
## Episode 70 – Oral Piercing October 7, 2022

### Introduction

- Body art (e.g., piercing, tattooing) has been practiced for centuries by diverse ethnic groups for religious, ritual, esthetic, and other purposes. [1] [2]
- Evidence of labret piercing was reported from the early Upper Paleolithic period in prehistoric Europe and in the early Neolithic period in Pakistan. [3]
- Body piercing has evolved from a behaviour once considered extreme to an accepted choice. Earlobe piercing is so common it is now considered normative behaviour. [4]
- Oral piercing is popular especially among adolescents and young adults as a form of self-expression and body art. The tongue is the most common oral piercing site.
- While oral piercing may be considered fashionable, it can cause oral and systemic complications. [5] [6]

### Regulations and guidance

- Most individuals receive oral piercing from piercing studios. [1]
- In Canada, piercing studios fall under the category of personal service settings (PSS). Guidance and regulations for PSS vary across provinces and territories. [7]
- In Ontario, PPS must adhere to the following regulations and guidelines:
    - *Health Promotion and Protection and Promotion Act, Ontario Regulation 136/18: Personal Service Settings*, 2018 [8]
    - *Infection Prevention and Control in Personal Service Settings,* 2019 [9]
    - *Personal Service Settings Guideline*, 2019 [10]
    - *Infection Prevention and Control Protocol*, 2019 [11]
    - *Infection Prevention and Control Complaint Protocol*, 2019 [12]
    - *Prevention and Control Disclosure Protocol*, 2019 [13]

### Overview of PSS regulation & guidance

| Regulation / guideline | Overview |
|---|---|
| *Health Promotion and Protection and Promotion Act, Ontario Regulation 136/18: Personal Service Settings*, 2018 | • PPS premises may also include, but is not limited to, a vehicle, convention, exhibition, fair, festival, or trade show.<br>• To ensure public health units are aware of all PPS within their jurisdiction, every PPS operator must provide written notice to their local public health unit at least 14 days before commencing operation (e.g., name, address, contact information, services offered). |

| Regulation / guideline | Overview |
|---|---|
| | • Operators or persons providing services are responsible for record keeping (e.g., recording customer name & contact information, procedure, who provided service, date, etc.).<br>• PPS must follow specific infection prevention & control (IPAC) requirements regarding hand washing sinks, waste receptacles, biomedical containers, cleaning & disinfecting surfaces; storing supplies, sterilizing equipment, spore testing, disposing single use items, hand hygiene, donning gloves, reporting sterilizer failure, etc. [8] |
| *Personal Service Settings Guideline, 2019* | • Local public health units inspect all PPS no less than once every 12 months to ensure adherence to IPAC principles & public safety. Results of inspections must be posted at the setting. [10] |
| *Guide to Infection Prevention and Control in Personal Service Settings,* 2019 | • Jewellery inserted as part of a new piercing is to be made of biocompatible material(s) according to recognized standards (i.e., ASTM, ISO). Biocompatible jewellery lessens chance for rejection by the body due to being nontoxic, non-injurious, & less physiologically reactive.<br>• Biocompatible materials include surgical steel, implant-grade stainless steel, implant-grade titanium, niobium, nickel-free[1] platinum, or solid nickel-free gold (14K to 18K, gold higher than 18K is too soft & can easily be scratched or nicked). Jewellery made from glass (fused quartz, lead-free borosilicate, or lead-free soda-lime glass) or a medical-grade plastic may also be used. Refer to the Association of Professional Piercers for a complete list of biocompatible materials.[2]<br>• Jewellery used for an oral piercing procedure must have a smooth finish, free of nicks, burrs, & scratches. It must be single-use & maintained as sterile until insertion. Jewellery designed for ear lobes (e.g., fish hook style) or intended for use in an ear-piercing gun/device cannot be used. [9] |

