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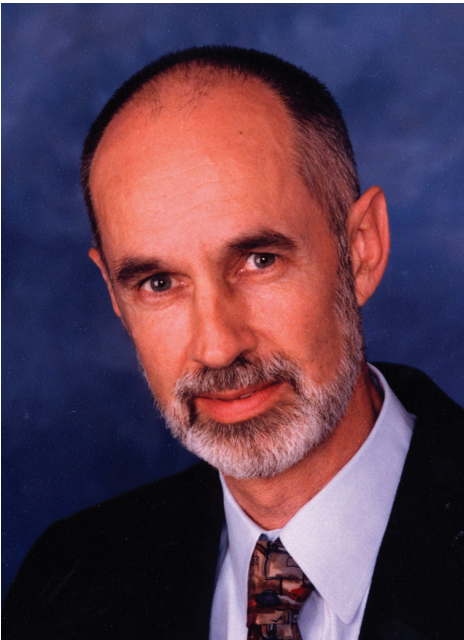
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Bodywide influences of dental procedures: Part 1

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From the carving of wooden teeth to laser use in decay detection, dentists have strived to provide the highest quality of care possible for their patients. Now it is time for the dentist to look beyond the mouth, to the vast opportunities of benefits available to their patients with a integrated healthcare approach. Unfortunately, without the ideas and philosophies of "Whole Person Dental Care", it is possible to unknowingly do harm. Dental schools within the United States have been at the forefront in technology and innovation, however they have so far rejected the whole person dental concept. Though this article (part 1) stresses some of the negative aspects of dentistry, it also demonstrates some of the potentials for general health enhancement which dentistry can offer, when applied with a broader understanding of the interaction between body systems. The article also gives an example of the effects which inappropriate dental care can have on a person's well-being. Information about organizations that promote a more functionally based "Whole Person Dental Care" can be found at the end of this part of the article. Part 2 of this article (to be presented in a future issue) will describe two other

case histories, and define some techniques of analysis. Also presented is a an exercise that assists in the release of the TMJ complex, which can reduce a considerable amount of craniofacial pain and have other beneficial effects throughout the body.

'Have you ever had a hat on that was too tight?' 'Has anyone ever grabbed you in a headlock and squeezed for a few seconds without letting go?' These questions may trigger memories of claustrophobic feelings, panic, head pain, and anger as well as a variety of other physiological and psychological effects. Dental and medical treatments can often result in similar effects. Patients can be inadvertently harmed (and sometimes crippled) by commonly performed procedures, as described below, thus experiencing these and many other symptoms continually throughout every day of their lives (Fonder 1990, Walker 2000). These patients may have bridge work which crosses the mid-line (especially the upper front part of the mouth), or have partial / complete dentures that fit too tightly, or braces that bind, any of which can restrict the sutural freedom of the skull, and thereby, it is hypothesized, produce connective tissue and dural tensions

throughout connective tissue and dural tensions throughout the cranio-sacral system (Smith 1986, Smith 1992, Diamond 1979).

Retzlaff and Mitchell (1987) have stated in their study on cranial sutural mobility that - blood vessels, nerves, lymphatic fluid channels, and cerebrospinal fluid - are all present within the sutures of the cranium. They showed the sutures to have proprioceptive receptors, which are affected positively or negatively, depending on the stresses placed on the skull. Their research at Michigan State University involved the injection of radioactive isotopes into the cerebrospinal fluid. The radiation left a trail all the way out to the fingertips and toes. Therefore, Retzlaff and Mitchell opened the door for future research to possibly prove a connection between the dural system and the whole body via the cerebrospinal fluid channels. Clinical experience suggests that imbalances in the teeth and jaws adversely affect the cranial sacral mechanism and vice-versa thus the possibility exists that through the cranial sacral mechanism the teeth and jaws could have an effect on the entire body (Sutherland 1939, Upledger T, Vredafoogd, J 1983)

The dental profession is expected to solve problems that have been created in mouths that have been ravaged by decay, crooked teeth, missing teeth or a whole host of other insults. Some investigators believe the cause of these and many other ills of society are rooted in poor nutritional choices and unnatural preparations of foods (Price 1945, Huggins 1981, Breiner 1999, Smith 1986, Diamond 1979). It is suggested that dental procedures, which are utilized in an attempt to correct these maladies, may at times create cranial trauma and reduce cerebrospinal fluid flow. (Smith 1986, Fonder 1990, Breiner 1999) A partial list of these types of dental procedures (viewed by some in the

holistic dental/ medical community to be ill-advised) follows:

- Fixed Bridges, especially in the front part of the mouth (Smith 1986)
- Tight metal or non-metal dentures or partial dentures which may restrict the flow of cerebrospinal fluid (Upledger 1997, Fonder 1990)
- Amalgam (mercury / silver) fillings (Stockton 1998, Huggins 1981)
- Rigid braces / fixed orthodontics (Breiner 1999)

Another form of treatment which this author, and others, believe to harm the body health through hormonal modification, as well as direct structural and related imbalances, is the inappropriate amputation (extraction) of teeth for orthodontic purposes (Breiner 2000, Witzig & Spahl, Gelb 1977, Mew 1986, Smith 1986, Covey 1990). Some bodies and systems seem to be able to 'handle'; these types of traumas, for others however it can result in chronic consequences, which may never be connected by the patient's health care providers to the symptoms that emerge.

The following is a possible sequence of events (which has frequently been observed by this author and others noted below):

1. Teeth show cosmetic crowding in both maxilla (upper jaw), and mandible (lower jaw). Various nutritional, birth trauma or genetic causal factors may have contributed to this development (Price 1945, Frymann 1966, Phillips 2001).
2. Dentist / Orthodontist recommends extraction of bicuspids to provide more "room" to straighten the teeth (Breiner 2000, Mew 1986, Witzig & Spahl 1987, Fonder 1977, Spahl 1994).

3. Following the extractions, the anterior teeth and pre-maxilla are moved posteriorly with various fixed orthodontic techniques (rubber bands, chain elastics, head gear). This movement may result in cranial-sutural compression as well as a flattening of or dished in facial profile and lateral compression of facial features (Bowbeer 1993, Smith 1986, Breiner 1999, Zeines 2000, Huggins 1981, Fonder 1990, Escoto M & O'Shaughnessy T & Yerkes I 2000, Gelb 1977, Witzig & Spahl 1987). When performed at any age the effects of this type of procedure can be profound and very severe.

4. As a result of the preceding, it is hypothesized that the sphenobasilar symphysis (junctional synchondrosis between the occipital bone and the sphenoid) is also compressed thereby affecting the pituitary, pineal, and often the entire system (Jecmen 1994, Frymann 1976, Magoun 1976, Fulford 2000, Gelb 1977).

5. Distalization (posteriorization) of the premaxilla / maxillary complex leads to a trapping of the mandible into a posterior position. Often this can produce TMJ syndrome / TMD (temporomandibular joint / temporomandibular dysfunction) with associated anterior and medial (or anteriomedial) disc displacement as well as cervical / sacral imbalances as well as whole host of associated dysfunctions (Jecmen 1994, Smith 1986, Gelb 1977).

6. The author's experience suggests that every step of the above outlined scenario can have negative implications for a person's health.

Medical and dental schools do not presently teach or explain why these procedures may create restricted cranial sutural motion which can produce tensions throughout the body

in the connective tissues and dural system (Zeines 2000, Skaggs & Wiele 1994). However, to their credit, some osteopathic, chiropractic, and naturopathic medical schools, as well as some other schools of natural medicine, do teach the concepts of physiologic movement of the skull and cerebrospinal fluid flow. Some have even gone so far as to begin teaching the more recent theories of the 'breath of life' and cranial rhythmic impulses as defined by Jealous (1999)

The dental procedures listed above can have extensive and debilitating impacts on a person's daily life. Among the symptoms and conditions which have been associated with those dental procedures are: inability to focus and concentrate, inability to make decisions, head, neck and back pain, as well as a variety of seemingly unrelated symptoms which the patients of these procedures often report (Breiner 1999). The following list encompasses some of the possible negative effects on cranial (and whole body) function that inappropriate dental work may have, and is taken from personal histories of the author's patients, as well as from current literature.

