

BINAURAL BEATS

A SOUND SOLUTION FOR A CALMER VISIT

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HOW BINAURAL BEATS WORKS?

Binaural beats are created when two pure tones of the same intensity and slightly different frequencies are played in each ear at the same time using headphones or earphones, resulting in the creation of a third, perceived tone.

Binaural beats are denoted by various patterns associated with a specific range of frequencies like delta (1-4 Hz), theta (4-8 Hz), alpha (8-13 Hz), beta (13-20 Hz) and gamma (30-70 Hz). Binaural beats that are associated with the alpha range of 8-13 Hz works by decreasing neuron activity and shifting the brainwaves into a relaxation state without sleep. It is used as a non-pharmacological and supportive intervention to reduce dental anxiety. It affects a patient's physiological and mental state along with their blood pressure, heart rate, and level of postoperative anxiety.

DID YOU KNOW?

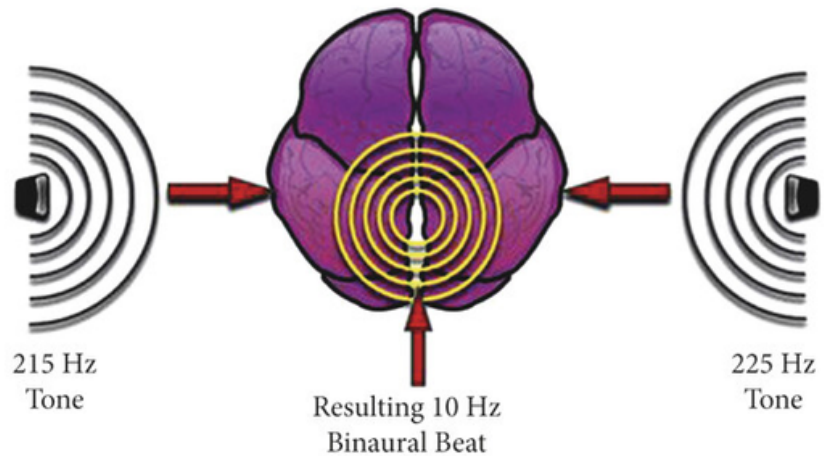
Binaural beats can also be used by the dental hygienist as a way to manage stress and prevent burnout!



DENTAL ANXIETY

Dental anxiety is often associated with painful stimuli, increasing pain perception and duration. These patients may also embellish their memories of pain associated with the administration of local anesthesia and other dental procedures.

While cortisol is regarded as a marker for chronic stress, Findings suggest that salivary alpha-amylase may yield more accurate assessments of acute stress application of either may warrant further research for salivary diagnostic purposes.



A major advantage of binaural beats is that they can be used readily in the dental office when compared to prescription anxiety medications. This is also an option we can offer to patients for whom these medications might be contraindicated. Binaural beats can be used to increase patient compliance and treatment outcomes. Furthermore, the headphones are reusable which makes this a cost-effective solution for dental offices.

A few limitations of binaural beats include the patient's personal preferences, psychological conditions, and past dental experiences. The effectiveness of binaural beats is reduced in older patients with age-related hearing impairment and possible noncompliance with younger children. Additionally, communication clarity between patients and dental professionals may be affected due to excessive noise control.

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Botulinum Toxin Type A & The Clinical Benefits

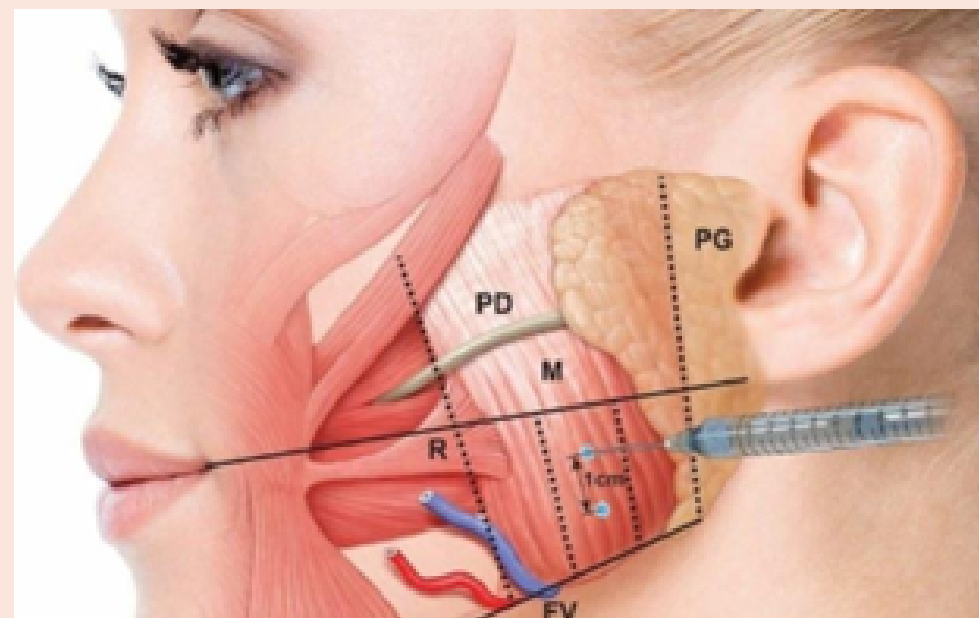
By: Raegan Bennett, Addison Foulger, Annaliese Horn

