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Miracle Ozone Dentistry - A New Anti-Decay Dental Practice

By Dr Julian Holmes
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Let me paint you a picture. Every Monday morning, dental practices over the world power up for a week's worth of drilling and filling, tooth removal, and reconstruction work. Queues of fearful patients, tearful children being comforted by anxious parents, people in considerable pain, line up outside the doors to their dental surgeries. Once inside, these patients are subjected to the traditional smells of oil of cloves, disinfectants, and the noises of the high pitch whine of the dental drill; the odd scream or two filters through the hushed, usually silent waiting room into the street outside. It is a sad fact of life that every dentist is trained that if there is an area of decay in your tooth, the only way to treat this is to drill the decay out or amputate it, and then place a filling that will have to be replaced at some stage.

For a small minority of patients, where their dental practices have chosen to invest in a new technology, the opposite happens almost every day. The queue is one of bright, cheerful adults and children; there are few smells to associate this practice with the traditional one down the road. The noise of the drill is seldom heard, and happy smiling faces emerge from the treatment room.

Since 1998 researchers, lead by Professor Edward Lynch from Queen's Dental Hospital and Belfast University, Ireland, have opened a radically and revolutionary way forward. The dental profession no longer has to destroy tooth tissue to eliminate bacteria. A simple 60 second (average treatment time) treatment with a device that delivers a burst of ozone will destroy all the bacteria that caused the infection and the decay. It destroys all the organic effluents that are produced by these bacteria; this is shown in Fig 1 opposite. The top data shows the spread of organic bio-molecules produced by an active carious lesion. The lower data shows the effect of 10 seconds of ozone; the profile now consists of a single main spike of acetate acid, and the other oxidation by-product is carbon dioxide. This H MNR research proved that ozone worked as a pharmaceutical approach to caries in-vitro. By effectively sterilising the lesion, minerals from the patients own saliva will re-enter the areas of mineral loss to harden them. Once

hardened, it is more resistant to future bacterial attack and mineral loss.

There is in all our mouths a natural balance. Your tooth surface losses minerals into your saliva at certain times, usually just after you start to eat. These acidic conditions favour mineral loss. The normal acid/alkaline balance exists in the oral cavity. When bacteria attach themselves to a tooth surface, they set up a complex community of some 450 different bacterial types over a period of time. If patients skimp on using a tooth brush, or forget to use dental floss on a regular basis, these communities of bacteria evolve into one which produces large volumes of acids. These acids attack the tooth surface, dissolving out the minerals, leaving a hole or cavity. As this cavity now gives the bacterial colonies a degree of protection, tooth brushing cannot remove the bacteria and so the process of decay accelerates.

Yet decay is only an infection process that leads to the softening of the tooth, and the formation of a cavity, so could this infection be treated with, say, antibiotics? The bacteria that cause tooth decay are often found deep within the structure of the tooth, so their removal has to date only been by amputating the infected part of the tooth. Antibiotics and other pharmaceutical agents cannot penetrate deep enough through bacterial pellicle and tooth structure to eliminate acid niche environment. This teaching and technique is based on sound engineering principles that originate from the Victorians! Despite modern advances, there is no simple test that can be applied to a cavity to tell the dentist if they have removed all the infection! or enough tooth material! And if areas of infection are left behind, there is a good chance that the filling placed will fail at some time in the future.

In an attempt to prevent further infection and to restore the tooth to its original shape and function, a filling is then placed. Studies over the years have shown that fillings do not last very long, any where from 6 months to several years. But once a tooth has had part of it amputated, there is no going back. For each time the filling needs to be removed and replaced, there is a little less of the original tooth left and a larger filling. A point is reached where there is no option but to opt for expensive reconstruction work with advanced dental care or have the tooth removed.

The dental professions goal is to help and educate the patient, how to avoid them entering into this cycle of tissue amputation and periodic filling replacement. Oral care education and modern toothpastes have helped reduce the number of cavities, but in poorer communities, those with disabilities and in long term institutions, as well as our aging population, decay is still prevalent. And diet advice is often lacking, so although patients may think they are doing well at home, the process of decay continues! The days of 'Wait & Watch' are over the profession is not entirely sure of what it is watching unless clinicians are using advanced clinical diagnostic tools.

Dental Ozone is a completely new way to look at decay. In the early stages of mineral loss, no use of the drill is required. The treatment is simple, inexpensive (certainly less than the cost of a filling), and requires no injection of anaesthetics. This does of course depend on the use of modern diagnostic equipment, such as the DIAGNOdent (KaVo GmbH). This laser is more accurate than x-rays, and far superior to the traditional mirror and probe that dentists often use. The mirror and probe are tools that can find holes, not diagnose areas of first stage decay. And research has shown that x-rays are very poor to visualise decay in a tooth surface, until it is 2-3 mm inside the inner layer of the tooth.

If the area of decay is deeper, and more extensive, Ozone still has a role to play. The dental drill may need to be used to remove the cover of enamel over the decay, but this can also be carried out with air abrasion. No local anaesthetics are required, and Ozone is used to sterilise the area of decay, without the need to amputate a large volume of tooth structure. In this way, damage to the tooth is limited, and the inherent strength is preserved. Even in really deep areas of decay, Ozone can be used to preserve tooth tissue.