- Depression (Huggins 1981)
- Head pain (Fonder 1977, Gelb 1977)
- Low-back pain (Fonder 1977, Gelb 1977)
- Irritability (Dams 1994)
- Immune system dysfunction (Ford 1989, Huggins 1981, Breiner 1999, Zeines 2000)
- Endocrine disturbances - including dysmenorrhea, amenorrhea, and infertility (Ziff, & Ziff 1987)
- Poor concentration / comprehension, and learning disabilities (Fonder 1990, Upledger 1997)
- Ear infections (Schmidt, Smith, &

Schmidt 1994, Fonder 1990)

- Spinal malalignment (Fonder 1990)
- Speech and swallowing disabilities (Rocabado Lecture Series 1984 & 1986)

Two other causes of dysfunction within the dental / cranial complex include the effects on the baby of a difficult pregnancy and / or difficult labor. Either of which can have long-lasting negative effects on the cranial sacral system as well as the future wellbeing of the individual (Fryman 1966, Gelb 1983, Phillips 2001). Such trauma may set the stage for future medical and dental problems, for example - improper infant jaw development. Fortunately, there is hope for people in these situations. Nutritional deficiencies, prenatal trauma, birth trauma, nursing difficulties, and various life traumas may have the severity of their consequences minimized through preventive nutritional programs, cranial therapy, as well as a whole host of therapeutic modalities. These modalities might include acupuncture, Alexander™ technique, breathwork, chiropractic or osteopathic adjustments, connective tissue manipulation, cranial osteopathic therapy, cranial sacral therapy, exercise, Feldenkrais® technique, holistic dentistry or orthodontics, holistic medical treatment, homeopathic therapy, massage therapy, myofunctional therapy, naturopathic medicine, neuromuscular therapy, orthobionomy (a technique developed by an osteopath used to balance the neuromusculoskeletal system through touch and movement therapy), osteopathic manipulations, polarity therapy, psychological programs, rolfing, standard medical treatment, stretching, and electrodermal (Voll, Dermatron, etc.) screening. (Price 1945, Ziff, & Ziff 1987) The author's clinical

experience has shown that with proper functional / complimentary / comprehensive / multidisciplinary care, these conditions may be altered to provide a substantial reduction of symptoms and significant improvement in health. The author's records show considerable positive changes in appearance, structure, and function. Some of the following were incorporated in treatment of the proceeding cases (the second, and third cases will be presented in part 2 of this article): holistic dentistry, complimentary / functional medicine, electro dermal screening, neuromuscular therapy, cranial osteopathy, correction of dysfunctional dental bridges, bio-electric dentistry, toxic teeth / toxic waste removal, non surgical TMJ/TMD correction (as opposed to surgical correction), psychiatric considerations, Feldenkrais® technique, massage, lymphatic / circulatory and neuro-muscular stimulation. It is the author's opinion that in many cases considering and, where needed, incorporating as many of these approaches as possible and practical will greatly facilitate recovery of health and wellbeing.

CASE HISTORY #1 - Rose:

Solving the Puzzle of Chronic Inappropriate Care involving maxillary sutural restriction and metal toxicity.

Early Life History

1952 Rose was born. There is no data regarding ease/difficulty of birth.

1965 At the age of 13, Rose ran away from home for the first time in order to escape what she (to this day) describes as 'living in a concentration camp'. (Author's note: This, description, and her experience of "running away" is a possible

indication of psychological implications that would need to be evaluated by a qualified professional. As it happens at the time of evaluation she was being treated by a psychiatrist.)

1966 Age 14, Rose had her first amalgam (mercury/silver) fillings placed.

1967 During this time she also experienced extreme dry skin which, when not constantly treated with lotion, would result in cracking and bleeding.

1966 - 1967 Experienced overall depression during these two years.

1968 Ear piercing resulted in the break-out of a rash. Henceforth, and to this day, contact of many metals (jewelry) on the skin results in a rash.

1971 At the age of 19, Rose had further placement of amalgam fillings.

1968-1971 Over this time Rose's depression worsened.

1975 Rose had her upper and lower anterior teeth crowned and splinted as a solid unit (crossing and fixating the midlines). The procedure of crowning and splinting were done because Rose had short roots that were deemed unstable (The author disagrees with the decision to crown and splint; since there did not appear to be a good reason to do so. The teeth seemed to be stable without fusing the individual teeth).

1979 Rose was a passenger on a motorcycle which crashed. She was hospitalized for several days with a concussion and whiplash injuries as well as fibromyalgia type symptoms. This is not an unusual occurrence as whiplash has been found (in one person infive) to predispose the injured patient to post

traumatic fibromyalgia syndrome within 3 - 12 months following the initial injury (Buskila & Neumann 1997, Chaitow & DeLany 2000).

1980 After suffering ear and jaw pain, Rose visited an ear doctor whose diagnosis was TMJ/TMD she was referred to a dentist for treatment. Rose took both neck problems and her TMJ dysfunction issues to the dentist and was treated with a mandibular soft splint for night-time use which helped (she was at that time unable to open her mouth very wide).

1981 Rose had her third set of amalgam fillings placed.

1985 While experiencing constant jaw pain she sought further orthodontic help and was treated to 2 1/2 years of braces (this slightly diminished the pain).

1988 At this time Rose had experienced constant jaw pain for nearly eight (8) years. Looking for relief she consented to undergo *orthognathic* surgery (surgical facial / jaw reconstruction). In this surgery bones in both the maxilla and mandible were cut apart to resolve an

'anterior open bite'; metal wires, plates and screws were then placed to stabilize the bony sections (Fig. 1) which were reassembled during the surgery. From a craniosacral and bioelectric perspective, the only issue this surgery 'resolved' was to split the cranial structure and disrupt the inherent cranial motion and cerebrospinal fluid flow, as well as to introduce metals with the potential of electrolytic (Becker 1989, Becker 1985, Gerber 1988) and toxic metal effects (Breiner 1999, Stockton 1998). Craniosacral theory suggests that the skull is meant to express flexibility at it's sutural location between the upper and lower two front teeth (Fig. 2). Time would show that this surgery produced little or no benefit to her chronic jaw pain.

1989 Following the surgery it was recommended by her orthodontist that Rose recrown and resplint her anterior upper and lower teeth, which would still be a solid unit - crossing and fixating the midline once again. (see view A in Figures 3, 4, 5 and 6)

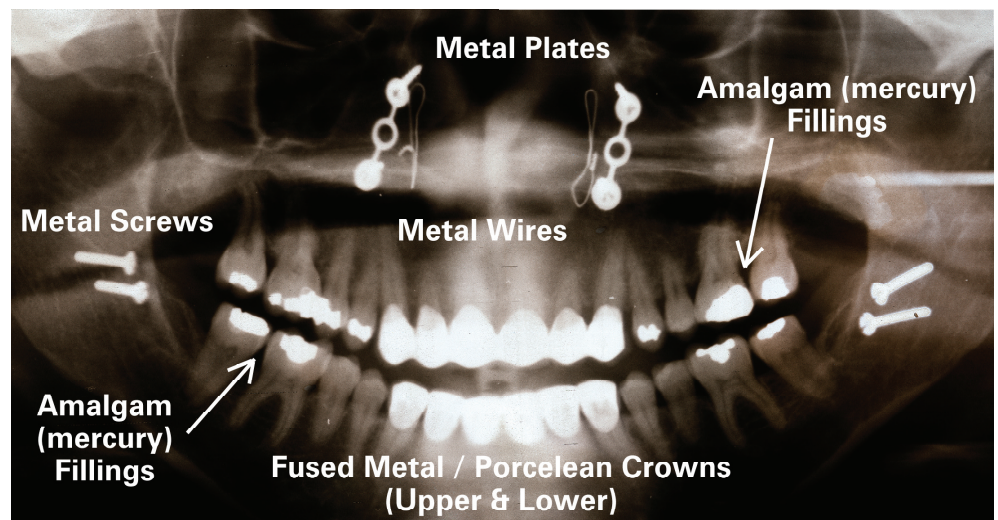


Fig. 1 Panoramic X-ray showing various metals



Fig. 2 Skull showing sutural division along upper and lower mid-line



Fig. 3 (A) Smile before. (B) Smile after splinted crowns divided.