Botulinum toxin type A is a neurotoxin known to cause muscular paralysis through its action on the neuromuscular junction, which blocks the release of acetylcholine in motor neurons. It was initially reported for its ability to relax the hyperactive motor system in 1817 by Justinus Kerner, through his discovery in induced food poisoning caused by rotten sausage leading to mydriasis and skeletal muscle paralysis.

Botulinum toxin type A became the first toxin to be approved by medicine in 1973, and was approved by the US Food and Drug Administration in 1989 for the treatment of adult strabismus (crossed eyes) and blepharospasms (uncontrollable eye blinking). Through its utilization in this treatment, it was found to result in a reduced appearance of wrinkles in different facial regions, leading to its primary cosmetic use today. Through the years, the toxin has been shown to be effective in the treatment of a number of functional disorders, including TMJ disorders, sialorrhea, trigeminal neuralgia, and excessive gingival display or “gummy smile”.

Treatment in TMD Disorders

Botulinum Toxin Type A is an effective clinical treatment for temporomandibular joint disorders (TMD). TMD is a disorder involving dysfunction of the masseter muscles or temporomandibular joint, resulting in symptoms such as pain, tooth wear, and frequent headaches. With up to 33% of the population experiencing at least one TMD symptom, implementing more non-invasive treatments can aid patients in improving their quality of life. With this injection placed into the masseter, temporalis, or lateral pterygoid muscles, symptoms are relieved through paralytic or anti-inflammatory means.



Potential Drawbacks

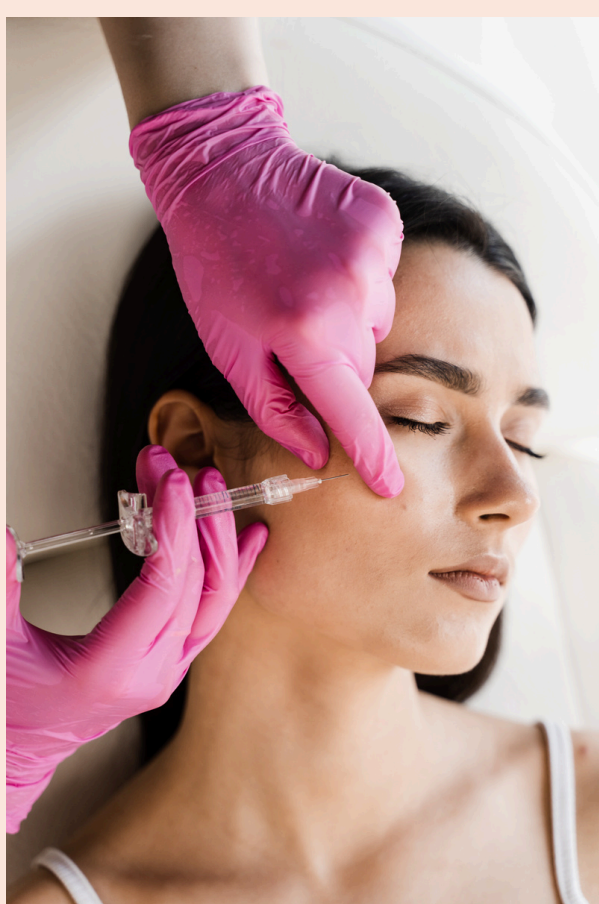
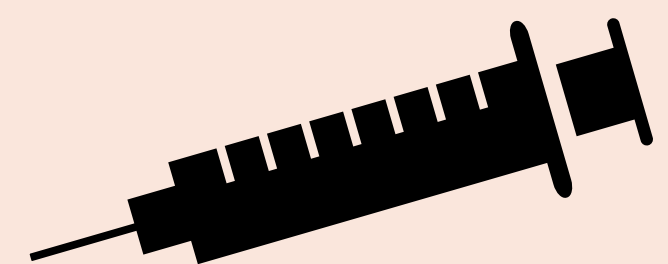
While Botulinum Toxin injections have been generally well-received, potential drawbacks can include adverse effects, slow onset, and frequency of treatment. Some adverse effects reported have been sore injection sites and slight discomfort with chewing after receiving treatment. Onset can be discouraging for some patients, as most results peak at 2 weeks and fade around 8 weeks. The frequency is usually every 5-6 months and the average loading dose is 20 units for each muscle. With the price range being anywhere from \$10 to \$16 per unit, this can get pretty pricey for most patients.

