

HOW GOOD IS THE EVIDENCE?

Facial Orthotropics

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We live in a world of evidence based medicine and the internet now enables us to access the latest evidence from every scientific institution, but despite this our beliefs still differ and the pattern of clinical practice is one of great variety, both in relation to time and geographical location. The changes are often cyclical with succeeding generations opposing each other. The evidence is out there but we believe different bits of it.

Evidence is a tricky commodity and on the subject of occlusion has frequently been contradictory. We should also remember that while evidence can confirm or deny, it can never explain, only logic can do that. It can be most unwise to base an idea on one bit of evidence, for instance, the evidence clearly shows that the faster you drive over a cross-road the less likely you are to hit anything; however you would be wise to form a logical theory that fits all the other evidence or you are heading for trauma. It can be just as dangerous to select the evidence that proves your point; one Danish professor cautions “tell me what you want to prove and I will give you the evidence to prove it”. A safe rule is to quote only the evidence that is broadly accepted.

Karl Popper the philosopher taught us that however strong the evidence might be, you can never prove a hypothesis for certain: one piece of contrary evidence could still destroy it. He suggested that you should compare all the contending theories to see which fits the evidence best. It is not enough for the theory to fit some or even most of the evidence, all of it has to fit and it is rare that anything other than the truth can withstand that test.

My father taught me that “there is a reason for everything” and he used to encourage me to ‘work things out’ rather than try and remember complex information. As a result I look for simplicity and shy away from complicated explanations. I firmly believe that “the truth in when seen in retrospect is usually

simple”. Too many dentists look for cures and not enough look at causes.

It was George Eversall and Harold Gelb who introduced me to the idea that poor occlusal contacts were linked to cranio-sacral problems. I succumbed to arm levitation and experienced the weak and strong responses that related to variations in occlusal contacts. I had no reason to doubt the many anecdotes I was being given but I was concerned by the lack of measurements, repeatability and solid evidence. Above all I was concerned that the explanations were very complex and varied from clinician to clinician. It is easy to be persuaded by a powerful speaker but we should all recognise the signs of dubious logic. If all the evidence does not fit, it is probably untrue.

I have seen convincing demonstrations of the change that can be achieved by adjusting the bite by fractions of a millimetre or by 20 or more millimetres. However, simple explanations were never forthcoming and this troubled me. It is clear that the occlusions of most ‘industrialised’ humans represent a massive distortion from that of our direct ancestors. For instance the maxilla of many children with occlusal problems is placed between ten and thirty millimetres back and down when compared to the norms of their forbearers. This displaces the mandible by even more, so how can opening it further by a small or large amount help the individual? We are shown examples of grateful patients but I am struggling to find logic here, let alone a simple truth and where is the evidence?

There should be room for 32 straight teeth with ten millimetres of horizontal bone behind the wisdoms. That was our natural occlusion some 40,000 years ago and the nearest I have seen to that was during my research in the Kenyan bush. We talk about the importance of occlusal guidance but we should remember that these man-made rules are entirely

artificial, because primitive cusps were worn flat within two years of eruption. We need some better theories with sound evidence to support them.

I have been fortunate to have met some great men and Egil Harvold probably did more to stimulate my ideas than anyone. He had set up monkey experiments to prove that what he believed was the cause of malocclusion. He distorted tongue posture and forced monkeys to breathe with their mouth open, showing that changes in oral posture have a huge influence on facial growth.

My conversations with Egil consolidated the theories that were forming in my mind and which I still hold today. Thirty years ago I put forward a very simple hypothesis called 'The Tropic Premise' (Mew 1981) to explain the aetiology of malocclusion. It stated that if "the tongue rested against the palate with the lips sealed and the teeth in or near contact", then the facial development and occlusion would be correct. There is a simple logic to this concept, because if the tongue rests against the palate with the lips sealed, the erupting teeth have little option but to slide down the space between them, until the cusps contact and guide them into occlusion, creating a perfect dentition. If on the other hand the tongue rests between the teeth or if the lips are apart, they will have little guidance and are likely to erupt haphazardly. People talk about "Functional" influences and indeed Functional appliances, but the evidence shows that bone is very resistant to short-term active force (function) but very susceptible to long-term very light forces, so it is likely to be posture not function that overcomes all – which is the simple logic behind the Tropic Premise. Think about that carefully because a large number of occlusal, TMD and orthodontic theories and treatments either ignore it or are incompatible with it. There may be many opinions but there can be only one truth.

We do not know if the Tropic Premise is true or not because you can not measure oral posture with any accuracy, however I know of no other theory for the aetiology of malocclusion, TMD, and OSA that fits the evidence as well (Mew 2004).

