

Geelong Freedivers Inc.



**Safety Induction and
guidelines for Snorkel,
Freedive and Finswimming
Training**

Pool Requirements

Booking training sessions

- Ensure your AUF insurance and GFD membership is up to date.
- Try and book at least 1 day prior as this allows time to get additional lanes booked if required.

Signing attendance log

- Upon entering please sign the attendance book.
- If you're the first person to arrive ask for the Geelong Freedivers attendance sheet.
- We need to do this for billing and safety.

Start/End Times:

- We officially have access to the lane(s) at 18:45
- Unofficially we can use the diving pool from 18:00 onwards.
- The session ends ~ 19:45 allowing time to get changed.

General approach:

- Warmup up 18:00-18:45.
- Main session 18:45-19:45

Theory

Quick Note

- The majority of this safety induction is going to concentrate on potential issues that could arise and prevention of possible incidents.
- We don't want this to detract from the positive benefits to pool training of which there are many.
- There is a significant amount of information regarding physics, physiology, and general theory that is outside of the safety induction scope. It's strongly recommended that you undertake a more in-depth course for detailed instruction on these areas.
- In this session the goal is to provide basic coverage and to ensure each participant is introduced to the GFD safety protocols and able to train safely.
- Feel free to ask questions during the safety induction and whenever you're training from this point forwards.

The Buddy System

- Never Dive Alone.
- This is the **MOST** important rule!
- Whenever you are partaking in any form of breath-hold activity (freediving, spearfishing, static apnea, finswimming, etc), ensure you have a buddy close at hand.

Buddy Responsibilities

1. Active Safety during a swim or breath hold:
 - a. One-up and One-down ALWAYS
 - b. Follow diver from the surface using snorkel, or watch the diver within arm's length during a static hold.
 - c. Monitor the diver's form and technique to ensure the diver is okay and 'behaving normally', and to feedback to the diver.
 - d. Look out for obstructions, dangers, other swimmers.
 - e. Ensure the diver surfaces at a lane rope or poolside deck for support
 - f. Guide the diver at the end of the swim, if necessary
 - g. Watch freediver for 20-30 seconds after the surface protocol to make sure there are no delayed loss of motor control (LMC) symptoms.
 - h. Actively keep time and lap counts for the freediver during laps/interval sessions and/or perform taps and timings during static attempts
 - i. Know your buddies limits, ask the for PBs and target times/distances in advance
2. Ensure the diver follows the "Surface Protocol" at the end of their dive:
 - a. If there's clearly an issue for the diver to perform the surface protocol training is finished for that person. Inform the safety officer.
 - b. The surface protocol is demonstrated under the 'Diver Responsibilities' section.
3. Provide feedback to the diver regarding their performance during their dive:
 - a. Speed
 - b. Form
 - c. Safety shortcomings
4. Stop – Assess – Act!
 - a. If you have any concerns stop the swim/apnea if necessary.
 - b. It's better to prematurely act then to have an incident.

Diver Responsibilities:

1. During a dive, never push it. Avoid training over **80%**. This is to:
 - a. Prevent accidents

- b. Prevent fatigue
 - c. Faster improvement / recovery
- 2. Know your limits and remember that limits change:
 - a. Things can change quickly: easy becomes hard
 - b. This could be due to many reasons such as stress, poor diet, poor preparation, etc.
- 3. When you are finished your dive, you **MUST** give your buddy the “Surface Protocol”
 - a. Hook Breaths
 - i. The exhale **MUST** be controlled.
 - ii. Small passive exhale.
 - iii. Inhale deeply.
 - iv. Hold the air in for one second. This is the “hook”
 - v. **Repeat 2-3 times.**
 - vi. Take your time doing this. There’s no time limit.
 - vii. Demonstrate what a hook breath looks like.
 - b. Perform the surface protocol.
 - i. Tap the mask
 - ii. Give the “OK” sign with your hands
 - iii. Say “I’m OK”
 - c. Failure from the diver to perform any of these steps will require prompting from their buddy.
- 4. If you are starting to feel fatigued or tired, cancel the dive.

Potential Issues

Panic / Anxiety

- State of uncontrolled emotions.
- Negative thinking.
- Often due to an unplanned event(s) occurring
- #1 cause for diving related deaths

Symptoms

- Escaping Air due to overwhelming urge to exhale.
- Racing / Accelerating towards finish of swim. E.g. see the end in sight.
- Erratic, Tension, Changes in Form. Swimming outside of the lane.

Treatment

- Buddy System. Stop – Assess – Act
- Eye Contact
- Support (Physical / Mental)

Prevention

- Planning (Know what your interval session / swim is in advance)
- Visualisation

Loss of Motor Control (LMC / SAMBA)

- Caused by low oxygen levels - also known as Hypoxia.
- The brain protects itself by shutting down resulting in a LMC or blackout depending on how much O₂ is available.
- It occurs on or near the surface, after a dive or static breath-hold
- The Freediver may not be aware of it.
- It can be visible as a series of uncontrollable muscle twitches
- The Freediver may be confused and not be responsive
- LMC usually lasts a few seconds and may or may not result in a full blackout
- Caused by improper breathing on the surface (Hyperventilation), or a rapid drop in partial pressure of O₂ (PPo₂)
- LMC can occur up to 25 seconds after surfacing.