Other Conditions Treated

There are a few off label uses for Botulinum Toxin Type A including treatment of trigeminal neuralgia, sialorrhea, and gummy smile. This toxin provides patients with a treatment option that is less invasive and has fewer adverse effects than traditional methods. Trigeminal neuralgia is a debilitating orofacial pain syndrome that is typically treated with multiple medications and invasive surgeries. When this toxin is injected subcutaneously, compressing on the trigeminal ganglion, it can help relieve pain for several months at a time. Sialorrhea is a condition resulting in excessive salivary flow and is typically treated using multiple medications that tend to be inadequate and cause many adverse effects for patients taking them. Sialorrhea can be treated with this toxin as it temporarily inhibits salivary flow. Lastly, this toxin is also used as the primary treatment for gummy smiles of muscular origin, instead of the traditional invasive and demanding surgeries as in orthodontics, orthognathic surgery, or even cosmetic surgery. In gummy smiles of skeletal or dental origin, this toxin is used as an adjunct to other treatment options.

Conclusion

Botulinum Toxin type A has shown to be effective in the treatment of numerous functional disorders, including TMD, sialorrhea, trigeminal neuralgia, and excessive gingival display, or “gummy smile”. It has the ability to provide patients with an alternative treatment option, in cases where conventional treatment is not effective, our patients do not want an invasive treatment, or our patients desire both functional and cosmetic benefits. It is important for dental professionals to be educated and continue to explore the latest treatment possibilities when treating different orofacial disorders in order to determine the best treatment option for patients.



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BRIDGING TRADITION AND TECHNOLOGY

THE IMPORTANCE OF EARLY ORAL CANCER DETECTION

Holly Beavers, Taylor Carr, Areli Garcia, Malia Kellogg

Oral cancer impacts over 58,000 individuals in the U.S. each year, and unfortunately, many cases aren't diagnosed until it's too late. As dental professionals, we are in a unique position to detect early warning signs through Extra-oral and Intra-oral Examinations (EIOE).

These screenings enable us to identify suspicious lesions by visually looking and palpating for any lumps or tissue changes. However, in fast-paced environments these screenings are often rushed, increasing the risk of overlooking subtle warning signs.



Lymph nodes are one of the primary sites to which oral cancer can rapidly metastasized; therefore, failing to detect early signs can result in serious consequences.



Fortunately, there are several diagnostic tools available to aid dental professionals in early detection. EIOE is one of the first lines of defense, and a biopsy is the most reliable way to confirm an oral cancer diagnosis.

However, other tools such as salivary testing, and fluorescent lighting are making their way in as a valuable aid. For instance, fluorescence technology uses specialized light to highlight abnormal tissues, while saliva tests detect cancer-related biomarkers, both of which may not be visible to the naked eye

With 60% of Americans visiting the dentist annually, routine comprehensive screenings and early detection offer a significant opportunity to save lives. Prioritizing consistent EIOEs, incorporating advanced technologies, and maintaining thorough documentation will reinforce our critical role as the first line of defense against oral cancer. However, no matter the screening tool used, it's important to note that a biopsy is still the gold standard when diagnosing oral cancer.



**A Few Minutes Can Potentially Save A Life.
Examine, Educate, and Advocate.**

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HORMONE REPLACEMENT THERAPY

EXPLORING ITS ORAL AND SYSTEMIC EFFECTS



By: Haley Giles, Reshma Dwarakanath, Kelly Brumit, and Alexa Peery

Collin College Dental Hygiene

ORAL EFFECTS OF HRT

Various randomized trials and cross-sectional studies have shown the significance of hormones in preserving jaw bone and teeth, and reducing the risk of periodontitis. Studies show estrogen replacement therapy help to increase alveolar bone loss, reduce gingival inflammation, reduce plaque scores, decrease attachment loss, and aid in protection against tooth loss. Whereas other studies conducted reported improved periodontal health was due to better oral hygiene protocol at home and in the dental office, and not fully credited to hormone replacement therapy. Most studies acknowledge the importance of estrogen and progesterone on the periodontium, but also states biofilm and host inflammatory response are the deciding factors that influence the periodontal disease state.

Though the positive effect of estrogen on the periodontium is well noted throughout research, the best method to mitigate the potential risk of periodontal disease in menopausal women is to follow a recommended oral homecare routine daily, and to be seen at a dental office for routine preventative care.