## Oral piercing

- Primary forms of oral piercing include intraoral and perioral piercings.
- Intraoral piercing describes a piercing in which both ends of the jewellery reside in the oral cavity (e.g., tongue, lingual frenum, maxillary or mandibular labial frenum, or uvula piercing).
- Perioral piercing is a piercing where one end of the jewellery is in the oral cavity and the other end penetrates the tissue in the perioral region (e.g., cheek, lip, labiomental groove, philtrum, or chin piercing).
- Most common oral piercing site is the tongue, followed by lips (including labiomental groove and philtrum), cheeks, and lingual or maxillary labial frenum.
- Types of tongue piercing include single dorsoventral or dorsolateral piercing, or multiple piercings placed throughout the tongue.
- Dorsoventral tongue piercing is more common and safer than dorsolateral piercing as it usually avoids most major blood vessels. The tongue is pierced vertically at the midline just anterior to the lingual frenum. Jewellery is generally worn so there is a sphere on the dorsal and ventral surfaces of the tongue.

[1] Nickel may cause allergic reactions.
[2] Association of Professional Piercers https://safepiercing.org/jewelry-for-initial-piercings/

- Dorsolateral tongue piercing (i.e., tongue is pierced in a horizontal manner) is not a safe procedure due to the tongue's vascularity. The two spheres of the jewellery are both on the dorsum of the tongue, close to the lateral borders and about half way anteroposteriorly. The curved barbell between the spheres curves ventrally and resurfaces dorsally.
- The uvula is seldom pierced due to difficulties with piercing and jewellery insertion; risk of jewellery aspiration or swallowing; gag reflex, throat irritation, risk of nausea, and swallowing interference.
- Common types of oral piercing jewellery include studs, barbells, rings, and hoops, which can be made from a variety of metals (e.g., stainless steel, gold, titanium, niobium, various alloys), synthetic materials, or a combination. Jewellery is usually removeable.
- Fresh piercings are open wounds susceptible to infection and various complications until fully healed.
- Healing times vary between 6-8 weeks for the tongue; 6-16 weeks for the lower lip; and 6-24 weeks for the upper lip. It is generally recommended jewellery not be removed for long periods to prevent spontaneous closure of the piercing site.
- Normal side effects of healing within the first 5 days of piercing include mild crusting, tenderness, slight swelling, bruising, light bleeding, and light secretion of white or clear fluid.
- Good oral hygiene is important prior to piercing and during the healing process. Once healed, it is essential to continue good oral selfcare. Jewellery should be removed daily and cleaned and brushed thoroughly to avoid plaque and calculus accumulation. [5] [14] [15] [16] [17]

**Complications of oral piercing**

- Oral piercings are associated with numerous complications. Several studies have found complications were most prevalent with tongue piercings, followed by lip, cheek, and gingiva piercings.
- Complications can be categorized as acute or chronic.

*Acute complications*

- Acute complications include infection; local pain; swelling; severe or prolonged bleeding; dysphagia; speech and mastication impairment; nerve damage; allergic reactions to the metals; hematoma; delayed healing; puncture wound; laceration; tooth trauma; hypersalivation; endocarditis; and Ludwig’s angina.

*Chronic complications*

- Chronic complications include pain; swelling; recurrent infections; gingival trauma; gingivitis; gingival recession; localized periodontitis; dentin hypersensitivity; chipped and fractured teeth and restorations; pulpal damage; localized tissue overgrowth; scar tissue and keloid formation; persistent difficulties in oral functions; halitosis; jewellery ingestion or aspiration; plaque and calculus accumulation on the jewellery; hypersalivation; galvanic reaction; and tooth migration.
- Research has demonstrated tongue piercing can provide a reservoir for periodontopathic bacteria.

- Complications have been shown to be more common in individuals who habitually play with their piercing.
- Rare complications include loss of insertion needle, bifid tongue, atypical trigeminal neuralgia, and cerebral abscess. Death has also been reported from complications, such as severe septicemia, herpes simplex hepatitis, and multiple brain abscesses. [16] [17] [18] [19] [20] [21]

A recent systematic review and meta-analyses by Passos et al. (2022) showed periodontal and tooth damage were the most reported, followed by soft tissue injuries, speech disorders, chewing alterations, soft plaque accumulation, and saliva changes. Pain was the most reported complication, followed by infection, swelling, bleeding, inflammation, allergy, and jewellery aspiration.