Signs

- Escaping Air
- Erratic Movements
- Anything out of the ordinary
- Panic
- **NO SIGNS**

Symptoms

- Loss of posture
- Twitches
- Shaking
- Confusion
- Breathing difficulty
- Unfocused Eyes
- Mumbling

Treating a Freediver with LMC

- We will go over this in detail in the practical session. Demonstrate with a mask.
- Support diver on surface
- Prevent airways from going under water
- Remove facial equipment and expose receptors on face/cheeks.
- Blow air on the freediver's face
- Talk and encourage the diver to breathe. Avoid loud talking as it may shock the diver further and is unnecessary.
- If consciousness doesn't return within 15 seconds, open airways and begin mouth-to-mouth.
- If nothing happens, get the diver to safety and begin CPR
 - Use the the end or sides of the pool that don't have the high ledge.

- Seek assistance. Notify the Safety Officer and the Lifeguard.

Blackout

- Is the full loss of consciousness caused by hypoxia towards the end of a breath-hold
- During a dive, O₂ is used until the point where there is not enough left for the brain to function normally
- At this point the brain shuts down and the Freediver falls unconscious
- After recovery, the person may not be aware they blacked out
- Caused by: pushing it, improper breathe-up, hyperventilation, improper recovery breathing, fast ascent

Signs

- Escaping Air
- Erratic Movements
- Anything out of the ordinary
- Panic
- NO SIGNS

Symptoms

- Feelings of euphoria
- Tingling
- Changes in vision
- Metallic taste in mouth

Treating a Freediver with Blackout

- Approach the diver and get him to the surface
- Keep the diver from swallowing water
- Drop weights if necessary, yours or theirs or both
- Position the diver closest to safety
- Support diver on surface
- Prevent airways from going under water
- Remove facial equipment and expose receptors
- Blow air on the freediver's face
- Talk and encourage the diver to breathe
- If consciousness doesn't return within 15 seconds, open airways and give mouth-to-mouth
- If nothing happens, get the diver to safety and begin CPR
- Seek assistance. Notify the Safety Officer and the Lifeguard

Preventing Anxiety, LMC and Black Out

Basic Rules

Summary of earlier topics

- Stop > Assess > Act
- Never Freedive Alone
- Use the buddy system
- Adhere to the Surface protocol

Weight yourself properly

- This will assist in using conserving energy and staying near the bottom of the pool.
- It's also a lot more relaxing when you're correctly weighted.

Remove your snorkel before duck-diving

- Having a snorkel in your mouth makes it difficult to perform the surface protocol.
- If your snorkel is in your mouth you increase the risk of water entering your lungs if you black out.

Refine and practice rescue techniques

- Rescue techniques will be practised in the practical session.
- Feel free to practise these regularly during training.

Avoid Hyperventilation

- **No hyperventilation before breath holds.**
- For example longer forceful exhales with comparatively smaller inhales.
- Reduces carbon dioxide levels and makes the dive more pleasant.
- However it also reduces the ability for the body to send signals to end the dive.
- Carbon dioxide is very helpful as it triggers the urge to breathe.
- If you lower the carbon dioxide level through hyperventilation this urge to breathe may be significantly delayed or not seen at all.
- A breathing ratio of 1:2 or 1:1 if done in a relaxed manner is considered safe and shouldn't result in hyperventilation.

Never exhale during a breath hold

- We need to maintain a safe level of oxygen in the blood and lungs.
- Exhaling will remove oxygen, shortening your dive and possibly resulting in LMC or Blackout.
- Any signs of exhaling should be treated as one of the symptoms of anxiety LMC/Blackout by the person performing the buddy role.

Don't forcefully exhale at the end of a breath hold

- You **will** feel like exhaling strongly due to the urge to breathe.
- Concentrate on performing the surface protocol. With practise this will become second nature despite the urge to exhale.

- Exhaling strongly removes oxygen from your system. At the end of a dive it is particularly important to preserve oxygen.
- Exhaling strongly removes oxygen from your lungs. Oxygen is then moved from the bloodstream into the lungs to replace what was exhaled. If the oxygen in your bloodstream falls to a low level blackout or LMC can result.

No attempts at personal best (PB) times or distances

- PB attempts should not be attempted.
- Remember the 80% rule.

Take a slow progression approach

- You will gain enough experience to recognise High CO₂ and Low O₂ sensations and symptoms.
- Focus on repetitions rather than increasing target times or depths
- Build self awareness, know the risks
- Find ways to enhance your relaxation in the water, know your breathe-up sequence, keep it consistent
- Try to maintain a consistent pace to your swimming and avoid speeding up towards the end as the CO₂ increases. If necessary come up earlier.
- Reduce stress wherever possible, even the 1%

Recovery

- Ensure there is a sufficient recovery interval between exercises
 - 2 minutes after any significant swim or set of drills.

Practical Session

Gear Review

- Hood or swimming cap required. This is pool policy. Caps can be loaned or purchased from the office.
- Mask/Snorkel/Fins.
- Wetsuit.
 - One you don't care too much about as it will get damaged by chlorine.
 - Allows greater comfort/relaxation even though it's quite warm without one.
 - Provides buoyancy when doing static breath holds which is relaxing.
- Weight belt with a quick release.
 - No knot tying. Leave the end of the weight belt accessible for somebody to quickly release if required.
- Discuss potential pool damage with weights. Resurfacing of weights is an option.
- Enough weight to make it relatively easy to remain submerged. Note that you are less buoyant in pool water compared to ocean. I.e. greater density of salt water.
- Drink bottle.