Plumbing the depths of barodontalgia

Effect of a hyperbaric environment (diving conditions) on adhesive restorations: An *in-vitro* study

Br Dent J 2017; **223:** 347–351 http://dx.doi.org/10.1038/sj.bdj.2017.764

How would you react if your dentist told you to quit your hobby for the sake of your teeth? Admittedly it's not too likely, but we are seeing the increasing need for an interventionist approach with regard to a patient's activities.

Recreational and commercial diving is at an all-time high (The Professional Association of Diving Instructors estimated it has approximately 23 million certified divers in 2015),[1] and such a surge in participation inevitably means a rise in dental treatments regarding pain after a dive. Therefore, exploration of the causes of this pain, both during or after a dive, is crucial in allowing dentists to develop effective treatments to help alleviate any discomfort.

Mocquot and co-author's paper focuses specifically on diving's effects on adhesive restorations and the occurrence of 'barodontalgia' (dental pain caused by localised pressure changes). Barodontalgia was itself the subject of much research post-WWII regarding aircraft pilots, and as a result, many studies surrounding it remain somewhat outdated. This paper aims to provide a more contemporary and accurate evaluation in order to refine restorative protocols for patients who dive, ensuring that they can continue to do so without worrying about the effect on their teeth.

The effects of possible barodontalgia were tested by preparing two groups of simulated adhesive restorations (half intact and half simulating porosity) and then by exposing these to a controlled environment and one simulating pressure equivalent to a depth of 45-50 m underwater. Microleakage was represented by the degree of percolation of a silver nitrate dye solution, with a greater percolation implying a greater loss of sealant in the restoration. In light of this, it appears that existing treatment guidelines need updating. Specifically, the choice of liner should ideally be glass-ionomer cement. The article highlights a preference for adhesive restorations over amalgam for direct restorations whilst deeper/wider cavities are better treated with indirect restorations.

Ultimately, it is not the role of the dentists to be a 'killjoy' and wag the finger at those who wish to dive. Indeed, diving presents a lesser risk of dental trauma compared to the vast majority of hobbies.[2] It is, however, their responsibility, when required, to make sure that patients are aware of the implications and risks of diving if they have undergone restorative treatment, and to ensure the latest protocols are adhered to. Similarly, it falls on the patient to inform their dentists of their hobbies prior to dental restoration and to minimise the possibility of barodontalgia and dangerous barotrauma.

By Sam Armstrong

1. PADI. Dossier de presse – PADI EUROPE. Information available at www.padi.com (accessed August 2017).
2. Levin L, Friedlander D, Geiger S. Dental and oral trauma and mouthguard use during sports activities in Israel. *Dent Traumatol* 2003; **19:** 237–242.

Official journal of the British Dental Association.