

AI-03546 Snorkeling Techniques

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Help me understand the science of snorkeling (physiology) and give a basic step by step on how to properly use the equipment. I am a long distance swimmer and comfortable in open water swimming but when using the snorkel, water gets in the breathing chamber and end up swallowing water. In my regular swim, all I do is blow bubbles under water to clear the co2 in my lungs and breathe on the side to get clean o2.

Since you're already a long-distance open-water swimmer, the issue you're experiencing with a snorkel is very common. The physiology and breathing mechanics of snorkeling are actually quite different from side-breathing in swimming, even though both occur in the water. Let's break this into two parts:

1. Physiology of snorkeling (why it feels different)
2. Step-by-step technique to use a snorkel correctly
3. Why water keeps entering your snorkel and how to fix it

1. The Physiology of Snorkeling

When you use a snorkel, several respiratory changes happen compared to normal swimming.

A. Dead Space Ventilation

A snorkel creates extra "dead space" in the breathing system.

Dead space = air you re-breathe that contains CO₂ from your previous breath.

Normally:

- Nose → airway → lungs
- Dead space ≈ 150 ml

With a snorkel:

- Airway + snorkel tube
- Dead space ≈ 250–350 ml

This means:

You re-inhale some CO₂, so your body must breathe slightly deeper and slower to compensate.

This is why beginners sometimes feel:

- Air hunger
- Anxiety
- Rapid breathing

But experienced swimmers adapt quickly.

B. Hydrostatic Pressure on the Chest

Water pressure on your torso slightly compresses the chest.

This causes:

- Slightly reduced lung expansion
- Increased work of breathing

When breathing through a snorkel, your diaphragm must work a bit harder.

This is why slow diaphragmatic breathing works best.

C. Continuous vs Cyclic Breathing

Your swimming breathing pattern:

1. Exhale bubbles underwater
2. Rotate head
3. Quick inhale
4. Repeat

Snorkeling pattern:

1. Continuous breathing
2. No breath holding
3. No head rotation

So the rhythm must change.

2. Proper Snorkel Equipment Setup

Basic gear:

- Mask
- Snorkel tube
- Mouthpiece
- Purge valve (optional)
- Splash guard or dry top

Correct placement:

- Snorkel sits left side of head
- Tube curves around temple
- Top of tube above water surface

Mouthpiece:

- Teeth rest lightly on bite tabs
- Lips seal around mouthpiece

Do NOT bite hard.

That causes jaw fatigue and leaks.

3. Step-by-Step Snorkeling Technique

Step 1: Float Face Down

Relax and float horizontally.

Do not kick hard initially.

Let your lungs provide buoyancy.

Step 2: Relax Your Breathing

Start with slow breathing.

Think:

Inhale 3 seconds

Exhale 4 seconds

The goal is calm, steady airflow.

Not the fast swimmer breathing cycle.

Step 3: Use Diaphragm Breathing

Your belly should move slightly when breathing.

Avoid shallow chest breathing.

This reduces CO₂ buildup.

Step 4: Keep the Snorkel Vertical

If the snorkel tilts sideways:

Water easily enters the tube.

Your head position should be:

- Neutral
- Looking straight down

Not forward.

Step 5: Clear Water Properly

Water will enter the snorkel sometimes.

There are two clearing techniques.

Method 1 — Blast Clear (Most Effective)

Take a sharp explosive exhale.

Like coughing.

This forces water out the top.

Many swimmers forget this step.

Method 2 — Displacement Clear

Slowly exhale while lifting your head slightly.

Air pushes water upward.

Less effective but smoother.

4. Why You Are Swallowing Water

Based on what you described, several things may be happening.

1. Exhaling Like a Swimmer

You said:

I blow bubbles underwater to clear CO₂.

With a snorkel, this can cause:

- water entering the tube
- partial flooding

Instead:

Exhale through the snorkel, not into the water.

2. Snorkel Flooding from Small Waves

Open water waves often enter the tube.

Solutions:

- pause breathing briefly

- blast clear

Advanced snorkels have dry tops.

3. Weak Clearing Exhale

Your clearing breath must be very forceful.

Imagine:

“dragon breath”

Not a normal exhale.

4. Head Angle Too High

If you look forward:

The snorkel tip dips into water.

Look straight down instead.

5. Anxiety Reflex

When water touches the mouthpiece, many people instinctively:

- inhale quickly
- swallow water

Instead:

1. Stop breathing
2. Blast clear
3. Resume breathing

5. A Drill for Experienced Swimmers

Since you already swim long distance, try this drill.

Pool Drill

1. Float face down with snorkel
2. Breathe slowly for 10 breaths
3. Submerge snorkel tip intentionally
4. Blast clear
5. Repeat

After 10–15 repetitions, the reflex becomes automatic.

6. One More Key Physiology Insight

Snorkeling is actually similar to scuba regulator breathing.

Best breathing rhythm:

Slow

Deep

Continuous

Not swimmer breathing.

Think of it as “meditative breathing while floating.”

7. Equipment Tip (Huge Difference)

If you’re snorkeling in open water, use a snorkel with:

- Dry top valve
- Purge valve

These dramatically reduce flooding.

✓ Summary

Your issue likely comes from three things:

1. Continuing swimmer-style bubble exhale
2. Weak snorkel clearing technique
3. Snorkel flooding from waves

Switch to:

- slow continuous breathing
- forceful blast clear
- neutral head position

and it will feel natural within a few sessions.

👍 If you'd like, I can also show:

7 mistakes strong swimmers make when first snorkeling (very counterintuitive).

Or

The physiology of why snorkels longer than ~40 cm become dangerous (CO₂ buildup).