1991 Rose's previous orthodontist placed a retainer (nighttime use only), which helped her jaw pain immensely and gave 100% relief at the start of this treatment. Unfortunately, the beneficial effects tapered off and later resulted in only a 50% pain decrease. Thereafter Rose was being treated by a specialist in rheumatoid arthritis and a chronic pain specialist and reported continued feelings of hopelessness regarding her future health and life in general. She was on antidepressants prescribed by her psychiatrist for depression and suicidal tendencies (Fonder 1990, Huggins 1981, Price 1945, Dams 1994, Ziff, & Ziff 1987).

1990's At one point Rose was given a hot wax treatment by a physical therapist, for her chronic arthritis and inflammation.

1998 At the time of her initial consultation with this author, Rose was on disability because of her depression,



Fig. 4 (A) Smile before. (B) Smile after splinted crowns divided.



Fig. 3 (A) Non-smiling before. (B) Non-smiling after.

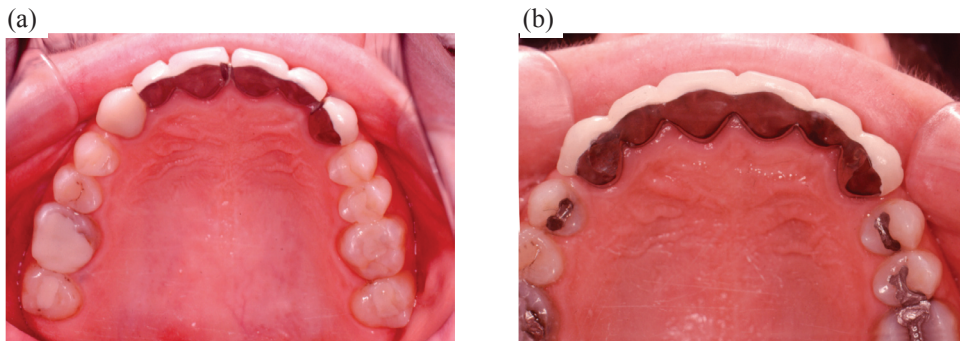


Fig. 3 (A) Anterior splinted crowns immobilizing anterior cranium. (B) Separated crowns (crown of eyetooth on left replaced).

disequilibrium, and numbness in her hands. As a result of these symptoms and the inability to close her swollen hands, Rose was unable to operate her forklift at the factory where she had been previously employed. She was on medical leave and disability from her job for six months. Rose's other symptoms included severe swelling of the hands and feet, an inability and lack of desire to smile, headaches, as well as jaw pain with difficulty chewing. Rose had been treated with numerous medical modalities, including ibuprofen, naprocin, altram, plendil (for inflammation and to open capillaries), and cataflam (for swelling) which helped reduce swelling and pain by 50%.

Note: To this point, Rose's problems had all been treated symptomatically, with no one to help her look at her health issues as a whole..... i.e., depression - antidepressants, swelling - anti-inflammatories, arthritis - pain medication.

Recent holistic dental treatment: (procedures completed by the author):

As a result of previous treatments her decision making process may have been affected, both in the ability

to think rationally as well as seeing the possibilities of getting "well".

Following several consultations (by phone and in person), Rose was finally able to garner the strength to believe in the possibility of restored health.

The treatment plan was as follows:

1. Review electrical current through bone, teeth, face and brain - At least 7 different metals were present in the mouth with various fluids serving as an electrolyte (see Figures 1 and 6A).
2. Cut the fused crowns to relieve cranial restriction - (see View B of Figures 3, 4, 5, and 6).
3. Reduce electrical disturbances and toxic metals such as mercury (metal plates in the skull had to be left as they were for the time being). (Becker 1989, Becker 1985, Huggins 1993, Breiner 1999).
4. Treat the TMJ compression with a splint - create space for the joint to recover (Farrar & McCarty 1982).
5. Suggest dietary and breathing changes (Sears with Lawren 1995, D'Adamo 1996, Grout 1998, D'Adamo 1998).
6. Encourage cranial sacral therapy to further improve her cranial / facial balance as well as further consultations with her psychiatrist.

Note: Cranial / TMJ balance refers to the achievement of a

balance between the neuromusculoskeletal system from the head / jaw area on down to the sacrum. This balance also involves proper height of the teeth as well as balanced positioning of the upper and lower jaws in three dimensional space (Walker, Robert DC 1994, 1996, 1997 - Lecture Series, Jecmen 1994).

Following Rose's decision to begin treatment, her first appointment was set-up to include having the immobilized crown segments released, removing the mercury / amalgam fillings, as well as treating the TMJ/TMD with mandibular splint and cranio-sacral therapy. Strategic areas of the anterior crowns corresponding to the major (maxillary) and minor (mandibular) sutural areas were cut in the morning. In the afternoon her mercury fillings were removed, and a temporary splint inserted. The changes were dramatic and immediate - compare Views A (before) and Views B (after) of Figures 3, 4, 5 and 6. Note: The previously mentioned photographs were taken prior to removing the mercury fillings and before the soft splint for the TMJ dysfunction was inserted. Figures 3B and 4B show a wider smile with seemingly less effort; the corners of the mouth are slightly upturned. While initially her smile, speech and general body language were hesitant and restricted, after the procedures, they were animated, lively, and full of spirit. The author conjectured as to whether it was possible that the neuromuscular system had been boosted or stimulated in such a way that the neuromusculoskeletal system of the body was somehow enhanced? The results were so astounding, it seemed as if a switch had been turned on which lit up her personality, expressions and inner-being all at once. [The author is reminded of various anecdotes by Ida Rolf, Alexander, Feldenkrais, and

practitioners of those techniques, regarding changes they saw following their therapy sessions which parallel the changes noted above.] During the time immediately following the treatment Rose noted a decrease in the swelling of both her hands and feet. The reduction of these symptoms could indicate that the lymphatic system had become more functional. Before being dismissed for the day, she was fitted with a small non-intrusive splint to support the dysfunctional temporomandibular joint.

Follow-up appointments: Within a short period of time (and her psychiatrist's approval), she reduced and then eliminated her anti-depressant medication. She soon returned to full-time employment. It has been about two years since her initial treatment and Rose continues to be free from medication and has a new outlook on life. She is presently consulting an oral surgeon regarding surgical removal of the 'hardware' (metal plates) in the upper and lower jaws (Figure 1). The surgery was decided upon by the orthodontist and oral surgeon to correct craniofacial / TMJ dysfunction (the author doesn't have records prior to these procedures, however, he doubts strongly that alternatives were considered).

In a recent interview with the patient she indicated that she felt better than she had since before the motorcycle accident, quite possibly better than she has ever felt. She is (as of the date of this writing) experiencing very few of the symptoms she was exhibiting when she arrived for treatment. Among the vanished symptoms are: severe depression (without medication), sleep difficulties, hyperactivity,

muscle spasms, chronic stiff neck, headaches, and poor circulation.

Final note for Part 1

Functionally based teaching of anatomy, physiology, chemistry and nutrition within dental schools and the specialty fields will occur as the holistic/functional medical-dental philosophy evolves. There is a substantial amount of experiential data supporting the value of a multidisciplinary approach to treatment with 'scientific' research data yet to come. One need that must be met along these lines is an increase in grant money to accomplish the needed research. Many prospective dental patients are finding out that 'holistic dentists' are in short supply, mainly due to the fact that a philosophy of looking at the patient as a whole and the mouth as an integral part of that whole is only beginning to emerge and has not yet been developed in dental school curriculums. Strong encouragement of dental practitioners by the public may pay large dividends and result in a greater awareness in the population at large as well as earlier exposure of dental students to a more 'holistic' approach. Many aspects of 'traditional' dentistry including filling materials, crown materials, root canals, surgery, use of metals, cranially restrictive partial and complete denture construction, and some orthodontic techniques have all been questioned for many years by groups such as those in the following list. Through the efforts of these organizations, and public support, change will come to the dental schools, American Dental Association, state dental boards, and the FDA, EPA and the US Government.

The dental industry is now at the threshold of incorporating the ideas and philosophies which the previous organizations teach and research.

