# Editorial

## What is it worth?

While searching through past literature, a report was discovered which provided details of a dinner held in honour of GV Black in 1907. A series of toasts was given by attendees, during one of which an anecdote was related about a gentleman who entered a pharmacy. The gentleman saw bottles of St Jacob's oil and asked the attendant what the oil was worth. The attendant replied, 'It ain't worth a damn, but we charge a dollar for it.' A dollar was a goodly sum at the turn of the twentieth century, particularly as the ingredients of the oil were turpentine, ether, alcohol with traces of camphor and aconite. The oil was put to widespread use as a liniment for muscular aches and pains as a result of exertion and 'exposure'. There were further benefits if applied for the relief of rheumatic pains, the pain of neuritis and neuralgia, bruises and in any circumstance in which an efficient counter-irritant, rubrefactant or local irritation was needed. In other words, the contents of the bottle had absolutely no effect on the condition for which it was being used, but it made everyone feel good in the knowledge that a remedy was being applied. The cost of the bottle far exceeded the cost of its contents, which were accepted, without argument, as 'snake oil'.

Our worldly society is dominated by its fast pace (in some areas) and the need for instant gratification. Waiting for tomorrow is not in the psyche of most. Therefore, to wait two years or more for the completion of orthodontic treatment is now beyond the acceptance of the average patient. Contemporary mechanisms to accelerate tooth movement have been introduced, all of which advertise, and claim, to reduce active treatment time. But how would an individual patient know whether their treatment time has been shortened? They have no means by which comparison might be made. A two-year treatment time would appear short if a patient is told that, under normal circumstances, a four-year orthodontic journey would be expected.

There are many factors that govern the duration of orthodontic treatment: the nature of the problem, the physiology of the patient, the level of patient co-operation and the skills of the clinician to mention several. Let us assume that the skills of the clinician are exemplary and there are a range of non-compliant appliances to remove the patient factor from treatment, this leaves the complexity of the malocclusion and the patient's physiology as the principal governing factors. The range and extent of a malocclusion vary and will impart their own effects and so the patient's physiology possibly remains the alterable aspect of treatment. How then can the tissue response be manipulated to encourage faster tooth movement? It means that the cells and tissues responsible for biochemical and molecular change are affected and controlled in a more stimulatory way.

Throughout orthodontic history there have been wild claims that a particular appliance system has superior benefits over another and that, if used as directed, faster treatment will result. While every appliance system has its own advantages and disadvantages, the cynical marketing exercise to sell a particular product must not be overlooked. An orthodontic bracket is just a tooth hook by which an archwire is attached to deliver a force. Is not the archwire of far more clinical importance than the bracket?

Tissue vibration was introduced by the space programme in an attempt to negate the effects of weightlessness. Reports of whole body vibration from the University of Sydney and controlled clinical trials from around the world have indicated that no beneficial tooth movement has been delivered. Only the product companies have supplied their own 'in-house' evidence of support.

Low level laser light, photobiomodulation along with pulsed ultrasound are purported to amplify tissue reaction and modify cellular biology and the differentiation of cells but no concrete supportive evidence has been provided. There is equivocal evidence that electromagnetic fields and direct electrical current have an enhanced effect on tooth movement.

The tissue response governing tooth movement may be moderated by drugs that act directly on the inflammatory process, but the concomitant systemic

effects require control. Although some local drug effects have proved positive, widespread use has not been realised. Accelerated tooth movement via surgical intervention is gaining momentum and clinical trials have shown reduced treatment times of a few months. Based on the stimulation of an already enhanced inflammatory response, a greater acceleration of tooth movement would need to be achieved before the surgical enhancement of tooth movement might become routine. However, perhaps the edict of 'primum non nocere' should be observed?

The success of orthodontic treatment requires the considered application of a persistent and appropriately-directed force delivered by a skilled clinician in a compliant patient. Is the additional cost applied to accelerative treatment really justified when the benefits are arguable and yet to be conclusively proven? Is accelerative treatment simply 'snake oil' and of little worth?

What do you think?

**Craig Dreyer**