

Calming the nervous patient

Mervyn Druian and **Jim Poole** present a new technology that can help relax anxious patients

A dentist, as defined by the *Oxford Dictionary*, is a person qualified to treat the diseases and conditions that affect the teeth and gums, especially the repair and extraction of teeth and the insertion of artificial ones.

As we all know, dentistry is a far more complex profession than its definition. Most people do not enjoy sitting in a dentist's chair and most dentists don't enjoy working on anxious patients. In fact, dentists and their staff are often forced to play chairside therapist to help patients cope with their fear and anxiety. There is finally now a solution available to help our profession.

NuCalm is a technology that naturally relaxes the body without drugs. This technology is predicated on applied neuropsychobiology and neurobioinformatics and was developed by American neuroscientists in Texas. After eight years of technical development and research, NuCalm was launched into the US dental industry in November 2009.

I was introduced to NuCalm at the Chicago Midwinter dental meeting in February and have been using it in my practice ever since.

The technology

NuCalm causes safe and effective anxiolysis by mimicking the body's natural communication pathways used to

Aims and objectives

To present a new technology to calm anxious patients.

Expected outcomes

Correctly answering the questions on page 98 will demonstrate you understand the new technology aimed to help relax patients.

Verifiable CPD hours: 1



prepare the body for sleep. NuCalm basically provides the same deep relaxation every person feels moments before they fall asleep. Within minutes of application, patients experience deep relaxation as their brainwave function is brought to the first stage of sleep (12Hz to 8Hz). To date, NuCalm has been used on over 12,000 dental patients without a single reported adverse reaction. NuCalm is a patent-pending clinical solution that leverages the synergistic effect of four discreet components.



Figure 1: The NuCalm system



Figure 2: Step one - orthomolecular chewable tablets



Figure 3: Step one - patient chewing tablets

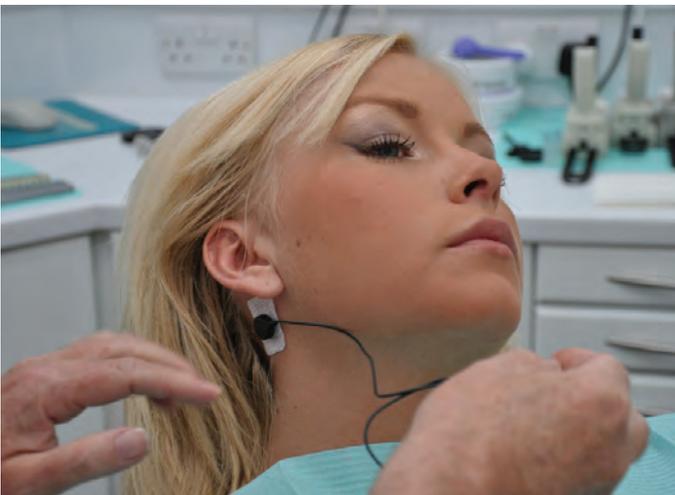


Figure 4: Step two - Cranial Electrotherapy Stimulation

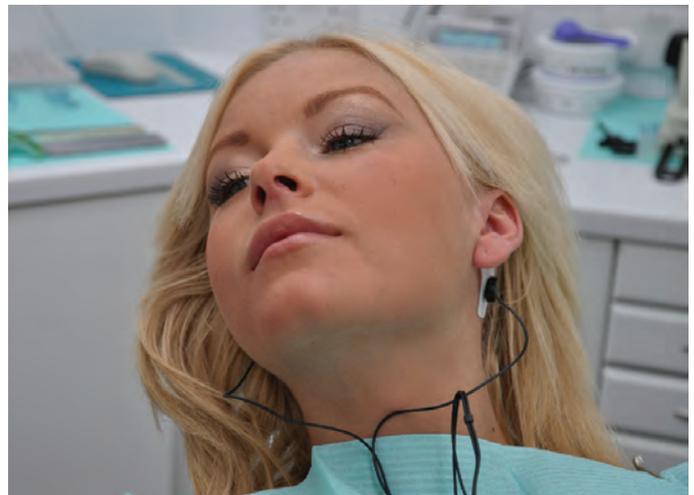


Figure 5: Step two - Cranial Electrotherapy Stimulation

Step one: orthomolecular chewable tablets

The NuCalm proprietary orthomolecular formula was developed over several years to maximise the body's natural relaxation response with NuCalm. This proprietary formula is only available in the NuCalm system and includes structured nutrient-sourced building blocks that rapidly enter the brain and convert to powerful messengers that suppress anxiety and create relaxation. Two main ingredients in NuCalm's orthomolecular formula are Gamma-Aminobutyric Acid and L-Theanine.

