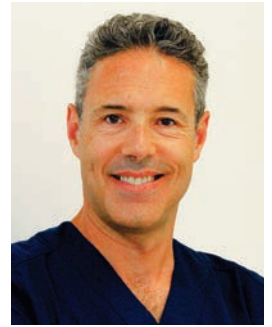


ERGONOMICS CORNER

HOW TO MAKE A PERFECT WORKING POSITION REPRODUCIBLE



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Scientific literature shows that Musculoskeletal Disorders (MSD) are a major problem for all dental health workers. Studies referenced in PubMed show that the prevalence of general musculoskeletal pain ranges between 64% and 93% [1]. The back, neck and shoulders comprise the majority of issues.

The introduction of the dental operating microscope, besides entering in a new world of precision, improved our comfort a great deal.

When it comes to the dental patient chair, if we look back at our history, it is in fact still based on the old barber's chair from the early 1800's. At that time there was no electrical light or suction system, so it was merely a support for the patient and a convenience to the dentist.

The problem with our dental chairs is that all patients are seated at the exact same point, initially sitting upright. This leads to a variable location of their head on the head rest, according to their size. Shorter people or children have their head on the back rest, and taller people require a support adjustment by pulling on the head rest. Most of our traditional dental chairs have a height offset between the backrest and the seat, which may create a painful lumbar lordosis. This is increased by the shape of the leg support, which leaves the knees bent when the patient is supine and stretches the rectus femoris. (Fig1)

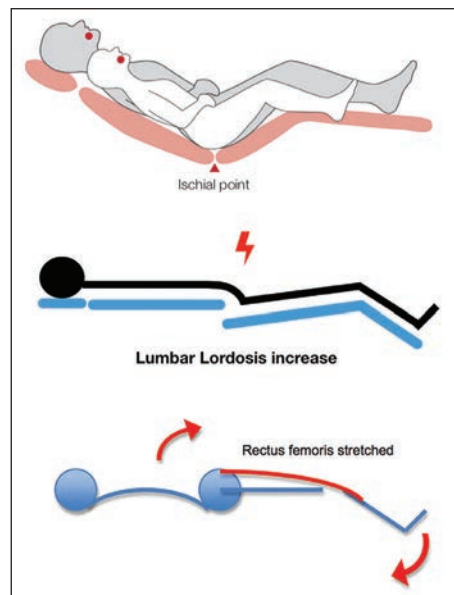


Fig. 1

Usually, we sit a patient on the chair, tilt back until he says stop, and then adapt to him. The patient objects mainly due to an unpleasant sensation of being tilted backward and/or a low back discomfort. We suddenly enter into a kind of negotiation, as we know we would see much better if the patient was fully supine. The results are a widely variable inclination degree and patient position.

Variable oral cavity position is a major problem because it obliges us to modify our workstation for each patient. We need to change our stool position, our assistant position, our instruments position, our tray

position, our light position, our microscope position, and our pedal position... for each patient.

Ideally the oral cavity should always be at the exact same position, regardless of the patient's size, in order to have a fully REPRODUCIBLE working position. The main way to accomplish this goal is to use a flat support. In this situation, each patient has his head over the head rest, and no adjustments are needed. The rest of the body finds its position freely, unencumbered by the curvatures of a seat and backrest. (Fig.2)

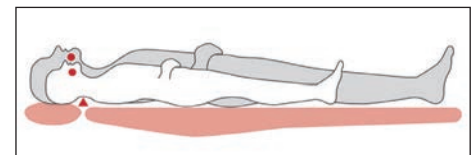


Fig. 2

Then, the oral cavity becomes the center of the workstation and the reference from which everything is organized. Once this reference point is defined, you can adjust your stool, your instruments, your tray, your assistant, your light, your pedal, your furniture, and possibly not change these positions between patients. Like when you jump in your car every morning and all your settings haven't changed: just sit and bring your microscope to your eyes. Ergonomics is adapting the work to us, not the opposite. A patient in fully supine position is essential to our ergonomics[3]. However, our work is on another human, so considering the patient is very import-

ant. It can be very unpleasant to be tilted backward, without knowing how far, and especially for the elderly who may be proprioceptively deficient.

In 1990 Grace EG, et al [3] compared 2 groups of patients in their chair inclination acceptance, one group started at 75° and accepted 34°, another group started at 5° and accepted 12°. These surprising results show that the final position depends on the beginning position!

Our patients are lying themselves on their bed, on the massage table of their physio-therapist and chiropractor, on an MRI table, or for Lasik eye surgery under microscope, where head stability is essential.

Why not be inspired by other professions that do not have our strong habits with our barber's chair past and head instability (Fig 3).

Some equipment already exists in Japan with the Feel21 from J. Morita (Fig. 4), and in France with Meunier Carus (Fig.5).

The future of dental ergonomics is ahead.



Fig. 3 - Courtesy of Dr. Romain Ducasse



Fig. 4



Fig. 5

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3. Grace EG, Schoen DH, Cohen LA. Chair inclination and patient comfort. *J Dent Pract Adm.* 1990 Apr-Jun;7(2):76-8. PubMed PMID: 2074478.