

Oral Wellness: A Gateway to Overall Health

Biological dentistry recognizes the intricate connection between oral health and overall well-being. Chronic diseases are often either directly connected or in part connected to oral manifestations. Many important dental issues which are mostly overlooked have an influence on overall health, such as toxicity, inflammation, microbiome imbalance, meridian, and importantly, the connection between jaw, cranium and bite.

A human newborn enters the world without teeth. Gradually, teeth develop, accompanying the individual through various stages of life until reaching a point where self-nourishment becomes possible. Aside from simply chewing food, our teeth provide some very important functions that this Newsletter will explore. More specifically, there will be an emphasis on jaw, bite and cranial connections to symptoms as headaches, joint pain, sleep disturbance etc.

Teeth are metabolically active structures

Teeth are the hardest structure in the body and develop from two of three embryologic layers: the ectoderm and mesoderm. Therefore, the teeth serve as a link between these two germ layers and are to be considered in connection with them. Tooth enamel originates from the ectoderm, the same layer from which skin, hair, and nails develop. Dentin, tooth nerve, dental cement, and alveolar bone comes from the ectodermal mesenchyme induced from the mesoderm. The mesoderm forms connective tissue, muscles, blood vessels, and other structures.

And there is another remarkable feature. The body has spared no effort or cost to provide an additional germ layer, a sort of “fourth germ layer” specifically for the oral cavity. These are cells of ectomesodermal origin that directly stem from the neural crest, and are referred to as neuro-crest-derived stem cells (NCSC).

From the development of the first tooth until age 3, the child will have 20 fully developed baby teeth, referred to as deciduous teeth. Sometime between age 6 and 7, the teeth will slowly begin the process of being replaced by permanent teeth; a process that will last up to the age of 21, to include molars and a full complement of 32 teeth. Tongue and chewing muscles are involved in ensuring that the growth of the jaw can proceed appropriately in coordination with the eruption of the teeth.

If one is to reflect on this innate process, our body will have taken 20+ years to eventually put in place 32 metabolically active structures.

Jaw muscles, tendons and cranial nerves

Imbalances or tension in the jaw can have far-reaching effects, influencing muscles, nerves, and energy flow in the head and neck resulting in: Headaches, joint pain, sleep disturbance, dizziness, muscle tension, ear pain (tinnitus) etc. This makes sense when considering that the force involved in chewing requires a compensatory skeletal-neural-muscle balancing for subsequent coordination to be successful.

The anatomy of jaw movement, that is the lower jaw (mandible) moving towards the upper jaw (maxilla), requires a lot of **muscles, many tendons and several different nerves**. These muscles help to elevate, depress, protrude, retract and provide side-to-side movement. There is a very special joint involved, the temporomandibular (TMJ) joint. This joint connects the jaw to the skull, and issues with the connection to the neck can affect cranial nerves, the facial structures and posture of the whole body. A harmony in

movement between the teeth and cervical bones is guided by the occlusion, the function of the bite. For obvious reasons, the ease of jaw movement and the symmetry of teeth on teeth placement can be influenced by many factors such as trauma (sport, whiplash, other), diseases such as caries and periodontitis (viral or bacterial), lost teeth, previous dental care, or wrong posture of the body. Thus, it is vital that dentists and doctors work together to find out the root causes of many health concerns, which we would never suspect to be related to oral health.

Neuro-muscular connection

You may have noticed that when facing someone while they are speaking to you, that their lower jaw deviates from the middle to the right or left. This can be further enhanced if you politely ask someone to open and close their mouth, to assess for chin deviation. Or, you may see that a person can't open their mouth very well mostly during conversation, as they experience tension in the joint or feel some sort of restriction. When faced with these challenges, and especially if they have discomfort, they may try many different therapies, such as chiropractic or osteopathic manipulation, cranio-sacral therapy, perhaps Rolfing, acupuncture or neural therapy to find relief. These therapies offer good support, but they rarely address the root cause, namely the incorrect bite, which can only be treated by a dentist.

My colleague, Prof. Dr. Tilman Fritsch, highlights two reasons behind the use of a dental splint and its influence on the neuro-muscular connection that teeth elicit every time we chew.