When Ozone is combined with traditional care, then there are a number of advantages that patients and the dental profession can make use of. Ozone can be used to sterilise a cavity before a filling is placed, so there will be virtually no sensitivity after the local anaesthetic wears away. It can be used to eliminate sensitivity after new crowns or veneers are placed. And where wear facets have produced sensitive areas at the necks of teeth, in most cases a simple 40 second application with ozone can eliminate this sensitivity. There are many more applications for Ozone in a general dental or medical practice, and the studies for some of these can be found on www.the-o-zone.cc. This www site not only allows you to find a dental practice which has and uses Ozone, but also allows you to view the research papers that have been published from centres around the world.

There is not a single facet of a medical, dental or veterinary practice where ozone cannot be used in some form for the benefit of patients from the general to specialist practice and health care centre all can take advantage of this new technology.

So, perhaps a Monday morning at a dental practice that has invested in modern technology is no longer the stressful, painful and anxious visit that it used to be. The waiting room in this practice are full of smiles, people chatting to the dental team members as they wait with happy anticipation at being called through for their turn in the treatment room. Mums and dads with children have no fear or anxiety, as they are reassured that modern technology has opened a door for them, that most of the older population had never believed possible. For both the patient and the dental practice, it is a technology that has a winning solution for both; the treatment is fast, it is predictable, it is painless, and also reduces the long-term cost of the

treated tooth. For the dental practice, the treatment times are reduced, it is profitable, and the treatment less stressful. For the patient, modern technology has allowed them to have a 21st century treatment, rather than one that is old fashioned, and out-dated.

In a lead article published in 2003 I wrote;

'In the vast majority of dental practices - not just in the United Kingdom and Europe, but throughout the world - the primary method to reverse the effects of decay remains 'drill and fill'. The entry of a patient into the cycle of drill and fill is irreversible. Once a hole is drilled into a tooth, the patient always will have it; and no matter how good a clinician each dentist perceives themselves to be, any restorative material will fail at some time.' The dental profession has not kept up with their medical counterparts in finding a holistic treatment method for what is a prevalent infection caries. The Victorian principles of amputation to establish a sound foundation for restorative care no longer are valid in the light of new published research and clinical experience.

Ozone at last offers the dental profession this new approach instead of the out-dated and Victorian amputational model.

Dr Julian Holmes, 2007.

The Ozi-cure is a self-contained device to generate ozone gas from air for the use in Dental, Medical or Veterinary Practice for surface application.

The Ozi-cure Dental Unit manufactured by O3 and distributed in Germany by American Dental GmbH. The Ozi-cure achieved CE and Medical Directive Certificates in November 2006.

The treatment times used in dental ozone treatment are short from 10 to 60 seconds (Baysan and Lynch, 2001). The area to be treated and the application of ozone is carefully controlled by localised 'bagging' and high-volume suction.

The use of ozone in dental practice takes dental care into the 21st Century. It sets the standard of a modern pharmaceutical method to treat dental and medical patients;

Studies from Europe (Abu-Salem et al, 2003; Baysan and Lynch 2001; Holmes, 2003; Holmes and Lynch, 2003) have shown conclusively that the use of ozone in dental care is effective as a non-destructive method to manage decay and its destructive effects. The use of ozone has been shown to be the ideal way to manage anxiety of patients young and old - and their carers (Dahnhardt et al, 2003; Domingo et al, 2004).

The effects of ozone reduce tooth destruction in routine preparation (Clifford, 2004; Holmes, 2004; Holmes and Lynch, 2004) and ozone reduces the time and the cost of dental care (Domingo and Holmes, 2004; Johnson et al, 2003) and raises the practice income. In Endodontics, ozone is effective against *Enterococcus faecalis* (Chang et al, 2003).

Professor Velio Bocci from Milan University (1994) has emphasised that the potential toxicity of O₃ should not preclude its employment for medical, dental & veterinary purposes. This statement has been echoed by

thousands of health professionals who use ozone in clinical practices around the world, and millions of patients that have been treated. The correct operation of the Ozi-cure meets all current Health and Safety Regulations in all countries. The Ozi-cure is completely safe when used according to the Ozi-cure Operating Instructions.

Ozone is perceived to be a dangerous gas; let's put this into a scientific context. In 1978 an FDA Report showed that 1.5 million people were hospitalised by pharmaceutical reactions, and there were 140,000 deaths from prescription drug usage.

In stark contrast, a 1980 German Medical Society Report for Ozone Therapy cited 5.6 million ozone treatments carried out for that year. Of the 5.6 million ozone treatments, there were just 40 reported cases of side effects (0.000007%), and 4 deaths from inappropriate administration of ozone gas. Ozone remains the safest and effective pharmaceutical treatment. In World War I, ozone was used to treat wounds, burns and infections. The modern development of ozone's application to Medicine began in the 1950s in Europe, Australia, Israel, Cuba, Brazil and Columbia. Today, over 9000 doctors, dentists & vets worldwide now routinely use ozone in their clinical management.

Research in Cuba, Europe, the USA and South Africa concerning the anti-microbial efficacy of ozone has continued over the last twenty years and has conclusively shown the ability of both gaseous and dissolved ozone to eradicate a wide range of bacteria, bacterial spores and viruses (Baysan and Lynch, 2001; Ishizaki, 1986; Katzeneleson, 1974; Vaughan, 1987; Whistler and Sheldon, 1989).

A clinical guide for the use of ozone in dental and medical practice is included with every Ozi-cure device sold.

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