

Lung squeeze while freediving

Is there any reason cold water might increase the likelihood of lung squeeze while freediving? I have experienced lung squeeze a few times, but only in cold water (around 7°C). I was shallower than 30 meters. In warm water, I can reach 50 meters, so I believe the squeeze is somehow related to the water temperature.

Answer from DAN experts:

You described your condition as lung squeeze, but it sounds like your question is really about what might have caused you to cough up blood from your lungs (presumably) under the conditions you describe. Given the variable impact of depth on the development of the condition, you could be experiencing a form of immersion pulmonary edema (IPE). IPE is a multifactorial condition, largely a net effect of increased central blood volume, pressures within the chest and, for compressed-gas divers, increased breathing resistance. The squeeze is a primary component, but only part of the story. Immersion produces a shift in blood from the periphery to the core, and this effect can be magnified in cold water or partially replicated by wearing a tight wetsuit. Excessive fluid intake (hyperhydration) increases the risk. For compressed-gas divers, respiratory loading (most important, the effort to inhale) increases with water immersion, with breathing through a mouthpiece that adds resistance (particularly as gas density increases) and with exertion. Using compressed gas or freediving, if the net effect of the various stressors is a sufficient increase in the pulmonary artery pressure, capillary stress failure can produce a shift of blood into the lungs. Symptoms of IPE can include the perception of strain or stiffness in breathing, coughing and the coughing up of small amounts of blood. While I cannot confirm that this is what you are experiencing, it may be that the central blood volume increase magnified by the cold water is the stressor that takes you over the edge that you skirt in warmer water exposures. IPE is most likely to appear when multiple predisposing factors are acting in concert. You may have found your own threshold. I encourage you to consult with your medical monitors, keeping in mind that the classic squeeze is not the only risk that freedivers face.