The meta-analyses showed the prevalence of complications for oral piercings was:
- 34% for wear/abrasion,
- 34% for tooth fractures,
- 33% for gingival recession,
- 27% for non-specified dental damage, and
- 22% for tooth chipping.

Results suggest gingival recession and tooth fracture were significantly associated with oral piercings, and odds of experiencing these events were 7 times more for gingival recession and 3 times more for tooth fracture with presence of an oral piercing. [22]

Currently, it is not known how many individuals with oral piercings seek emergency treatment in Canada. However, a US study of 100 emergency departments reported an estimated annual presentation rate of 3,494 injuries associated with oral piercings. Individuals aged 14 to 22 years accounted for 73% of the emergency visits. Complications included lip (46%), tongue (42%), and teeth (10%) injuries; infections (42%); inability to remove mucosally overgrown oral piercings (39%), and soft tissue puncture wounds (29%). [23]

**Complications of oral piercing** [2] [5] [6] [15] [17] [24] [25] [26] [27]

| Complication | Description |
|---|---|
| **Acute** | |
| Infection | Bacterial, fungal, or viral. Purulent or unusual discharge from piercing site. |
| Local pain & swelling | Severe swelling may impede swallowing & breathing. [24] |
| Bleeding, hematoma | Prolonged or excessive bleeding. |
| Dysphagia | Presence of oral jewellery may cause swallowing difficulties. |
| Speech impairment | Presence of oral jewellery, especially on the tongue, may hamper speaking & pronunciation of certain sounds. |
| Mastication impairment | Presence of oral jewellery can interfere with mastication. |
| Nerve damage | Piercing procedure may inadvertently cause temporary or permanent nerve damage. |
| Hypersensitivity / allergic reaction | Reaction to nickel or alloys used in the jewellery. |

| Complication | Description |
|---|---|
| Tooth trauma | Accidental trauma during piercing procedure. |
| Hypersalivation | Increased salivary flow due to a foreign object introduced into the oral tissues. |
| Ludwig's angina | Ludwig's angina is life-threatening cellulitis of the soft tissue involving the sublingual, submental, & submandibular spaces of floor of the mouth & neck. The infection is rapidly progressive & swelling can lead to potential airway obstruction & prevent saliva from being swallowed. [25] [26] |
| Systemic infection | Disease transmission (e.g., hepatitis B or C, HIV, tetanus, syphilis, tuberculosis) from failure to follow IPAC practices during piercing procedure. [27] |
| **Chronic** | |
| Plaque / calculus accumulation | Difficulty maintaining oral hygiene & retention of food debris creates ideal environment for plaque & calculus formation or oral jewellery. [2] |
| Gingivitis | Due to increased plaque accumulation at oral piercing site. |
| Gingival recession / trauma | Tongue piercings are more likely to cause gingival recession in the lower lingual region of anterior teeth. Trauma to the buccal gingiva is more likely with lip piercings. Recession may range from mild to severe. [17] [24] |
| Palatal erythema | Irritation from tongue piercing rubbing on palate. |
| Localized periodontitis | Case studies have showed periodontitis associated with intraoral & perioral piercings (e.g., tongue & lip piercings). Tooth loss has been reported. [17] |
| Dentin hypersensitivity | Gingival recession from oral piercings increases risk of sensitivity & root caries. |
| Fractured teeth | Chipped, cracked, or fractured teeth from jewellery striking the teeth. Habit of knocking, clacking, biting, clenching, playing, rubbing, or tapping jewellery against teeth increases risk. Damage may involve chipping of incisal edges of the anterior teeth or cracked tooth syndrome to previously restored teeth. Severely fractured teeth may require extraction. [17] [24] |
| Tooth abrasion | Abrasion as a result of habitually rubbing oral jewellery against the teeth. |
| Restoration damage | Damage or fracture of restorations, crowns, bridge work, etc. |
| Pulpal damage | Severely fractured teeth may cause damage pulp. |
| Localized tissue overgrowth | Overgrowth of tissue resulting in embedded oral jewellery may require surgical removal. |
| Scar tissue formation | Structural scarring & deformities (e.g., lips, tongue). |
| Keloid formation | Abnormal proliferation of scar tissue that forms at the piercing site; it does not regress and grows beyond the original margins of the piercing. |
| Oral function difficulties | Persistent difficulties in oral functions (e.g., dysphagia, speech, mastication), |
| Halitosis | Due to plaque & food debris accumulation or infection at oral piercing site. |
| Jewellery ingestion or aspiration | Accidental separation of jewellery resulting in aspiration or ingestion, may lead to respiratory or gastric distress, respectively. |
| Neurologic damage | Nerve damage from piercing procedure may result in numbness, paresis, paralysis (e.g., with tongue piercing). |
| Vascular damage | Vascular damage from piercing procedure. |
| Galvanic reaction | Galvanic currents may be produced by oral jewellery (usually stainless-steel) in contact with other metals (e.g., metal restoration, partial dentures), which can result in pulpal sensitivity. |
| Tooth migration | Tooth movement from habitually pushing oral jewellery against the teeth. |
| Periodontopathic bacteria reservoir | Microbiological analysis of tongue piercing sites showed oral jewellery can provide a reservoir for periodontopathic bacteria. [2] |

