

## ARE FULL FACE SNORKEL MASKS SAFE?

We've had 2 snorkelers drown in our Kauai waters in the last 3 weeks. Both were wearing "full face snorkel masks" (FFM's), as opposed to the time-honored 2 piece goggles and snorkels that used to be the norm. So, are these masks safe? Or not? Why are snorkelers using them more and more? Why are they for sale all over the place? A number of people, more expert than me, have been studying these questions very carefully.

### Advantages of the FFM:

(1). For novices, very user friendly. You don't have to learn how to forcefully expel the water from your snorkel before every inhalation. You just put it on and off you go, breathing in and out just like you normally do.

(2). For novices and experts alike, you get a somewhat wider field of vision as you enjoy the underwater environment, kind of like watching a movie on a wide-screen as opposed to a regular screen.

(3). Well marketed for reasons 1 & 2, and readily available in large and small stores.

### Disadvantages:

(1). In order to have the chamber of a full face snorkel mask function properly there are a number of valves and seals that have to be working properly. If any of these are faulty, you run the risk of rebreathing your own exhaled air instead of inhaling good air from above the surface of the water. When you do this long enough you may experience harmful physiologic effects from either the carbon dioxide build-up or from decreased oxygen availability or possibly both. These effects might cause you subtle but ever-increasing respiratory and cardiovascular stress as well as loss of rational thinking. This is all being carefully studied as I write.

(2). One particular brand, a fairly high-end one, has been reported as having more valve and seal malfunctions than other brands. Not enough documentation, however, for me to be able to name this brand.

(3). When a FFM fills with water, maybe from an improper fit or some other problem, your ability to inhale air is gone, you're now inhaling water. (I.e. You're drowning). You can forcefully expel the water that might get into the mask, but it's not as easy to do as with a good quality snorkel where you routinely do it before every breath, nor are you as prepared to do the forceful exhale. Note: In the case of both of the recent Kauai drownings that I mentioned, on-site witnesses reported that the victim's mask appeared to be filled with water.

(4). This is a different take on Advantage #1: The ease with which you put on a FFM and off you go gives novices a false sense of security that there's nothing to snorkeling. The truth of course is that there's a lot to it. E.g. Ability to swim, overall physical health and conditioning, level of comfort in the ocean, ocean conditions, etc.

(5) There have been reports of difficulty in removing the FFM in panic situations. FFM's must be removed via the chin first but panicked snorkelers have tried to pull the mask straight off their face, which immediately fills them up with water. The straps located in the back of the head prevent such mask removal.

With all this said, the jury is very much still out as to whether or not these FFM's are more dangerous than the old style goggles and snorkels. Maui, for example, suffered a terrible spike of 10 snorkeler drownings in the first 2 months of 2018 and only 2 of these snorkelers had FFM's. Quality of the equipment, whichever type of device you choose to use, is very important. A poor-quality snorkel may plague you with rebreathing old air as much as can happen with an FFM.

Our own Kauai ocean long-time aquatic expert and professional safety trainer/consultant Pat Durkin has this to say: "I advise my snorkel tour clients to stick to the classic mask and snorkel for their guests until more is understood about the FFM. What we do know about snorkeling is that a lack of experience and poor judgement top the list of concerns of aquatic safety professionals. In particular, problems can arise when a pre-existing medical issue or overall poor physical conditioning teams up with the failure to recognize a hazardous condition or activity. The general health of the snorkeler, and his/her comfort or lack thereof in the water, are bigger concerns than the equipment. Alcohol is a no-no, just like with driving. And similarly to if you get caught in a rip current: Panic is your worst enemy.

The FFM questions are legit when evaluating gear, but we shouldn't lose track of the fact that snorkeling is being marketed as something anyone can do and that minimal swimming skill is required, Nothing could be further from the truth. The ease of putting on a FFM plays into that fallacy and for all the talk of valves and seals and such, this might actually be the biggest issue with that device."

I have one additional comment: A pulmonologist on Oahu, Dr. Philip Foti, has made observations which suggest that snorkeling within 24-36 hours of having landed from a long airplane flight may be problematic, even for an experienced swimmer/snorkeler. He's still analyzing the physiology behind this, and it may have to do with the pressure variation between an airplane cabin (which is generally pressurized to 5 or 6 thousand feet) and the air pressure you experience when you're snorkeling and maybe shallow diving. I.e. This pressure variation may have some effect on the very delicate membranes inside our lungs, the membranes that keep air and blood separated from each other while still allowing the exchange of oxygen and carbon dioxide between these 2 very different media.

My own conclusion, my own one man's opinion? I like the position that many of our charter snorkeling tours are taking: Don't use full face snorkel masks unless you are an expert who's had a lot of training and experience with them. More so, please pay attention to Pat Durkin's comments and observations. When you do this, yes, snorkeling is a safe and beautiful way to discover and enjoy the wonders of our oceans and reefs.

Monty Downs, M.D.  
President, Kauai Lifeguard Association  
822-3695