Editor's Letter. Treatment of malocclusions in adults with Jaw Functional Orthopedics (JFO)

The Jaw Functional Orthopedics concept was born in Europe. One of the fundamental principles described and standardized by Simões [1] is the change of mandibular posture (CMP). It was reported for the first time by Pierre Robin in 1902 (without the standards), in individuals born with the syndrome he described, which received his name (Robin Syndrome). The micro and retrognathism were treated with an appliance that advanced or protruded de mandible with good results, according to the author. Since then, many techniques have been created, with the main objective of restoring normal growth of the cranium, mainly of the mandible and maxilla.

In 2001 Jaw Functional Orthopedics was considered a specialty in Brazil. The Federal Council of Dentistry recognized that it has sufficient diagnostic and treatment tools to be considered a Dental Specialty.

We have to separate Jaw Functional Orthopedics from Mechanical Orthopedics (face masks, rapid maxillary expansion, mini-implants, etc.), entirely, not because one is more effective than the other, but because they differ completely in the way appliances' activation is required, in time between clinical visits, intensity, and in the way biological responses are achieved, therefore, although the results are quite similar in some cases, they consist of two different treatments.

This journal aims to divulge [and disseminate information] about investigations into Jaw Functional Orthopedics, its diagnosis, and treatment possibilities for the treatment and prevention of malocclusion, Temporomandibular Disorders, Sleep Disorders, and the advantages of its use in public health policies. All biological aspects about craniofacial growth, new technologies, new materials, digital innovations in diagnosis and treatment planning, and critical and systematic reviews will be covered. We will have a section with case reports and a section called "clinician's point of view" in which techniques will be described, clinical tips about activation of appliances/resorts will be given, laboratory construction of appliances will be explained, etc.

The demand for malocclusion treatments by adults has increased in dental offices in the past few years either by aesthetics, for the health of oral structures, or even for pain and/or functional limitations in some very specific cases of temporomandibular disorders. This can be observed even in the advertisements of orthodontic aligners. This occurs, in my point of view, because people who had resigned themselves to the situation of bad positions of their teeth are becoming aware that it is possible to treat them. In a third-world country like Brazil, many adults, who were unable to treat their malocclusions as a child (mostly for economic reasons), seek treatment.

Another factor that determines this search for malocclusion treatment by adults is that parafunctional oral habits (unilateral chewing, mouth breathing, non-nutritive sucking habits, frequent insertion of objects in the mouth, etc.) create malocclusions after de ontogenetic growth period, resulting in the appeared of malocclusion in adults. Relapse of anterior malocclusion treatment or non-eradication of parafunctional habits during previous malocclusion treatment is an important factor too.

There is a prejudice that JFO does not treat adults, that it is effective only at ontogenetic growth age (children and teenagers). The efficacy of treatment with JFO in the growing period is already proven, mainly in cases of retrognathism (Angle's Class II). An important reason that generates this prejudice is the lack of scientific publications about the subject in English (a reality that this journal will try to change).

It is ways good to emphasize that the name of this journal, Jaw Functional Orthopedics and Craniofacial Growth, is based on the thought that craniofacial growth does not happen only in children and teenagers. The biology of craniofacial bones never ceases. It has completely different velocities and amounts of growth in different ages, even during ontogenetic growth, but happens throughout the entire life, allowing treatment of malocclusion with JFO at any age.

There are investigations in the 1960s and 70's comparing stomatognathic function and growth in civilized adult populations (who eat prepared food) with the ones who live in more natural

conditions like Australian aborigines, Eskimo, some Indian tribes (who eat food with none or very little preparation). In the '80s, more specifically in 1985 Behrents [2] in the Monograph 17 of Ann Arbor's Craniofacial Growth Series demonstrated the changes that occur in the craniofacial skeleton during aging proving, without doubt, that there is a biological process throughout life. In terms of speed and amount of growth, there is no way to compare with growth up to 5 years of age where craniofacial measurements in the three space planes (vertical, anteroposterior, and transverse) reach about 80% of their total growth or with the growth rate in the prepubertal growth spurt [3].