| Complication | Description |
|---|---|
| Bifid tongue | Bifid tongue (splitting of the tongue) as a result of infected tongue piercing. Surgery is required to repair defect. [28] |
| Endocarditis | Case reports of endocarditis associated with intraoral & perioral piercings have been reported. [17] |
| Interference with X-ray studies | Jewellery should be removed for X-rays if X-ray quality and placement is compromised. |

## Client education

*Preprocedure care*

Clients deciding to have oral piercing despite counselling on risks should be advised to:

- Seek services from a properly equipped professional piercing studio with appropriate infection prevention and control (IPAC) practices (e.g., hand hygiene and donning gloves prior to the procedure, opening and removing instruments, needles, and jewellery from sterilized sealed packages in front of client, disposing used needles into sharps container immediately after use, sterilizing instruments in autoclave that is spore tested, etc.).
- Ensure the person performing the piercing is experienced and follows IPAC practices to avoid serious infections (e.g., hepatitis B and C, HIV). Ask the piercer about their IPAC practices.
- Avoid self-piercing because of potential wound contamination, infection, and improper placement. Case studies have shown self-piercing resulted in complications, such as lingual abscess and loss of the insertion needle.
- Seek services from a piercing studio inspected by public health (certificate should be posted). Local public health units can be contacted to determine if a studio has been inspected or to find out about a studio's inspection history.[3]
- Avoid piercing the tongue or floor of the mouth because of higher risk of infection.
- Maintain optimal oral hygiene before and after piercing.
- Clean the mouth immediately prior to the piercing procedure (e.g., clean tongue, teeth, gingiva with a clean toothbrush).

Note: the piercer should provide an explanation of the procedure and information about any associated risks prior to providing the piercing, and post-procedure care. Post-procedure care instructions may include:

- Directions to clean hands immediately before touching the piercing site;
- Expected healing time;
- Description of possible complications and their signs and symptoms;
- Advice on how to deal with mild redness, pain, or swelling; and
- Recommendation to consult with a medical or oral health practitioner if signs of an infection or other complications develop following the procedure.