SYSTEMIC EFFECTS OF HRT AND ITS ALTERNATIVES

Menopause is diagnosed when a woman's menstrual cycle comes to a halt because of the slowing or stopping of estrogen production by the ovaries. This is a natural phenomenon that usually happens between the ages of 45-55. However, menopause can also be caused by non-biological factors such as damage to the ovaries through chemotherapy, or even complete removal of the reproductive organs through surgeries such as a hysterectomy.

Your menopausal patient may complain of xerostomia, as well as vaginal dryness, hot flashes, grumpiness and sleep deprivation. As dental professionals, it is important to look out for your patients within the menopausal age range for many symptoms and signs as it can affect the oral cavity and their oral home care regimen. It is our responsibility to understand the effects of menopause, as well as side effects of hormone replacement therapy and other medications they may be taking to relieve symptoms, such as NSAIDs and bisphosphonates. Along with decreasing the common menopausal

symptoms such as systemic dryness and hot flashes, hormone replacement therapy has been proven to also improve overall bone health, muscle mass, weight management, and even sleep.

There are plenty of different types and ways for women to receive the hormone replacement therapy that is right for them after consulting with their healthcare providers and receiving medical and hormone level testing. Common types of HRT include pellets, pills, and patches containing estrogen, or a combination of estrogen and progesterone.

While the benefits of hormone replacement therapy are many, some patients may opt to use alternatives to HRT due to the risk of developing various cancers, history of blood clots or liver disease. Some alternatives include eating high-quality and vitamin rich foods to maintain muscle mass and prolong systemic bone health. Along with medications for depression, antiseizure, and osteoporosis - herbal supplements and exercise have been shown to also help alleviate menopause symptoms.

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Exploring Postpartum Depression's Impact on Oral Health



You are not alone! Reach out for help!

National Maternal Mental Health
Hotline: **1-833-9-HELP4MOMS (1-833-943-5746)**

Postpartum Support International
(PSI): **1-800-944-4773** or
www.postpartum.net

Local Support Groups: All Moms

Talk to Your Dentist & Doctor: They
can help identify signs and offer
support



Signs to Watch For:

- Persistent sadness, anxiety, or mood swings
- Fatigue or difficulty sleeping
- Loss of interest in daily activities or self care
- Changes in appetite (eating too much or too little)
- Difficulty bonding with the baby
- Feeling guilty, worthless, hopeless
- Thoughts of self-harm or harming the baby (seek help immediately)

How PPD Affects Oral Health:

- Neglecting oral hygiene habits (brushing, flossing, dental visits)
- Increased risk of cavities and gum disease due to poor self-care
- Dry mouth from stress or medication side effects
- Teeth grinding or jaw clenching due to anxiety
- Changes in diet that can contribute to tooth decay

How to Care for Your Oral Health

- Set reminders to brush and floss daily
- Use alcohol-free mouthwash to prevent dry mouth
- Keep water nearby to stay hydrated
- Opt for nutritious, low-sugar snacks
- Ask a loved one for support with self-care tasks
- Schedule a dental visit to monitor oral health

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Strength Training for the Dental Hygienist

Strength Training for RDH



Strength training is any form of exercise that involves using weights or resistance to build strength in your muscles. Some people refer to this as resistance training and can be done using many different types of equipment such as dumbbells, kettlebells, barbells or even your body weight.

The average person benefits significantly from strength training and a dental hygienist can potentially benefit even more.

Dental hygienists have a strenuous career, and it can be hard to help people when you are in pain. With musculoskeletal disorders being so prevalent in a clinician's career, strength training can be a great way to combat these issues.

Musculoskeletal disorders are occupational illnesses that can be caused by physical demands of our occupation like repetitive movements and static postures.

Symptoms of MSDs can arise in the form of chronic body pain, aches that are persistent and limit or reduce motion. Carpal Tunnel Syndrome being one of the most prevalent in amongst dental hygienists.

Not only does it help with the longevity of your career, it also benefits the quality of care you give to your patients, mental and physical health benefits and more.

Important statistics

96% of dental hygienist's experience body pains

3-8% of muscle is loss per decade after the age of 30



Tips on how to start

- ❖ Familiarize with the vocabulary such as reps and sets. Rep: repetition and sets: group of consecutive reps
- ❖ Full Range of Motion- the more full range of motion, the more your muscles will strengthen

- ❖ Choose where to train- whether at home or in a gym. Working out with friends or your partner boosts the motivation.
- ❖ Challenge your muscles daily- Increase the amount of weights, Increase your reps. Progression enhances the muscles to grow and become more stronger.

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