Gamma-Aminobutyric Acid (GABA) is an inhibitory neurotransmitter that reduces the excitability of neurons and promotes a state of deep relaxation and calm. Over-stimulated, or over-active, neurons may lead to feelings of restlessness, irritability, and sleeplessness. GABA inhibits nerve cells from over-firing to promote feelings of calmness and stability. GABA is naturally produced from the amino acid glutamine and the sugar glucose. It is concentrated in the hypothalamus area of the brain and is known to play a role in healthy pituitary function, which helps maintain

hormone synthesis, proper sleep cycles, and body temperature. GABA is the only amino acid that can pass through the blood-brain barrier when administered orally, which provides rapid brain relaxation with NuCalm. The GABA receptor site is located in the same area as the brain receptor sites for Benzodiazepines, barbiturates, and alcohol.

L-Theanine is a free (non-protein) amino acid found almost exclusively in tea plants (*Camellia sinensis*). L-Theanine supports the formation of GABA and has been shown to induce a general calming effect. The natural effects of L-Theanine include:

- Stimulating the production of alpha brainwaves
- Protecting and restoring the brain
- Inducing deep states of relaxation
- Up regulating GABA – increasing its clinical efficacy and relaxation effect.

Studies show that L-Theanine plays a role in inducing the same calm and feeling of wellbeing as meditation, massage, or aromatherapy.



Figure 6: Step two – Cranial Electrotherapy Stimulation

Step two: Cranial Electrotherapy Stimulation (CES)

The Cranial Electrotherapy Stimulation device produces low amounts of electrical current (close to the cell's own electrical values – micro current is less than 1,000,000th of an amp). This device has been cleared by the FDA for the treatment of anxiety, depression, and insomnia. Research over the past 50 years indicates an increase in metabolism of neurotransmitters as evidenced by an increase in the metabolites of the neurochemicals. Other research points to a normalisation and balance of the brain's neurochemistry by re-establishing optimal neurotransmitter levels.

Electrical engineering studies found that a small fraction of CES current actually reaches the thalamic area of the brain, facilitating the release of neurotransmitters. Studies have also recorded reduced rigidity in the central nervous system stimulation process and enhanced activity of the alpha-rhythm generating systems.

Combining CES with precursor neurotransmitters, like the ones found in the NuCalm chewable tablets, causes a profound state of relaxation and anxiolysis. QEEG and EEG's indicate a brainwave shift occurring whereby the patient's brain activity slows down – from beta brainwaves of high alertness and anxiety to alpha brain waves that are present during a relaxed, pre-sleep state.

Step three: Neuroacoustic software

The proprietary neuroacoustic software provided in the NuCalm system uses Frequency Following Response (FFR), which initiates a change in brainwaves. According to extensive research, a scientifically validated neurophysiologic response is initiated when an auditory pacing signal is presented to the brain. Solace, the makers of NuCalm, has developed significant advances in the design of binaural and monaural beat sound acoustics, which are overlaid with classical music and administered to the patient using an MP3 player and noise-dampening headphones. The neuroacoustic brain entrainment software moves the patient's brainwaves from the high beta brainwave frequencies associated with anxiety (23Hz to 40Hz) to brainwave frequency patterns of alpha (primarily



Figure 6: Steps three and four – neuroacoustic software and blackout glasses

8Hz to 12Hz). These alpha brainwaves are associated with deep relaxation and calmness.

Binaural beats are auditory brainstem responses, which originate in the superior olivary nucleus of each hemisphere. They result from the interaction of two different auditory impulses, originating in opposite ears, registering below 1,000Hz, which differ in frequency between one and 30Hz (Oster, 1973). For example, if a pure tone of 500Hz is presented to the right ear and a pure tone of 510Hz is presented simultaneously to the left ear, an amplitude modulated standing wave of 10Hz, the difference between the two tones, is experienced as the two wave forms mesh in and out of phase within the superior olivary nuclei. This binaural beat is not heard in the ordinary sense of the word (the human range of hearing is from 20 to 20,000Hz). It is perceived as an auditory beat, and theoretically can be used to entrain specific neural rhythms through the frequency-following response, thus modulating the brainwave frequency. In the case of NuCalm, it is modulating the brainwave frequency to 8Hz and 12Hz. The neuroacoustic software is the most important aspect of the NuCalm system and your patient's will be relaxed until you stop the music.

Step four: blackout glasses

The blackout glasses, dark sunglasses, or eye masks used in the NuCalm system block light so patients are not stimulated through the visual cortex and can maintain the relaxed brain state.