These philosophies have been found to benefit a high percentage of patients in adjacent health fields. Many dentists are already exploring and successfully using some of the concepts presented in this article. It is time for educational institutions to begin incorporating some of these philosophies and techniques into the curriculum of the dental student. Further postgraduate education, potentially from other fields of health, can give dentists the tools they need for a more accurate and "whole-body minded" diagnosis and treatment plan. Though it is sometimes difficult to push oneself and broaden one's horizons and vision, it is an exercise which could result in extraordinary benefits for both the practitioner and the patient. Dentists like all primary health care providers, need to constantly continue the educational process and to incorporate views (even views from outside their field) which consider the patient's entire body and well-being. As we ask our patients to brush their teeth for preventative measures so must we learn how our "corrective" measures affect their future health so that we can design our treatment plans with an (all inclusive / comprehensive, astute, all encompassing) eye toward enhancing health and well-being.

Hopefully the reader can now appreciate understand the consequences of inappropriate dental techniques. The author contends that it is imperative that cranial mobility, metal toxicity, and the future structural integrity of the whole patient be taken into consideration when performing any dental treatment. The body of knowledge necessary for all dentists to treat their patients with these considerations in mind is available within alternative dental organizations and complimentary fields of health care (see references and contact information contained within). The

¹Author's note: "These changes have been burned into my memory. I have also documented these changes both before and after on videotape as well as with intra and extra oral slides"

more people who are informed and understand the possible negative results of today's mainstream dental practices, the faster this body of knowledge will be incorporated into dental schools where it will have a great effect. The second part of this article will consider two more case documentaries that demonstrate the power of functional dental therapies as opposed to surgical procedures (extractions and other elective jaw surgeries). The author acknowledges that some surgical techniques are beneficial, but feels that most are overutilized without considering functional dental therapies. Also included in part 2 are several evaluation techniques available and useful to, any health practitioner, as well as an exercise that assists in the release of the TMJ complex, which can reduce a considerable amount of craniofacial pain and have other beneficial effects throughout the body.

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Appendix:

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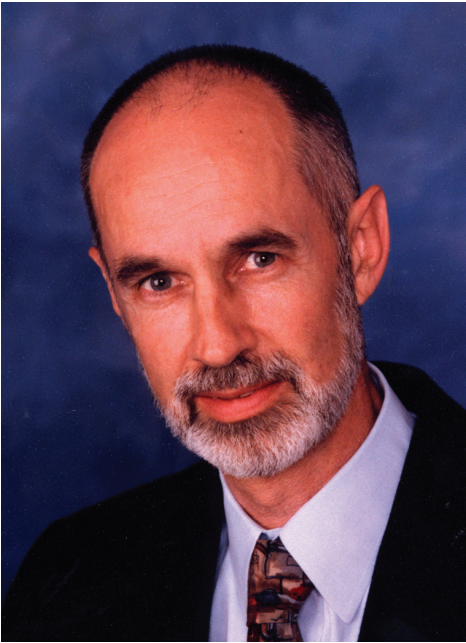
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Bodywide influences of dental procedures: Part 2

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Therapists and clinicians can influence the health of their patients by encouraging proper jaw development and TMJ / cranial health. When there is a greater understanding of functional jaw orthopedics and other aspects of “Whole Person Dentistry” patients’ overall health can benefit as oral health has a direct relationship to whole person health. Often, people are given no choices other than the surgical approach or standard splint therapy to treat Temporomandibular Joint / Temporomandibular Dysfunction (TMJ / TMD) difficulties. Though the standard of dental health care has improved greatly over the last few decades, it seems that there are areas that have been overlooked, and even avoided. There is substantial clinical evidence that supports arguments for multidisciplinary and “Whole Person” philosophies in the dental profession. The inappropriateness (and sometimes even harmfulness) of certain dental techniques to the health of the patient was discussed in part 1 of this article. Included in that list of dental techniques were: fixed bridges, especially in the front part of the mouth (Smith 1986); tight metal or non-metal dentures or partial dentures (which may restrict the flow of cerebrospinal

fluid - Upledger 1997, Fonder 1990); amalgam restorations - also known as mercury or silver fillings (Stockton 1998, Huggins 1981); rigid braces and other types of fixed orthodontics (Breiner 1999); as well as the use of tooth replacement materials which are electrically and / or chemically toxic to the human body. Also discussed was that, generally speaking, non-surgical techniques are preferable and more health enhancing than surgical techniques.

This article details two case histories in which the common consensus of treatment was surgical. The non-surgical treatment, which was used as an alternative, resulted in very positive overall health changes without the use of the previously planned surgical approach. The benefits of a non-surgical approach are:

- The author’s experience suggests that every step of the above outlined scenario can have negative implications for a person’s health. Σ avoidance of invasive procedures decreases the potential for infection and scar tissue development;
- The function of hypothesized acupuncture meridians are left undisturbed (Voll)
- Risk of neural damage is reduced when less invasive measures are used

- This type of non-surgical approach (see case studies below) is directed more toward treating the underlying cause of the malfunction as it utilizes a more natural correction
- From a craniosacral perspective it has been hypothesized that cerebrospinal fluid movement is less likely to be disrupted when non-surgical interventions are employed.

Following these case histories are several evaluation techniques that may allow a therapist to identify inappropriate developmental anomalies and create greater awareness and appreciation of a truly functional body and cranial mechanism. These techniques should allow the evaluation of face forms for potential disruptions of whole person performance. The Author intends to show how overall health is dependent in part on the proper development of structure, which is directly related to improved function of the whole person. Finally, a therapy that may assist the doctor or therapist to help any patient who is experiencing TMD type symptoms, will be reviewed.

Case History #2 - Cedarose: Non-Surgical Alternative Care for Cranio / Facial Imbalance

Past Medical / Life History

HISTORY

Cedarose, a slightly cantankerous teenager at 14 years of age, was brought for a consultation without her full co-operation. Her attitude made her a questionable candidate for the non-surgical technique that her parents were seeking. She had been in holistic orthodontic care for 1 1/2 years, however, reduced co-operation had led to discontinuation of treatment. At the consultation with this author, the two professional opinions they had previously received were identical in that the plans were

solely surgically in nature, the plans consisted of orthognathic surgery to advance the maxillae and to section the mandible (removing a portion of the posterior aspect of the bone) to move it posteriorly. Her parents persisted and visited with the author at a consultation appointment. The author concurred with the surgical suggestion given the present attitude and past failure of alternative techniques. However, Cedarose's mother continued to persist, and eventually convinced the author to accept her daughter as a patient.

TRAUMA:

Cedarose had a relatively normal home delivery, however, upon being given the slippery baby to hold after the birthing process, the father lost his grip and the baby fell into the corner of a

cedar chest which hit her right parietal bone. The trauma of that blow, plus a fractured pelvis (received when hit by a truck at the age of 5), combined with paternal genetic influences, probably contributed to the imbalances seen in Figs. 1A, 2A, 3A, 4A, 5A, and 6A (Magoun 1976, Price 1945).