My visits to Bill Proffit in Chapel Hill taught me some simple truths about eruption. Teeth that are in contact for less than about four hours out of twenty four will continue to erupt. Teeth that are in contact for more than about eight hours will continue to intrude. Those between will stay more or less the same. It varies a bit with the force of the bite but essentially if you can train the patient to keep their teeth in light contact for the right period then those

teeth that are too high will intrude and those that are too low will erupt so that all the teeth finish meeting evenly: no splints, no grinding, teeth at the natural occlusal height, problems gone! Proffit's evidence is hard to challenge and fits the clinical situation perfectly.

For instance, I was snorkelling off the Australian Barrier Reef recently with a mouthpiece which had lost one of its bite-blocks; however I was able to hold it in position by biting firmly on the remaining block. After a few hours I came ashore for lunch, to find my teeth did not touch at all on that side! I kept my mouth closed gently and half an hour later, all was fine. Last year my own dentist put in a crown and found it was about 1 millimetre too high. He was about to grind a sharp cusp above when I said "Don't worry, I have taught myself to keep my teeth in contact at rest and it will be level in a day or two" and so it was, with no discomfort. However if I had had a tooth apart posture with intermittent clenching, I might have had agony from periodontitis; the Tropic Premise is very reliable and more clinicians should base treatment on it.

Over the years the Tropic Premise has become accepted as a basis of treatment in many countries around the world, but strangely not in the UK, possibly because it was first introduced too far ahead of its time. If it is true, we should be able to cure malocclusion, along with TMD, OSA, and virtually all the other occlusal ailments, just by changing oral posture. Some experts bridle at these comments but what is the logical alternative? Tongue-between-tooth postures are endemic in many countries and are the antithesis of the Tropic Premise. They spoil occlusion and are very difficult to correct but that does not mean that we should not try to correct them and that was why I developed 'Orthotropics' (correct growth) by changing oral posture.

In the 1950s my research into surgical correction of the TMJ made me realise that it is one of the most adaptable and regenerative joints in the body. It has the ability to remodel several millimetres and even re-grow completely like the leg of a newt (Mew 1997). No one disagrees with this evidence but it is incompatible with many TMD theories and techniques. The Tropic Premise provides a simple and logical reason for both TMD, and Sleep Apnoea, as well as most Cranial Osteopathic and ENT problems; the maxilla is too far back. The difficult bit is repositioning the maxilla and getting it to stay there. That is what Orthotropics does.

In my father's time it was standard treatment in the UK to expand narrow arches between the age of four and six (Chapman 1931) but 25 years later the establishment viewed expansion as absurd (Townend 1955). No one would accept expansion and I had to take the Minister of Health to the High Court to get it approved. My victory there paved the way for others to use these appliances but I was labelled a maverick by an enraged establishment, a label that stuck. It has taken nearly thirty years for them to move in the same direction and only now are they realising that the Tropic Premise provides so many logical answers.

It is one thing to have a good idea and quite another to apply it. As a reader of the literature, I can see that there is increasing evidence to show that orthodontic treatment tends to increase vertical growth (Battagel 1996). There is also clear evidence to show that longer faces look less attractive (Lundstrom & Woodside 1980) and that the vertical growth increases dental crowding (Franchi et al 1997) all the things we don't want. Orthodontists recognise this but feel their prime responsibility is to align the teeth. As far as I can see this has been the case for the last 100 years and the evidence would suggest that fixed, removable and functional appliances can all be guilty. Many might disagree but look at the evidence or even more significantly look at the results, straight teeth yes but not many facial improvements unless they are disguised by a smile.

I stopped using fixed and Functional appliances twenty years ago because of my concerns about facial damage and relapse. This may not matter much if the patient has favourable growth beforehand although lifetime retention is usually necessary and the facial change is marginal. However unfavourable growers are at considerable risk of relapse and facial damage; not much of a cure! By changing oral posture, Orthotropics converts unfavourable vertical growth to favourable horizontal and this is why the results are so different. Have a look at a few Orthotropic results, no extractions (32 teeth not 28 or 24), no fixed appliances, no retention and no relapse. You can see that it is a different type of facial change. This is supported by the evidence showing that they do in fact convert vertical

growth to horizontal and I know of no other treatment that can achieve that. Have an honest look at the maxillary changes of your own results viewed laterally. What are the disadvantages? Orthotropics requires more skill and knowledge than most techniques, the treatment is best started before the age of nine and the patients have to do exactly what they are asked. Active treatment is shorter than most methods but cases do need to be monitored during night time wear, for the subsequent two years. It makes such sense that few parents take the traditional options when Orthotropics is available. One day cleverer people will come along with better ways of achieving forward facial growth but I am sure that without that there is no way of permanently curing malocclusion along with TMD and OSA.

Facial Aesthetics is the current buzz word but Orthotropics is the only treatment that can achieve major skeletal change without surgery? It is ideal for paediatric and general dentists and I am happy to lecture or teach any groups who want to learn about it john.mew@virgin.net and www.orthotropics.com.

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