Snorkels: Pros and Cons!

The snorkel has been considered a standard piece of diving equipment for decades. It provides the simple but useful ability to swim face down on the surface without having to lift your head to breathe. Snorkels can also conserve compressed gas for the dive and help minimize accidental water intake in rough waters when breathing through the regulator is not an option.

The impact of snorkels is not all positive though. They are a source of drag in the water, which is not a good thing when they tug on the mask, a decidedly critical piece of equipment. They can also be a source of entanglement, for example, with kelp or hair. And they can be incompatible with some equipment configurations. So, what to do?

Pro position: A snorkel provides an option that can be helpful in normal situations. This is a straightforward argument. When a snorkel is needed it is likely to be needed quickly, so having it readily available is a valid choice for preparedness.

Con position: The need for a snorkel is low when carrying ample gas supplies or on sites where surface swimming is unlikely, where entanglement is likely (wrecks or caves), or where they offer little utility (ice or caves). The irritation of it getting in the way when hanging from the mask also makes it less desirable.

Where to Put It?

Since the hose for most open-circuit regulators comes over the right shoulder, a snorkel is usually least intrusive if mounted on the left side of the mask. Closed-circuit equipment has large hoses on both sides of the head, so keeping the snorkel in a pocket or pouch is likely the best option.

Design Features

A wide variety of snorkel designs have been marketed, ranging from simple J-shaped tubes to complex shapes for streamlining, reducing water entry and facilitating clearing.

A long, straight J-tube snorkel is probably not desirable because of the increased risk of entanglement; snorkels with a curved upper tube typically provide a lower profile.

The bore (internal diameter) and length of snorkels is important. A large bore offers less resistance, but bringing fresh air to the alveoli, where gas exchange occurs, requires inspiring a volume larger than that of the upper airway and the snorkel combined (the functional dead space). The dead-space gas will have an elevated fraction of carbon dioxide, which will stimulate hyperventilation. This is not a problem if the volume of air breathed is sufficient to bring in the required fresh air. However, carbon dioxide will accumulate if the inspired volume is too small, generally forcing the user to stop breathing from the snorkel fairly quickly.

A long skinny tube (think garden hose) is unworkable as a snorkel because of its volume and the difference in pressure on the surface and in the compressed lungs. Drawing air a long way down from the surface is simply not practical. A simple rule of thumb is that the bore of a snorkel should easily exceed the width of your thumb (a little more for those with small hands), and a snorkel should not be much longer than those typically sold by reputable manufacturers.

An early effort to keep water from entering a snorkel (to avoid having to clear it) was to put a 180-degree turn at the top, covered with a basket holding a ping pong ball, which, in theory, would block water from

entering the snorkel. The idea was creative but the effectiveness poor and the likelihood of failure high.

The modern approach to making it easier to clear a snorkel involves a one-way valve positioned so that the diver does not have to work as hard as would be required to blow the water from the top of the snorkel. These valves can help, but technique can make them unnecessary. For example, if an ascending diver tilts back his or her head and exhales a modest amount in the final stage of surfacing, flipping his or her head forward upon surfacing will leave most snorkels clear.

Corrugations on the outside of a snorkel are fine if they let the mouthpiece fall out of the way of the regulator mouthpiece (a rotating mouthpiece can be similarly useful), but the internal bore of a snorkel should be smooth to reduce the effort of moving gas through it and to reduce the trapping of water that could be inhaled with a strong inspiration.

Foldable snorkels may be effective for pocket storage, making them acceptable to divers unwilling to carry a snorkel otherwise. The key is to make sure they perform well upon deployment.

High-visibility colors offer a safety benefit for all diving equipment. A high-visibility snorkel is not as effective as a fluorescent hood or suit, but it is still a good idea.

Snorkels and Freediving

Freediving is usually separated from snorkeling by intent; snorkeling is more casual and freediving more extreme. Competitive freedivers would not use snorkels because of the added drag and additional dead space. Other freedivers might use them, however, and this raises the question of whether water would more easily enter the mouth during blackout.

While there are lots of opinions, there are few facts to support either position. It does seem that there is a period immediately after blackout when sufficient muscle tone is preserved to prevent water entry through a normally closed mouth. Getting the victim to the surface immediately and then keeping the airway clear of the water is often sufficient for rapid recovery. An open mouth holding a snorkel filled with water could lead to faster water entry, but this is a difficult question to test ethically. It might be prudent for freedivers to avoid snorkels, but this position is offered with little empirical evidence. More important is to avoid excessive hyperventilation (exchanging more than two or three lungfuls of air beyond metabolic need), which can dramatically increase the likelihood of blackout.

Snorkel Choice

Ultimately, the choices of whether to carry a snorkel and which snorkel to carry are up to the individual. It is convenient to not have one get in the way unnecessarily, but it is also great to have it when the need arises. Options for managing gas supply and emergencies are important, and it is nice to have a snorkel on the day the dolphins choose to swim with you after a dive. I favor having a snorkel, typically a more compact version that is easy to wear or carry as the situation demands.

Snorkel Trivia

Many people know that the term “skin” diving refers to snorkel gear, but few know its origins. When military personnel were required to bring mask, snorkel and fins to water sessions, the acronym SKIN was posted on the roster to stand for “swim kit is needed.”

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