DEVELOPMENTAL TRENDS:

Allergies have been a part of Cedarose's medical history for years. Milk and other dairy products contributed to mucus formation, which caused reduced nasal breathing and increased mouth breathing. Mouth breathing could only occur with a low tongue posture, which made the lower jaw grow more and the upper jaw grow less (due to the tongue's absence). The



A



B

Fig. 1 (A) Smile Before. (B) Smile After © 2002 John D. Laughlin III



A



B

Fig. 2 (A) Intra-Oral Before. (B) Intra-Oral After © 2002 John D. Laughlin III



Fig. 3 (A) No Smile Before. (B) No Smile After. © 2002 John D. Laughlin III

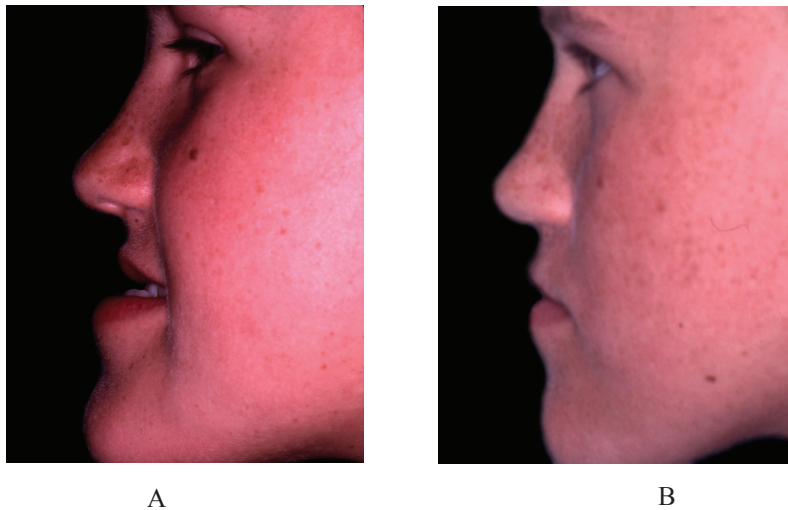


Fig. 4 (A) Close-Up Profile Before. (B) Close-Up Profile After. © 2002 John D. Laughlin III

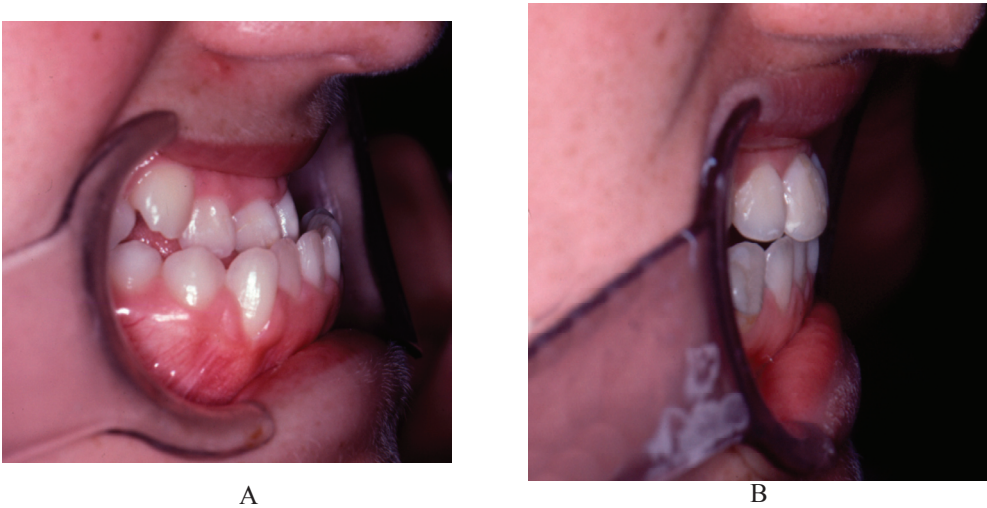


Fig. 5 (A) Intra-Oral Profile Before. (B) Intra-Oral Profile After. © 2002 John D. Laughlin III

tongue was also used as a spacer / splint between her teeth to artificially open her vertical, decompress the TMJ and provide more balance to the neuromuscular system of the cranium (Fig. 7). This developmental trend resulted in a small upper jaw, large lower jaw, and the consequential facial imbalances and bite distortion.

Recent Holistic Dental Treatment (Procedures completed by the author)

TREATMENT:

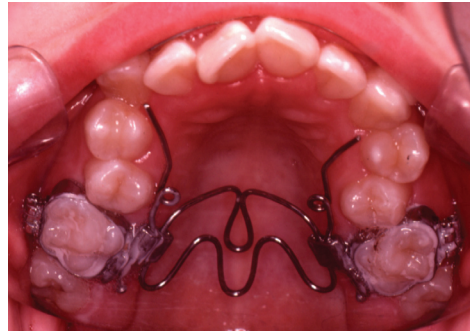
After considering all the factors and with continued encouragement from Cedarose's mother, the author agreed to a trial period of treatment. It was explained that because of the severity and the late treatment date (cases like this respond best when treated between 3 and 12 years of age) there would probably be a necessity for surgery. The intention was to reduce the severity of the surgery necessary and to possibly achieve greater balance to the mental, emotional, and physical components of Cedarose's person. The patient started to show a positive commitment after about 3 months of treatment. There have been some lapses in co-operation but she has done well overall. The facial balance has improved greatly (see Figs. 1B, 2B, 3B, 4B, 5B, and 6C). The mid-face profile has also developed greater balance. The bite has improved by bringing the teeth together through increased eruption of teeth and reduction of pressure on the TMJ.

TREATMENT TECHNIQUES:

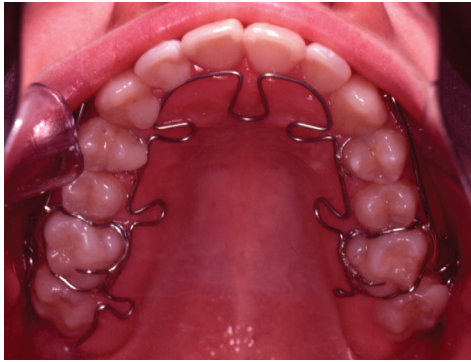
- Initially the bite was improved artificially through the use of bonded composite resin on the lower back teeth (Fig. 8)
- The teeth were erupted to permanently achieve the bite improvement, thereby reducing the pressure on the TMJ complex



A



B



C

Fig. 6 (A) Maxilla Before. (B) Maxilla With Nitinol Expander. (C) Maxilla After Treatment, Advanced Lightwire Functional Appliance (ALF) inserted. © 2002 John D. Laughlin III

and improving the disc functioning (Farrar W & McCarty W 1982).

- Appliances to create more room for the teeth were used, these appliances were designed to improve cranial function. Figs. 6B & 6C demonstrate these appliances (Nordstrom 1997).
- Maxillary development was directed toward reducing the crossbite of molar teeth.
- Maxillary traction was accomplished with the use of a facemask and elastic usage similar to the treatment of Anna in Case #3 of this article.
- Through direct and indirect cranial techniques the cranial mechanism was mobilized, specifically the spheno-basilar symphysis, vomer, maxillae, premaxillae, frontal, temporal, and pterygoid bones.
- Neuromuscular release of the

internal pterygoid muscles to further assist mid-face developmental changes (Gelb 1985).

- Dural release at the suboccipital triangle to affect greater freedom of the anterior clinoid process, foremen magnum, second & third cervical vertebrae and second sacral segments (Gelb 1985).

REFERRALS:

- Footzone therapy to assist whole person changes
- Cranial sacral therapy between dental appointments to assist transformation of the body and reduce stress caused by dental changes
- Massage therapy for further stress release

During a recent follow-up phone consultation Cedarose's mother



Fig. 7 Intra-Oral Before, Anterior & Lateral Tongue Thrust. © 2002 John D. Laughlin III

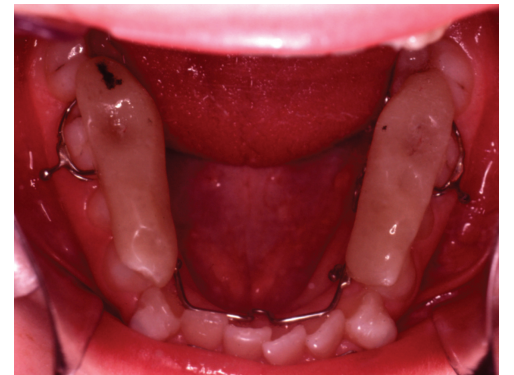


Fig. 8 Mandible Before, Splint in Place With ALF. © 2002 John D. Laughlin III

related the following regarding Cedarose's response to treatment: "My original intention was to home school Cedarose as I had done with her siblings. However, since at the age of six years old she was still constantly isolating herself in her room with various pets and dolls, so we decided to send her to a Waldorf school to expose her to increased socialization. Her teachers repeatedly expressed concern regarding her antisocial behavior. She would observe well, but never participate nor verbalize her thoughts. It was as if she was 'locked up' inside and just wouldn't interact with others. The turning point was quite dramatic and occurred about 3 –6 weeks after beginning the maxillary expansion (Diamond). Her interactions increased and she became quite outgoing over the next two years, making friends easily, traveling, becoming an activist

for social and environmental reform, and even performing in plays as an excellent actor. Now she has just completed her first semester in college where she works 15 hours a week laboring with a farm crew while carrying a full academic load. All at a university 1,500 miles away from home." Cedarose's personality has now blossomed. She has matured into a very pleasant woman and has been a pleasure to work with.

