

Thomas Kuhn and the Transfer of Knowledge in the Temporomandibular Disorders Field

Thomas Kuhn was one of the most influential philosophers of science in our time. In his book, *The Structure of Scientific Revolutions*,¹ he defends the idea that the biggest scientific advances occur when there is a shift of paradigm, what he called “scientific revolution.” He defined paradigm as “what the members of a scientific community share.” A scientific revolution would occur when scientists encounter “anomalies,” facts which cannot be explained by their actual paradigm.

The *Journal of Orofacial Pain* and many other journals in the pain and dental fields regularly publish articles about temporomandibular disorders (TMD) and it is clear that the TMD field is full of controversy. Theories such as the importance of “centric relation” to TMD developments are only the tip of the iceberg. Below water level are two paradigms representing two different worldviews. One of them (the new one) is well known as “evidence-based dentistry” (EBD). Actually, we are living in a time of a “scientific revolution,” where the old paradigm is not dead, and the new one already exists. This coexistence leads to the appearance of “confusion,” common among changing times.

A big problem is that many clinicians do not have the tools to mark the difference between the two paradigms, and they make their decisions based on personal affinity with professors or theories, rather than on scientific criteria. They hear a lecture full of evidence-based treatments for TMD, based on several randomized controlled trials, and another lecture full of case reports and good rhetoric. They frequently choose the second as the “better one” because it is “more clinical.”

Within this context, it is not enough for researchers and educators to transfer the best evidence-based practice from the research field to the clinical setting. It is also necessary to transfer some basic concepts that are very familiar to them, but not to the clinicians, about science in general, and EBD in particular.

We should discuss with clinicians some basic rules: If a hypothesis wants to be considered scientific, it has to be able to be tested by a scientific method and, until that happens, it is no more than hypothesis. When talking about etiology, we should explain the differences between association and causality and the Bradford Hill’s concepts.² When talking about treatment, we should explain regression to the mean, placebo effect, and spontaneous remission. We should show the pyramid of evidence, and point out that case reports and expert opinion are among the lowest levels of evidence.

We should do this repeatedly, not only in high-impact journals, but in every media available, and using the simplest language possible, in order to provide clinicians with the skills to see the differences between the two paradigms, and to encourage the move towards more critical and evidence-based practices.

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References

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