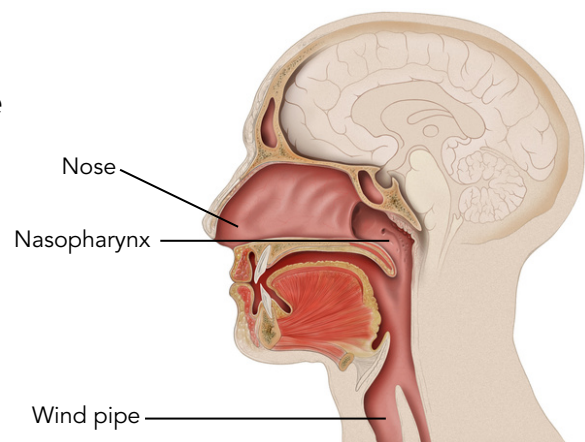


Nasopharyngeal Cancer (NPC)

What is Nasopharyngeal Cancer (NPC)?

Nasopharyngeal Cancer (NPC) is a disease in which cancer cells form in the tissue of the upper part of the pharynx (throat) behind the nose.

NPC is a type of head and neck cancer. Treatment of NPC usually involves radiation therapy, chemotherapy, or a combination of both.



How does NPC impact on swallowing and communication?

Obstruction

The cancerous growth or tumour may block and impact the normal movement of swallowing and/or speech structures in the throat and/or mouth. For example, if the growth is located near the opening of the food pipe, entry of food/fluid into the food pipe during swallow may be obstructed, leading to the flow of food/fluids into the airway instead.

Nerve Compression

There are many important cranial nerves in the neck that are responsible for controlling muscles for swallowing and speech. If the tumour is causing compression on these cranial nerves, it can lead to weakening of the muscles controlled by these nerves. This can cause changes to swallowing, speech and voice.

How does Radiotherapy (RT) cause changes in swallowing and communication?

Radiotherapy (RT) can lead to a range of short and long-term side effects that may impact your swallow, speech and voice ability.

Short-term Side Effects (during and immediately post RT)

Fatigue

Fatigue occurs as the body attempts to repair healthy cells damaged during RT treatment. The tiredness may worsen due to swallowing difficulties. RT may also cause nausea, vomiting and feeling unwell.



Skin and Tissue changes

Area(s) treated during RT may become red, sore and painful. RT can also cause damage to lymph nodes and/or vessels and impair lymphatic and venous drainage, leading to swelling in the treated area(s). Swelling and soreness of swallowing and speaking muscles may lead to painful swallowing or talking.



Reduced Saliva Production

RT may lead to damage of salivary glands. This can lead to a dry mouth which makes eating more uncomfortable. Reduced saliva production can also cause reduced lubrication for the vocal chords. As a result, voice quality might become hoarse or weak during periods of prolonged talking.



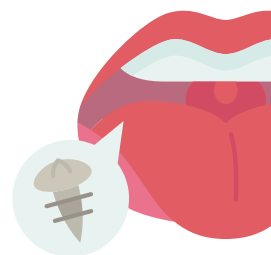
Mucous Membrane Damage (Mucositis)

Mucous membranes refer to areas like the lining of the mouth, throat and gums. RT can cause inflammation to these areas, making them red and ulcerated.



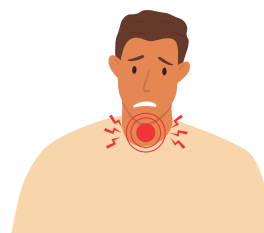
Taste Changes

RT may lead to the damage of taste buds. Taste may be further impacted by a dry mouth which can reduce or alter taste. Food may taste metallic after RT. In most cases, this symptom is reported to resolve in 2-4 months post-RT.



Voice Changes

RT may lead to the stiffening of vocal chords. This can lead to changes in voice quality (e.g., breathy voice or reduced pitch range and flexibility).



Long-term Side Effects (a few to many years after RT)

Lymphedema

This refers to swelling due to fluid accumulation from damage to the lymphatic system and impaired fluid transportation. Swelling and soreness can impact the movement of swallowing, speech and voice structures.



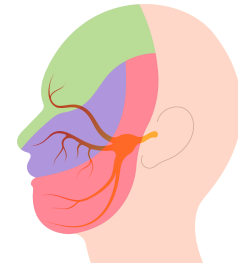
Scarring and Fibrosis of Tissue

RT may lead to damage of small blood vessels and tissue cells, causing them to scar and harden (fibrosis). This causes areas of muscles to be constricted which may inhibit the flow of food/fluids during swallowing and/or cause reduced range and speed of movement in structures involved in swallowing and speech.



Neuropathy

RT may cause damage to nerves around the brain and spinal cord. If cranial nerves in the head and neck are damaged, it may cause weakness and numbness in muscles involved in speech, voice and swallowing that are controlled by these nerves.



Trismus

Due to stiffened jaw muscles after RT, it may cause reduced mouth opening (trismus). This can affect biting, chewing and the time taken to eat. Reduced mouth opening can also affect the resonance of voice and speech clarity.



Hearing Loss

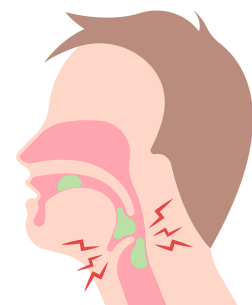
RT may cause damage to inner ear structures e.g. affecting the way sound is directed in the ear or damaging sensory cells/nerves in the ear that send messages to the brain. This makes it difficult to hear soft sounds.