The NuCalm system is simple to administer and easy to implement into any practice. We educate our patients using a one-page printed NuCalm introduction we hand out when our patient's arrive. We then answer any questions chairside while we administer the system. Our patient dialog is very simple. We tell our patients we have invested in a revolutionary technology that naturally allows us to provide them with a relaxing and rejuvenating dental experience. Most patients can't believe what they're hearing, but they trust us and are overwhelmed with their experiences afterward.

It takes us about three minutes to administer NuCalm to our patients prior to the start of their appointment. We then wait a couple of minutes until we see they are relaxed, and then we administer the local and begin working on our relaxed, still patient.

With NuCalm, our patients are cognitively available and can respond to verbal and tactile cues, they simply are totally at ease. Once we complete our treatment, we take the NuCalm system off and the patient is free to leave – there are no side effects or need for recuperative time. Everyone will experience a neuromuscular release and cellular ‘reboot’, which results in a sense of deep relaxation. Any muscle tension, or stress areas, will be released through increased oxygenated red blood cell flow. You will be amazed by how relaxed your patients will feel and how refreshed they will look. You and your team will also be relaxed and refreshed as we can now take our therapist hats off.

Let me demonstrate how we used NuCalm on three patients in one day. Prior to NuCalm, this would have been an arduous task for me and my team.

Patient one

Mrs M is a 62-year-old female who is bright, well-educated and articulate. She has a dental phobia that makes everyone working on her very nervous. She has difficulty with local anaesthetic working effectively for her. In fact, every procedure is a trial for her, and for us. On this particular non-descript day, Mrs M needed a lower molar prepped for a crown. The tension was building up and she used every ploy possible to delay the local anaesthetic delivery. My assistant and I looked at each other and said ‘NuCalm!’

Mrs M was informed about NuCalm and was keen to start. The administration of NuCalm took four minutes. I waited another two or three minutes and administered the local anaesthetic. No problem at all. Within another few minutes the tooth was being prepped. Mrs M was compliant and the whole procedure was totally uneventful (much unlike most of her previous, stressful appointments). She couldn’t believe how good she felt and was thrilled with her experience.

For her seating appointment, she requested NuCalm as soon as she sat in the chair. We set her up with NuCalm, prepared and administered the syringe of local anaesthetic, and fitted the crown with minimal effort and, more importantly, minimal stress. Mrs M departed our practice relaxed and happy – and so were we.

Patient two

Mrs L, a 65-year-old headmistress of a local school, required endodontics on an upper second molar. She was totally freaked out about the idea of root canal treatment. She also experiences difficulty with local anaesthetic working well and she ‘gags’ if she opens her mouth ‘too wide’. Not a fun scenario, but also not too uncommon. NuCalm was explained to Mrs L who was predictably eager to try

something that promised to relax her without adverse effects. It took Mrs L three to four minutes to settle with NuCalm before local anaesthetic was given. The procedure was completed with no discomfort, rubber dam was used, there was no sign of ‘gagging’ and everyone was relaxed.

Patient three

Mr K, a 30-year-old male who was about to have 10 veneers prepared. He had never had a restoration before and had never experienced local anaesthetic either. NuCalm was offered, accepted with great enthusiasm and administered. The whole procedure was totally uneventful.

Two weeks later Mr K returned for the seating appointment. At his request, NuCalm was administered and the procedure was undertaken. The patient departed, relaxed and pleased. Veneer placement and finishing is usually difficult and uncomfortable for the patient and stressful for our team. NuCalm certainly helped everyone this time.

The great thing about this technology is that, unlike valium administration or even relative analgesia, the patient is fit to leave the practice unaccompanied and often feels better than when they arrived. I am less stressed, more efficient, and pleased to be offering my patients the best care available. My patients can’t help but talk about their NuCalm experiences at my practice. Our new patient flow is up and my passion for dentistry has been reinvigorated. **PD**



Questions on page xx

[Comments to pd@fmc.co.uk](mailto:pd@fmc.co.uk)

Mervyn Druian BDS (RAND) DGDRC became the first UK dentist to introduce the practice of placing porcelain veneers in 1983. Since then, Mervyn’s cosmetic and aesthetic work has become world-renowned and he frequently lectures and teaches around the world. Mervyn is also recognised by his peers as one of the leading innovators in dentistry.

Jim Poole, MBA is a recognised business leader, speaker, and author. As a managing partner at Focused Evolution, a premier strategy consulting firm, Jim built the company into a multi-million dollar consulting firm with a global clientele. Jim is the president and CEO of Solace, a neuroscience company that develops and commercialises all natural anti-anxiety clinical solutions for healthcare practitioners.

Mervyn Druian will be speaking at Private Dentistry Live on 12 November. To book your ticket, please call Independent Seminars on 0800 371652.