Prof. Dr. Tilman Fritsch on the neuro-muscular connection of teeth:

Chewing and swallowing are highly intricate processes guided by reflexes but following specific patterns. These patterns are directed by the teeth and their bite, especially how they harmonize with each other. Thus, teeth serve a multitude of functions. While the grinding of food is one of their tasks, it is the least frequently used activity during the day. On average, teeth have contact during chewing for less than 20 minutes a day, while the remaining time of the day and night involves a variety of other functions.

Stress or misalignment of the jaw

Normally, one of the many tasks of the teeth would be to help us cope with stress, whether by chewing or even grinding our teeth. However, in our civilized world, this ability has often been lost. This can have various causes, including low chewing activity, orthodontic treatment or other interventional measures.

One such function is that the teeth, in their alignment, store data which they transmit to the brain when they come into contact. They play a role in controlling the posture and function of the entire body, functioning as tactile tools embedded in a sea of receptors within the dental arch. Consequently, it becomes understandable that a misalignment or disharmony of the bite has a profound impact on the body's posture, function, and metabolism, generating stress for the entire organism.

Dental splints essentially have two distinct purposes: they compensate for a misalignment and help via proprioception, find an optimal bite.

A nighttime splint catalyzes a more relaxed state during sleep, by relaxing the muscles, tendons and supporting structures in the maxillofacial area. Though it may take time to optimize one's bite, in essence, a more relaxed bite can help to relieve dental grinding (bruxism), headaches, joint pain, sleep disturbance, dizziness, and a variety of other symptoms that often are mitigated by no long-term benefit of over-the-counter pain medicines.

Thus, teeth grinding can result from various factors, including stress but also a maligned jaw. Biological Dentistry at Paracelsus specializes in finding the complex connections between physiology, neurobiology and structural imbalances and their influence on overall health.

Paracelsus Clinic Therapy Approach

When confronted with symptoms such as neck pain, headaches, tinnitus, or unexplained complaints of the musculoskeletal system of the body etc., it could be helpful to visit the Paracelsus Clinic. Here, a partnership between the patient, biological dentist and biological doctor can work in a coordinated way to help provide symptom relief. From our experience, a comprehensive approach best offers our patients' a short and long-term resolution.

The following facets we employ when working in combination with biological dentistry and medicine:

1. Biological Medicine and Milieu Therapy

Beginning with Biological Medicine and Milieu Therapy, the focus is on detoxifying the body, balancing acidity, restoring gut health, and facilitating liver detoxification. It is vital that the body can restore self-regulation, regeneration and healing. However, as part of supporting detoxification and self-healing it is important to consider the innate benefits of a healthy oral cavity including the oral microbiota in achieving optimal health.

2. Correction of Muscular Misalignment and Neural Dysregulation

Simultaneously, our therapies emphasize the correction of muscular misalignment and neural dysregulation through approaches such as osteopathy, myoreflex therapy and neural therapy. Occlusal splints and adjustment therapies are repeated until the posture as a skeletal balance is restored.

3. Reduction and Control of Psychosocial Stress

The reduction and control of psychosocial stress play a pivotal role, integrating practices such like autogenic training, re-balancing the autonomic nervous system with therapies involving Mind-Body Medicine and psycho-kinesiology. Stress in the mouth means stress for the whole body. The mouth is the internal organ of the brain.

4. Elimination of Foci/Interference Fields

The important step will be again at the Biological Dentist. The meticulous elimination of foci / interference fields out of the oral cavity includes considerations such as removing of toxins like metals or plastic, addressing dead or inflamed teeth, managing chronic osteitis and silent inflammations in the soft and the hard tissue. Of particular importance is the harmonious and dynamic interplay between the active chewing function and the dynamics of the musculoskeletal system.

Definitive dental restoration is therefore only considered until all other measures are completed, adhering to myocentric criteria and preferring metal-free solutions. This integrative approach reflects Paracelsus' philosophy, addressing not just symptoms but the root causes and guiding the patient to face all possible health challenges.

Therefore, biological dentistry does not only see the mouth as a mechanically active instrument but aims to promote overall neuro-muscular-skeletal harmony. The jaw, being a crucial component, is evaluated not

only for chewing and dental health but also for its influence on the balance and function of muscles and fascia throughout the body. The interplay between medical and dental health will allow a comprehensive diagnosis and treatment approach which often leads to treatment success.

Yours sincerely,

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