jaw.
- Place the pointer(index) finger of your other hand on lower teeth in the middle of your jaw.
- Stretch your jaw open by pushing your bottom jaw down with pointer finger.
- Hold this stretch for 10-15 seconds.
- Repeat 5 times twice in a day.



What are Jaw Stretching exercises ?

Jaw stretching exercise help in overcoming trismus (pain while opening the mouth)

Gently open and close your mouth as much as possible

INTRODUCTION OF ORABITE JAW STRETCHER SYSTEM

- The OraBite Jaw Stretcher System consists of :

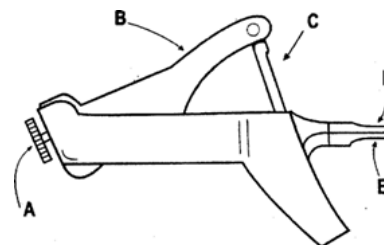


Figure 1 : OraBite Jaw Stretcher

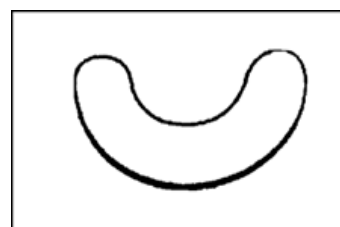


Figure 2 : Four Bite Pads

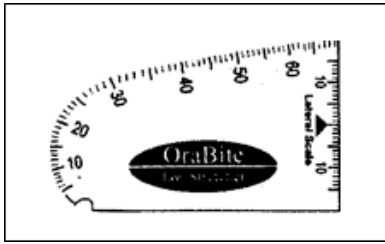


Figure 3 : Thirty Range of Motion Scales

Patient Progress Log
User Manual
Video CD

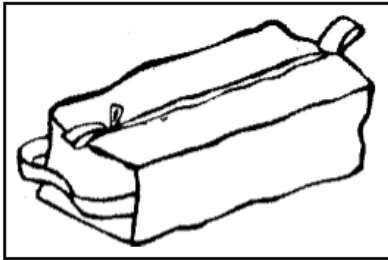


Figure 4 : Carry Bag

1. How to use OraBite Jaw Stretcher ?

1.1 How to put on the bite pads?

The OraBite jaw stretcher system comes with self-adhesive bite pads to protect the user's teeth

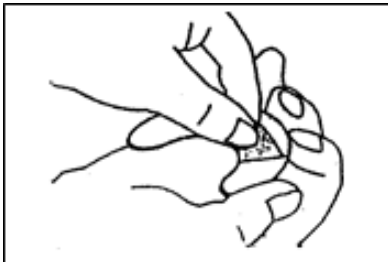


Figure 6 : Peel off the paper to expose the sticky surface

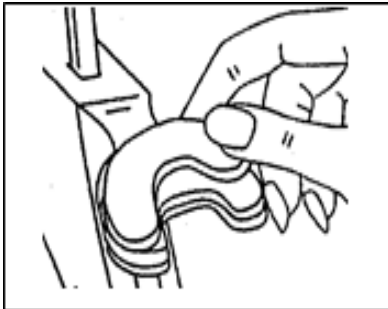
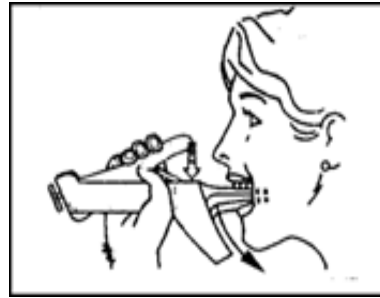


Figure 7 : Attach one bite pad to the upper mouth-piece and one to the lower mouth-piece

- Apply pressure with your thumb to ensure sufficient initial adhesion to the mouth-pieces.
- Pressure and warmth under a prolonged period will make the bite pads tackier
- To enhance adhesion of the bite pads to the mouth-pieces, apply the bite pads to the mouth-pieces before going to bed and leave them on overnight.
- If the bite pads become worn out, replace them with the two extra bite pads that are included with OraBite System.

CAUTION: Bite pads or parts of bite pads that become loose during use might obstruct breathing. Therefore make sure that the bite pads are securely attached to the mouth pieces.

1.2 How to use the OraBite System



- Hold the OraBite Jaw stretcher with the lever all the way up and with the mouth-pieces inside your mouth.
- Squeeze the lever gently to move the lower mouth-piece downward, following the natural motion of the jaw.

1.3 How to use the fine adjustment knob.

- The fine adjustment knob can be used to slow , or stop the motion created by OraBite jaw stretcher

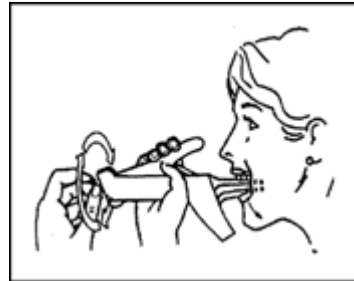


Figure 8a

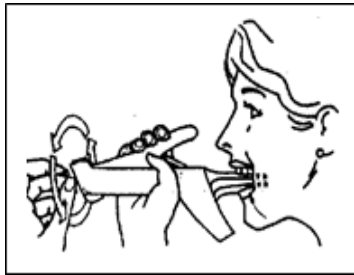


Figure 1 (b) Release at any time by relaxing your hand (Fig 1c)



Figure 1(c)

- Always begin and end each session by recording your measurements in the patient progress log. This will give you an accurate assessment of your progress, and will guide your doctor in directing your treatment.

How to use range of motion scale :

- The range of motion scale is designed to make mandibular motion measurement quick and easy.
- Record your progress on the reverse side of the scale and in the progress log that comes with your device.

To measure the maximal Incisal Opening :

- Open your mouth as wide as possible without discomfort.
- Place the range of motion scale so that the notch rests on the edge of a lower incisor (tooth) (Fig. 9).

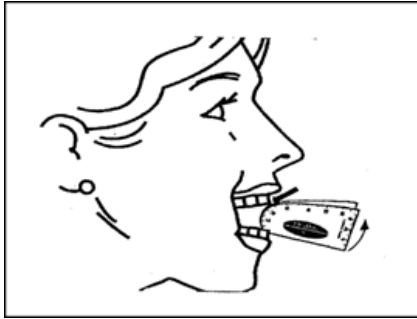


Figure 9

Rotate the range of motion scale until it contacts an upper incisor.

C* Take the reading at the point of contact.

- Record the measurement of the reverse side of the range of motion scale or in the separate patient progress log.

Daily treatment regimen to use OraBite System

The commonly used exercise regimen is Five Sessions per day, Five Stretches per Session, Each stretch held for 30 Seconds followed by relaxation for 30 seconds.

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