

Training to become a scuba diver? Start at the dentist

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Vinisha Ranna, BDS, lead author and certified stress and rescue scuba diver, swims near underwater wreckage in Sri Lanka. Credit: University at Buffalo

Scuba divers may want to stop by their dentist's office before taking their next plunge. A new pilot study found that 41 percent of divers experienced dental symptoms in the water, according to new research from the University at Buffalo.

Due to the constant jaw clenching and fluctuations in the atmospheric pressure underwater, [divers](#) may experience symptoms that range from tooth, jaw and gum pain to loosened crowns and broken dental fillings.

Recreational divers should consider consulting with their dentist before diving if they recently received dental care, says Vinisha Ranna, BDS, lead author and a student in the UB School of Dental Medicine.

"Divers are required to meet a standard of medical fitness before certification, but there are no dental health prerequisites," says Ranna, who is also a certified stress and rescue scuba diver.

"Considering the air supply regulator is held in the mouth, any disorder in the oral cavity can potentially increase the diver's risk of injury. A dentist can look and see if diving is affecting a patient's oral health."

The study, "Prevalence of dental problems in recreational SCUBA divers," was published last month in the *British Dental Journal*.

The research was inspired by Ranna's first experience with scuba diving in 2013. Although she enjoyed being in the water, she couldn't help but notice a squeezing sensation in her teeth, a condition known as barodontalgia.

Published research on dental symptoms experienced while scuba diving is scarce or focuses largely on military divers, says Ranna, so she crafted her own study. She created an online survey that was distributed to 100 certified recreational divers. Those who were under 18-years-old, ill or

taking decongestant medication were excluded.

Her goal was to identify the dental symptoms that divers experience and detect trends in how or when they occur.



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Of the 41 participants who reported dental symptoms, 42 percent experienced barodontalgia, 24 percent described pain from holding the air regulator in their mouths too tightly and 22 percent reported jaw

pain.

Another five percent noted that their crowns were loosened during their dive, and one person reported a broken dental filling.

"The potential for damage is high during scuba diving," says Ranna, who has completed 60 dives.

"The dry air and awkward position of the jaw while clenching down on the regulator is an interesting mix. An unhealthy tooth underwater would be much more obvious than on the surface. One hundred feet underwater is the last place you want to be with a fractured tooth."

The study also found that pain was most commonly reported in the molars and that dive instructors, who require the highest level of certification, experienced dental symptoms most frequently. This frequency is likely attributed to more time spent at shallower depths where the pressure fluctuations are the greatest, says Ranna.

The Professional Association of Diving Instructors has issued more than 24 million certifications around the world. As scuba diving gains popularity as a recreational sport, Ranna hopes to see oral health incorporated into the overall health assessments for certification.

Patients should ensure that dental decay and restorations are addressed before a dive, and mouthpiece design should be evaluated by manufacturers to prevent jaw discomfort, particularly when investigating symptoms of temporomandibular joint disorder in divers, says Ranna.

Additional investigators on the study include Hans Malmstrom, DDS, professor; Sangeeta Gajendra, DDS, associate professor; Changyong Feng, PhD, associate professor; and Michael Yunker, DDS, assistant professor, all of the University of Rochester School of Medicine and

Dentistry.

Ranna is conducting a follow-up study with an expanded group of more than 1,000 participants.

She earned her bachelor of dental surgery from the Government Dental College and Hospital, Mumbai. Ranna is earning her DDS at the UB School of Dental Medicine through the International Dentist Program, a two-year program for internationally-trained dentists who seek to practice in the U.S.

More information: V. Ranna et al. Prevalence of dental problems in recreational SCUBA divers: a pilot survey, *BDJ* (2016). [DOI: 10.1038/sj.bdj.2016.825](https://doi.org/10.1038/sj.bdj.2016.825)

Provided by University at Buffalo

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