NOTE TO READER: Had Cedarose been a patient in manual therapy practice and cranial techniques applied without the above intervention having been accomplished, it is the author's opinion that therapy would be helpful but would probably prove to be more of a temporary nature. The concerted multidisciplinary approach that was instituted involving functional orthopedics and whole person dental philosophies had results that were much more permanent. Cranial freedom (and the muscular adaptations that often occur with cranial restrictions) is associated with proper occlusion of the teeth. It is important that the practitioner recognize structural developmental conditions that interfere with proper neuro muscular balance, for instance: lack of structural symmetry, improper occlusion, birth trauma, general trauma, and nutritional imbalances. Referring the patient to a skilled dentist for evaluation can play a key role in the patients journey to improved health.

CASE HISTORY #3 - Anna: Non-Surgical Alternative Care for Cranio / Facial Imbalance

When the author first met Anna he was struck by a sense of sadness about the patient which seemed to be covered up by a nice friendly attitude. The author was encouraged by the positive nature of Anna and her parents who were seeking

alternatives to the two surgical techniques which had been presented. The suggested surgery was to correct 'excessive mandibular and deficient maxillary' growth of the skull. The author was in essence being asked to present some non-surgical facial neuromusculoskeletal rearrangement options (Breiner 1999, Hockel 1983, Witzig, & Spahl 1987). Anna's birth was reported as 'easy', however, even 'normal' births are traumatic and can cause dysfunctional cranial activity (Fryman 1966). Nutrition and heredity also played a part in the growth imbalance as both of Anna's parents also exhibit imbalances in the cranial / TMJ development (Page 1949, Price 1945). Anna's cervical spine showed a reverse curve on lateral skull / neck x-ray (Fig. 9) and this tendency appears in the before profile picture (Fig. 10A) where the face tilts forward and down. In the author's experience (having observed hundreds of cephalometric -lateral skull- x-rays and their corresponding profiles), he has seen a correlation between a downward face tilt and either a straight cervical

or reverse cervical curve. Conversely a neutral or forward facing profile has been found to reflect a normal lordotic cervical curve. Fig. 10B was photographed 8 months later and also taken at rest. To reduce false readings during the taking of slides and lateral skull x-rays, all of the author's patients are asked to focus their eyes on a fixed point at about eye level on the wall directly in front of them. The later picture shows a change in the face tilt, which appears to reflect a change in the tissues of the neck. These apparent changes may reflect cranial changes that occur at the sphenobasilar symphysis. This joint (synchondrosis) at the junction of the sphenoid and occipital bones has the potential of altering the head and neck posture dramatically (Jecmen 1995).

The TMJ functioned quite well regarding the 'normal' inter incisal opening of 45 mm. (between the front teeth edges). However, there was a restricted translation phase (the last part of the opening cycle). Right and left sides of the maxilla were positioned inside of the mandible



Fig. 9 Cephalometric X-Ray (Lateral Skull) Before. © 2002 John D. Laughlin III



Fig. 10 (A) Profile Before. (B) Profile After 8 Months Treatment © 2002 John D. Laughlin III

(normally they are outside of and wider than the mandible), her small underdeveloped upper jaw and large overdeveloped lower jaw aggravated the problem. This growth disturbance was probably caused by the low tongue posture in which the tongue lays between the upper and lower teeth (Fig. 11). Normally the upper (maxillary) bone is larger (wider) than the mandible (Guzay 1979). In this case there were only 2 teeth touching, virtually no teeth were hitting because the tongue was always between the teeth forcing the teeth apart in an effort to support the TMJ and open up the airway for improved breathing potential (Fonder 1990, Huggins 1981). Though Anna reported no problem (that she was aware of) with chewing food, digestion may have been another concern. Anna's medical history was negative except for monthly headaches, which could be hormonally related, or associated with the above traumas. Other issues to be addressed included cranial balance, occlusion (see Fig. 11), tight psoas muscles, tendency toward forward head posture, TMJ

disc displacements, dural stress of the head and neck region (Smith 1996), habitual standing on the right foot, and slight decay of a couple of teeth. Additionally, her head / neck posture was out of balance and there were other more subtle issues involved, which are difficult to put into words. The subtlety spoken of here reflects a generality or group of symptoms such as is described by Viola Frymann D.O. in *The Philosophy of Osteopathy*: ' "Function" applies not only to the vegetative activities of the organism, such as circulation, respiration, digestion, and so forth. It also includes such activities as thought, feelings, creative expression, meditation, and spiritual aspiration. ...' (Fryman 1976).

What the author believes had happened was that birth trauma / hereditary influences with contributing allergies and breathing dysfunction, resulted in a thrusting tongue posture, which further led to dysfunctional TMJ and growth disturbance issues. A question worth pursuing is "What other preceding factors could have occurred which would have led to this

condition?'



Fig. 11 Intra-Oral Before- Anterior and Lateral Tongue Thrust © 2002 John D. Laughlin III

Possible causes for this dysfunctional development might include:

- 1.) The use of a pacifier [nook] (Garliner 1993, Gelb 1985)
- 2.) 12th cranial nerve compression at birth: *Trauma to the cranium, atlas and axis, as well as strain on the dura and several cranial nerves associated with the above structures, can cause severe dysfunctions in need of immediate care following birth* (Magoun 1976, Frymann 1966, Fulford 1996, Gelb 1985, Upledger 1983)
- 3.) *Use of a baby bottle with too large a hole in the nipple* (Garliner 1993)
- 4.) Environmental allergies / toxins (Breiner 1999)
- 5.) Nutritional imbalance (Huggins 1981, Price 1945)

The treatment plan involved the creation of appliances to enlarge the maxilla and bring the maxilla forward in order to provide more room for proper tongue position. From a craniosacral perspective, this would create increased cranial freedom thereby allowing improved cerebro spinal fluid flow to occur (Smith & Ashton 1995, Smith 2000, Smith 1992).

The objective changes seen from Fig. 12A to Fig. 12B show improved face posture (face tilt and cervical side-bend), and upper eye lid function (levator palpebrae superioris

dysfunction involving cranial nerve III) (Langman & Woerdeman 1978). Also, her eyes appear more alert and muscles more 'active' which is indicative that cranial and mandibular changes had occurred (compare Figs. 13A & 13B). Fig. 14 demonstrates the use of elastic bands to encourage forward release of the maxillae as well as to decompress the spheno-basilar symphysis which has been implicated in some cases of depression (Magoun 1976, Jecmen 1995, Fulford 2000). At each appointment the patient was treated with cranial therapy and given various neuromuscular re-education home care instructions (While some of these exercises are beyond the scope of this article, other exercises incorporated by the author are described below). An internal pterygoid release technique was also performed at each appointment and is described later in this article. Eight months of intra-oral appliances and inter-arch elastic use, in conjunction with dental cranial therapy has brought about dramatic changes. Thus far the progress has led to the elimination of head pain, improved chewing ability and indicates no surgery will be necessary. Future treatment will include a continuation of downward and forward facial development with the use of orthopedic dentistry as well as a refinement of proper teeth relationship with fixed orthodontics (braces).

-CLINICAL TECHNIQUES-

The author has observed that some health care practitioners are reluctant to evaluate teeth, TMJ, and jaw disturbances (possibly stemming from a fear of intruding upon the privacy of the patient's mouth or lack of understanding of the anatomy). This reluctance, if present, can easily be overcome with the intention to practice and experience the following evaluations for the good of the patient



A



B

Fig. 12 (A) No Smile Before. (B) No Smile After © 2002 John D. Laughlin III



A



B

Fig. 13 (A) Smile Before. (B) Smile After 8 Months Treatment © 2002 John D. Laughlin III

/ client. The author urges anyone who is hesitant to work in this area to break through that self-imposed barrier.

VISUAL CRANIO-FACIAL EVALUATION

Symmetry of Features: Look for right and left side symmetry, as well as full lips, and balanced proportions (Rifkin 2000). Intuition helps us choose beauty and our mate for procreation.