Swallowing Impairments

A swallowing impairment can develop as a result of a combination of all the side-effects mentioned above. These can include:

- Delayed initiation of the swallow reflex.
- Reduced squeezing strength of throat muscles that push food/fluids into the oesophagus (food pipe). This can result in some food/fluids getting stuck in the throat area.
- Reduced upwards movement of the vocal chords during a swallow, which is essential for airway protection and the opening of the oesophagus.



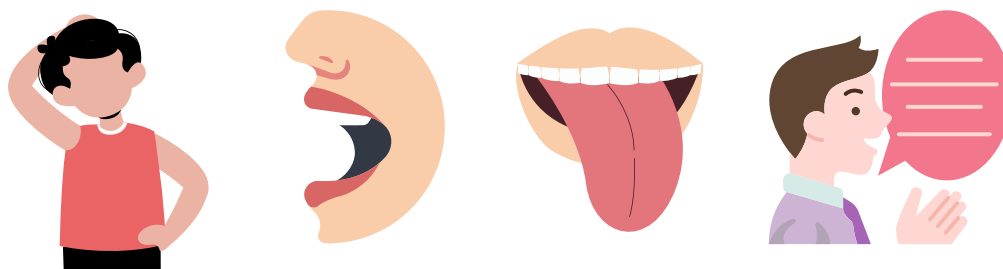
How can the side effects of RT be managed?

Exercise

The severity of the side-effects on swallowing and communication can be reduced through some exercises that can be done before, during, and after RT treatment. Your Speech Therapist will provide an exercise plan that is specific to your needs and aim to help improve and/or maintain the strength, flexibility and coordination of the muscles required for swallowing and communication.

This may include:

- Neck stretching exercises
- Jaw exercises
- Tongue exercises (please refer to separate handout)
- Swallowing exercises (please refer to separate handout)
- Voice exercises

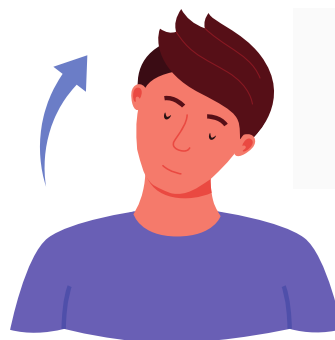


Should you or your loved one experience difficulties with swallowing or communication, please do not hesitate to contact us at 6363 3000 or enquiry@wh.com.sg.

Neck Stretching Exercises

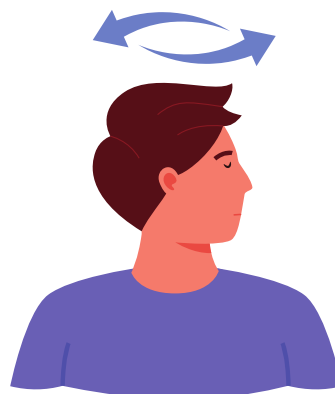
Head Tilt

1. Face straight ahead, keep your back straight and head upright throughout.
2. Tilt your head to the right. Make sure that your head continues to be face forward.
3. You should feel a gentle stretch along the left side of your neck.
4. Gently push your head downwards towards your right shoulder.
5. Hold this position for _____ seconds.
6. Repeat this stretch on the right side.
7. Repeat this _____ times.
8. Do this _____ times a day.



Head Turn

1. Face straight ahead, keep your back straight and head upright throughout.
2. Turn your head towards the left. Ensure that your head is still upright and not slanted/tilted.
3. You should feel a gentle stretch along the left side of your neck.
4. Hold this position for _____ seconds.
5. Repeat this stretch on the right side.
6. Repeat this _____ times.
7. Do this _____ times a day.



Neck Stretching (Down)

1. Face straight ahead, keep your back straight and head upright throughout.
2. Lower your head to look down towards the floor or your stomach.
3. You should feel a gentle stretch along the back of your neck.
4. Hold this position for _____ seconds.
5. Repeat this _____ times.
6. Do this _____ times a day.



Neck Stretching (Up)

1. Face straight ahead, keep your back straight and head upright throughout.
2. Raise your head to look upwards towards the ceiling.
3. Hold this position for _____ seconds.
4. Repeat this _____ times.
5. Do this _____ times a day.



Jaw Exercises

Jaw Stretching

1. Open your mouth slowly and as wide as you can.
2. If needed, you may pull your jaw downwards gently to increase the stretch.
3. Hold this position for _____ seconds.
4. Repeat this _____ times.
5. Do this _____ times a day.



Jaw Lateralisation

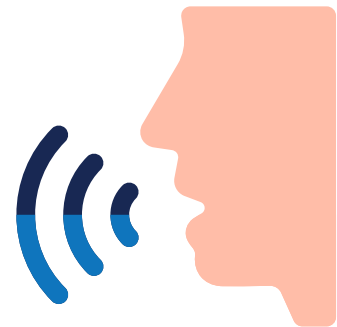
1. Open your mouth slightly.
2. Without using your hands, move your jaw towards the right.
3. Hold this position for _____ seconds.
4. Repeat on the left side.
5. Repeat this _____ times.
6. Do this _____ times a day.



Voice Exercises

Pitch Glides

1. As if you are singing, start from the lowest pitch/note you can produce and gradually progress to the highest note you can produce.
2. Hold the highest note for 3 seconds.
3. Repeat the above in the opposite order: start from highest pitch / note you can produce and gradually progress to the lowest note possible.
4. Hold the lowest note for 3 seconds.
5. Repeat this _____ times.
6. Do this _____ times a day.



Contributed by Speech Therapy, Rehabilitation, Allied Health Services

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