Back in the 1970s, Planas [4] already reported the importance of JFO, called by him neuro-occlusal rehabilitation, in the maintenance of periodontal health in adults using various stimuli (occlusal adjustment, Planas, direct and indirect tracks) that altered the dynamics of the stomatognathic system, altering the sensory input, altering the trigeminal motor response, resulting in alteration of mechanical requirement on periodontal structures. Simões and Cardoso in Simões' book [1] published successful cases of adult treatment with JFO too.

The subject treatment of malocclusion with JFO in adults is vast. But the real possibilities are not yet fully known. The search for this knowledge opens up numerous fields for clinical research. The adult patient usually has a professional life and the use of the functional orthopedic apparatus compromises speech. This leads to two very different fields of research, new treatment techniques, and materials.

The search for new functional orthopedic techniques objecting to the volume reduction of functional orthopedic appliances is already a reality. Some techniques have already been created to facilitate use during the daytime, but are still associated with classic techniques appliances used during the night.

The engineering of materials with the development of polymers with properties that supplant those of acrylic allowing less bulky appliances is very welcome. Another point that will contribute is the improvement of the technology of wires with memory that already exists, but it is still not feasible for use in the construction of functional orthopedic appliances. The realization of Planas' dream, see his indirect tracks maintaining correct relationships with each other (superior and inferior) and with the dental arches supported by electromagnetic field eliminating the need for acrylic in his appliances, would be a very welcome innovation.

The study of mechanical and electromagnetic vibrations as amplifiers of biological response in adults submitted to malocclusion treatments with JFO is another field of great interest.

Treatment of malocclusion in adults is a very interesting field for the patient since improves life quality, self-esteem, and oral functions and also because requires interdisciplinary research involving engineering and dentistry in the search for new materials, for effects of vibration in the patient and opens up several lines of investigation in clinical and biological response in adult's treatment.

Every Issue of the Journal of Jaw Functional Orthopedics and Craniofacial Growth will honor exponents of the specialty. Always good to know that the sequence of honoring has nothing to do with the classification of the importance of their contribution to Jaw Functional Orthopedics we just cannot honor them all together.

The very first issue will honor two great women with whom I have the privilege to see working in their dental offices, Dr. Wilma Alexandre Simões and Dr. Ieda Piramo Moreira Santiago. Both, in their way, inspired (and trained) lots of Jaw Functional Orthopedics practitioners.

Dr. Wilma Simões wrote the most complete book about the specialty (Ortopedia Funcional dos Maxilares Vista Através da Reabilitação Neuro-Oclusal published in Portuguese, Spanish and Italian) and lots of papers. Created the Simões Network technic and a cephalometric tracing and analysis – the Articular Compass for patients with severe anterior open bite and TMJ degenerative diseases, and travel the whole word teaching and inspiring people. If I wrote one hundred pages about this spectacular woman it won't be enough to describe all she still does and mainly my admiration for her. The cover of this journal was based on one of her most important findings – the incisal touch in Determinated Area (DA) that enhances patient response to treatment. The star

on the cover is dedicated to her, her knowledge, ethics, and enthusiasm, but most of all because she is my north star.

Dr. Ieda Santiago is one of the best clinicians I have ever seen. Her ability to deal with the patients is something wonderful. Her clinical vision, respect for the individual seated in the dental chair, and capacity to explain things in such an easy way are outstanding. She can explain to non-dentist patients and parents, complex details about Jaw Functional Orthopedics treatment in a way they could understand.

References

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[2] Behrents R. G. *Growth in the Aging Craniofacial Skeleton.* Ann Arbor, Michigan: Center for Human Growth and Development, University of Michigan, 1985, https://hdl.handle.net/2027/mdp.39015009852487

[3] Bhatia S. N., Leighton B. C. *A manual of facial growth. A computer analysis of longitudinal cephalometric growth data.* 1a Ed., New York: Oxford University Press, 1993.

[4] Planas P. *Génesis de la Rehabilitación neuro oclusal*. DF, Mexico: Impressora San Luis, 1973, (in Spanish).