Fig. 14 Use of Elastic bands to release the maxillae and affect the spheno-basilar symphysis © 2002 John D. Laughlin III



A



B

Fig. 15 (A) Cranio-Cervical Scoliosis / Sidebend Lesion Before. (B) Demonstration of Better Balanced Features after 15 Months of Treatment © 2002 John D. Laughlin III



A



B

Fig. 16 (A) Compressed Facial Features / Reduced Vertical Support. (B) Restored Vertical Dimension, Improved Profile and Function © 2002 John D. Laughlin III

Symmetry and balance reflect strength and health and vice versa (Diamond 1979, Diamond 1979, Peck 1980). In the author's experience, the sooner imbalances can be detected the easier they are to correct with orthopedic / orthodontic, cranosacral, and adjunctive techniques. Fig. 15A shows cervical and facial scoliosis / sidebend lesions (as demonstrated by the facial and postural curvature) as well as eye size imbalance (Jecmen 1995). After one year of treatment,

conditions have improved (Fig. 15B). *Compression of Features:* Viewed from the profile. Observe lower facial height, in addition to upper and lower jaw positioning. The example shown demonstrates before and after slides of a denture reconstruction case with reduced vertical support in the back teeth (Fig. 16A & 16B). Note the change in the head / face tilt, and the elimination of light sensitivity. Dark glasses were necessary for light

tolerance before treatment but not after treatment (Fonder 1977).

Lower Lip Posture and Lip Seal: While the patient is at rest (not smiling or with other facial expressions) evaluate the lower lip posture and lip seal. If the lips are thin (compressed) there is probably a teeth clenching and grinding habit in place. This habit compresses the teeth into their sockets and reduces the facial dimension as viewed from the front and side (Fig. 17). If the lips are open at rest (Fig. 18A, 18B, & 18C), there is probably a mouth breathing habit, nasal obstruction, sleep pattern disturbance, small maxilla (upper jaw) or other growth-related problems, such as crooked teeth and cranosacral dysfunction.

Lower Lip Crease: This facial feature is most easily seen from a profile view (Fig. 17). The crease is found between lower lip and chin. It indicates reduced vertical support in the back teeth which most often



Fig. 17 Deep Bite, Excessive Lip and Chin Cleft, Recessive Mandible © 2002 John D. Laughlin III

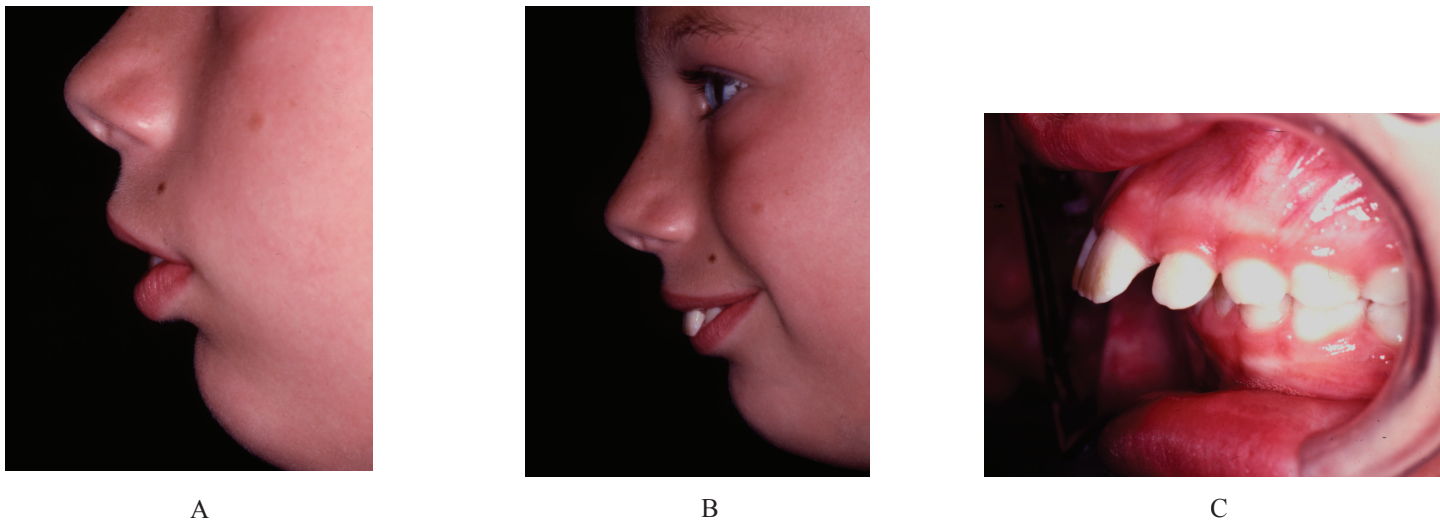


Fig. 18 (A) Non-Smile Mandible Recessive with Deep Bite. (B) Smile Showing Apparent Protrusive Upper Teeth but Actually Recessive Mandible. (C) Intra-Oral View of A & B Showing Severe Overjet of Maxilla © 2002 John D. Laughlin III

occurs as the result of tongue pressure or grinding / clenching, again forcing the teeth into their sockets. It may be accompanied also by a retruded lower jaw and upper front teeth pointed backwards (beaver-like). Moodiness and a head-strong attitude may accompany this face form.

Width of upper Jaw: Check the smile and look at the teeth behind the cuspids (eyeteeth) (Fig. 19A).

Are they visible? If not, the maxilla is very likely too narrow and the lower jaw is probably back too far. A small maxilla often can be related to craniosacral imbalances as well as hormonal dysfunction (Price 1945, Fonder 1977, Smith 1986). Unfortunately this is often difficult to observe as the very condition tends to hide itself. Before treatment, patients with this condition will often have “small” or “reluctant” smiles;

this means that most of the side dentition will not be visible for such an examination (Fig. 19A). After treatment, when the imbalances are rectified, there will often be a large improvement in not only the quality of the smile but also in the willingness of the patient to display his/her smile (Fig. 19B) (Price 1945, Diamond J 1979).

Lower Jaw Positioning: In this illustration, the lower jaw is too far forward, which exhibits an underbite or class III dental malocclusion. (Lower anterior teeth are less than approximately 2mm behind the upper front teeth - Fig. 4A, and 5A) This condition is generally found when there is a mouth breathing habit, which may lead to a long face and / or a small maxilla (posteriorly positioned) and a long lower jaw if the tongue pushes it into a forward growing position. There may be a strong hereditary component to this condition.

Lower Jaw too far back - overbite or class II division II dental malocclusion - is best seen from profile view (Fig. 18A, 18B, 18C). This condition exists when lower front teeth are more than approximately 2mm. behind upper teeth and may



Fig. 19 (A) Before: Smile Showing reduced Maxillary Width, Incomplete showing of Side Teeth. (B) After: Improved smile quality as well as increased desire / ease of smile © 2002 John D. Laughlin III

cause TMJ / TMD problems, double chin appearance, airway obstruction, sleep apnea, ADD, ADHD, ear problems, forward head posture, reduced energy, name calling by peers (example - Bucky Beaver, etc.), and, thus, poor self image. Causes may include thumb sucking, tongue sucking, birth trauma, allergies, or poor nutrition.