[3] Ontario Public Health Units
https://www.health.gov.on.ca/en/common/system/services/phu/locations.aspx

*Immediate post-care*

Immediate post-piercing care advice may include:

- Immediately seek attention from a medical or oral health practitioner if there are complications following a piercing, such as excessive bleeding, swelling, or pain; foul odour; yellow or green discharge (normal discharge should be clear or white); rash; or fever.
- Rinse mouth frequently with warm mild salt water solution.
- Avoid mouthrinses containing alcohol or hydrogen peroxide since they can irritate the piercing and delay healing.
- Allow small pieces of ice to dissolve in the mouth to reduce swelling.
- Wash hands before touching the piercing site or jewellery (e.g., to check jewellery for tightness).
- Avoid eating sticky, spicy, salty, acidic, hard, or hot food, or hot beverages for first two weeks.
- Avoid smoking and vaping (tobacco or cannabis), which can increase complications and prolong healing time.
- Avoid drinking alcohol.
- Avoid chewing on tobacco, gum, fingernails, pencils, and other foreign objects that may harbour bacteria.
- Avoid using straws which can increase risk of swelling and bleeding.
- Avoid oral contact (e.g., kissing, oral sex) for 4 weeks after piercing.
- Avoid sharing cups and eating utensils.
- Avoid public swimming pools and submerging piercings in other bodies of water (e.g., lakes, oceans, hot tubs, bathtub).
- Avoid applying makeup to the piercing site to avoid irritation and infection.
- Use new soft-bristled toothbrush to gently brush teeth, tongue, and jewellery. Brush and rinse after every meal or snack. Once healed, jewellery can be brushed more thoroughly to avoid plaque and calculus accumulation.
- Rinse the external piercing thoroughly with warm water in the shower once a day, then rinse with saline twice a day (e.g., sterile saline wound wash; do not use contact solution, eyedrops, or nasal rinse product on piercings). Avoid soaps with harsh chemicals, dyes, and perfumes around external piercings.
- Crusting forming on the external surface is normal and should be gently removed from jewellery only after softening the crusting with the cleansing solution to avoid tearing the skin. Dry area carefully with gauze. Avoid picking at crusting.
- Avoid undue trauma. Excessive talking or playing with the jewellery during healing may lead to scar tissue, migration, and other complications.
- Sleep with head elevated during first few nights to help reduce swelling.
- Once initial swelling has subsided (approximately after two weeks), it is important to replace the original, longer jewellery with a shorter post or barbell to avoid damaging teeth and soft tissue. The piercer should provide information on how and when to downsize the oral jewellery during the healing process.

*Routine care*

Advice for routine care of healed oral piercings may include:

- Remove jewellery daily to brush with a soft toothbrush to help prevent plaque and calculus accumulation. Disinfect jewellery regularly.
- Make sure the ends, or even the entire stud, are made of plastic if piercings are close to the teeth. Plastic jewellery is less damaging than metal.
- Attend oral healthcare appointments regularly to enable monitoring of piercings and any potential damage to teeth, periodontium, and other tissues, and to help maintain oral health.
- Periodically check tightness of the jewellery (with clean hands) to help prevent swallowing or aspirating if jewellery becomes dislodged.
- Wear good quality jewellery that is the correct style,[4] size, and gauge for the anatomy and piercing site. Ill-fitting jewellery increases the likelihood of complications, such as swelling and embedding if too small; or catching and excessive trauma, if too large. Inappropriate gauge (thickness) may increase jewellery rejection or migration as the body may treat jewellery that is too thin in gauge like a splinter.
- Avoid jewellery containing nickel because of high incidence of sensitivity or allergy.
- Promptly replace any jewellery that causes irritation, itching, swelling, or redness.
- Discourage playing with or manipulating jewellery once it is been placed to lessen chance of infection, soft tissue irritation, and tooth damage. Avoid clicking, tapping, rubbing jewellery on teeth or gingiva, and avoid biting the jewellery.
- Remove jewellery and wear a sports mouthguard before playing sports.
- Seek care from a medical or oral healthcare practitioner if complications arise. [9] [16] [20] [21] [29] [30] [31] [32] [33]

## Take home messages

- Oral health professionals should be aware of the complications, alterations, and lesions associated with oral piercings in order to advise clients considering, or with oral piercings of the risks (e.g., gingival recession, tooth fracture) and proper self-care to help mitigate complications.
- Clients wearing a piercing should be screened and monitored on a regular basis by an oral health professional for possible local and systemic complications from oral piercing to permit early intervention, referral, and treatment.

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