In the author's experience dysfunctions in the above descriptions can result in head, neck, or back pain, disequilibrium, tinnitus, trigeminal neuralgia, hormonal imbalance, moodiness, as well as many other conditions. These previously mentioned face and jaw forms may be caused by thumb, tongue, or finger sucking, birth trauma, allergies, fetal developmental problems (stemming from drugs, alcohol, trauma, poor nutrition), generalized nutritional deficiencies, chemical imbalances, disease, general trauma, genetics, or a combination of these factors. The above categorization of face forms are the result of years of observation by the author and are corroborated by many other authors. (Fonder 1990, Cheraskin, Ringsdorf, & Clark 1968, Page 1949, Mew 1986, Frymann 1983, Huggins 1981, Hockel 1983, Page 1949, Bowbeer 1992, Bowbeer 1993, Jecmen 1994)

AESTHETIC / FUNCTIONAL EVALUATION

One technique the author uses to evaluate possible potential for change involves the use of tongue blades or pieces of paper towels placed between the back teeth at the time of the consultation. In cases of compressed facial structure, if this improves the facial appearance (which it did for Cedarose as the mandible rotated back) it is indicative that the potential for positive change with orthopedic / orthodontic treatment exists. Applied Kinesiology muscle testing may also verify improved function (Goodheart 2000, Gelb 1985)

Internal pterygoid and craniosacral system release

There are many techniques available to improve mandibular freedom (range of motion) at the TMJ complex. Excellent summaries are included in Chapter 12 of Clinical Application of Neuromuscular Techniques, Vol. 1: The upper body (Chaitow & DeLany 2000) and Chapter 4 of Cranial Manipulation Theory and Practice (Chaitow 1999). A hybrid of these various techniques follows. These extremely powerful techniques could be considered an intra-oral Nimmo / Roling-like procedure with sensitivity toward unwinding the craniosacral mechanism. In the author's practice, many cases of restricted condylar translation (with associated reduced jaw opening) have improved dramatically following a 2-3 minute session as described below. It's not unusual to observe a 3-6 mm increase in the range of movement of the mandible as well as a temporary reduction or elimination of the clicking sound within the TMJ complex, possibly through a more physiologic repositioning of the meniscus (disc).

Notes about the Exercise:

The release is stimulated and monitored with constant tension on the belly of the internal (medial) pterygoid muscles as the connection to the pelvic motion is sensed. This sense of connectiveness felt between the pterygoid and the pelvic mechanism can be explained in part by Tom Myers' video 'Anatomy Trains' (Kinesis, Inc.; 20 Roundabout Dr., Scarborough ME 04074 Tel:(888)546-3747) which excellently describes the connective tissue trails of muscular fibers, fascia, and tendons, which spiral throughout the length of the body. This procedure may also have an effect on the external (lateral) pterygoid muscles, which are difficult if not impossible

to directly access. Dr. Donald Woods, a cranial osteopath, has written about the power of releasing the lateral pterygoid, which is also affected by the internal pterygoid technique. 'This release (stimulates) improved lymphatic drainage (connective tissue reorganization), scar tissue breakdown through neuro muscular stimulation as well as mechanical drainage techniques also affecting the cranial action through temporal, sphenoid and occipital freedom. Again correlating to hormonal balance.'"(Woods 2000)

The Exercise:

For this exercise, face the patient in a standing position (best with the patient's back to a wall and knees slightly bent to provide a stable relationship). Finger cots or gloves are used to protect the practitioner's thumbs, which are placed in the patient's mouth between the upper and lower back teeth and medial to the mandibular rami (Fig. 20). The internal (medial) pterygoid is contacted (gentle pressure is utilized without damaging the pterygoid hamulus). Proper position is inferior to the hamulus, and held as the practitioner senses all body tissues

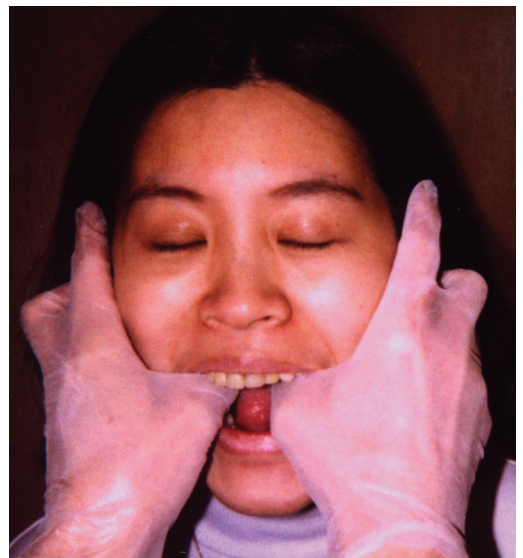


Fig. 20 Demonstration of Hand Positioning for Internal Pterygoid Release © 2002 John D. Laughlin III

extending down to the Achilles' tendon (practice and patience will yield greater sensitivity). With sensitivity, it can feel as if the whole body is suspended by the connection of the crano mandibular support system. This portion of the therapy is similar in some ways to a myofascial release of the whole body system. Mouth breathing by the patient deeply into the belly is recommended. It is psychologically helpful to compliment the patient as he/she is able to relax into the release. If a gag reflex is stimulated, encourage the patient, then pull back slightly with less pressure and withdraw the thumbs a little bit (or all the way if a meal starts to come up), then continue the release as before.

As the body releases and a sense of change is palpated, another level of release may be facilitated by requesting the patient to gently close the mouth. As pressure is felt on the practitioner's thumbs, the effect of the release is magnified and further layers (both physical and emotional) can be penetrated and an 'unwinding' of tense layers (physical and/or emotional) may occur. The patient is again reminded to breathe through the mouth and into the abdomen to further facilitate a deeper release. The breath also helps to achieve a somato-emotional clearing without stimulating a cathartic emotional release (author's technique and clinical experience). Periodically an emotional release will surface without warning (such as in a sexual oral rape victim or stifled speech). The breath seems to help to process the incident in the moment and a referral to a counseling therapist, when appropriate, is strongly recommended.

The gag reflex that is stimulated at various depths of release is expected and will gradually disappear as more sessions are accomplished. Home care is encouraged and the technique is taught to be done one to two times a day by using the patient's own thumbs (one at a time), crossing

right thumb to left pterygoid and left thumb to right pterygoid. The patient is reminded to add the breath to this exercise, and particularly mouth breathing, which further opens and clears the hypothesized energy pathways of the throat (Oschman 1996, Chia 1993). This technique may be applied to any craniosacral dysfunction, regardless if the cause is chronic or acute trauma, birth trauma, psychological /emotional trauma or something as simple as the strain of the mouth opening wide for a dental appointment.

CONCLUSION

Oral and cranial dysfunction can range from a minor to a serious impediment to whole person health. Because of this impediment as well as a host of other functional and aesthetic reasons, proper diagnosis and treatment of the oral / cranial component should be considered as an important part of multidisciplinary care. Many patients suffering from a variety of seemingly unrelated symptoms can often return to a healthy state through this type of care. It has been the author's experience that there are many cases where holistic dentistry, including functional orthopedic / orthodontics, can be utilized in place of or in conjunction with surgical and traditional orthodontic techniques. The avoidance of surgery eliminates the consequential scar tissue formation, which has been found to disrupt energy pathways and acupuncture meridian circuits (Voll 1978). Some oral surgical as well as orthodontic procedures may be further ill-advised in that they could have far-reaching (even permanent) negative effects. It must however, be noted that there are many cases where surgery is beneficial and necessary, for example: surgical elimination of jaw bone cavitations; extractions of infected teeth, including root canals; and some facial deformity corrections which are untreatable through non-surgical

techniques.

Positive physiological response to treatment assists and is dependent on whole person health, which is directly related to proper hormonal, nutritional, chemical, mental, spiritual and structural balance (Breiner 1999, Dams 1994, Fonder 1990, Smith 1986, Gerber 1988, Frymann 1976). In the author's opinion, multidisciplinary cooperation is therefore essential to the success of most therapeutic modalities. The achievement of health requires teamwork headed by most importantly, the patient. Without desire and determination, change from dis-ease to ease in life is impossible. What if, through our assistance, we could encourage and stimulate movement of our patients in the direction of vibrant health? Better yet, what if "Preventative Dentistry" was taken a step further and the majority of these inappropriate developmental anomalies never even occur? The author feels a strong priority should be placed upon the evaluation and treatment by a functionally based cranial physician / therapist at or following birth. A functionally based dentist should examine the child at the ages of 2, 3, 4, and 5 in order to avoid the possible deformations discussed in part one and part two of this article. Prevention is preferred to treatment, treatment is most beneficial sooner than later.

In depth discussion concerning many of the issues within this article is beyond the scope of this paper, however, review of the bibliography (which contains many books and articles the author has found to be enlightening, and inspiring) and the web-sites (listed at the end of part 1 of this article in Vol. 6, No. 1) would offer further clarification.

Education, which has led to the above information, has been contributed to by innumerable teachers, clinicians and therapists. A short list of the many teachers to whom the author owes his gratitude and to whose work he

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