

Apnea Total Instructor Course Outline

Freediver Course Day 1

Introduction

During this outline we are going to cover important points to consider before, during and after finishing our theory and water classes. Each point should be read and remembered before we are teaching our first courses until they come naturally to us.

During our instructor course we have a philosophy that should always prevail. Our philosophy of teaching is to maximise the students experience and therefore we must adapt our teaching style according to each students needs, particularly in the water. At the beginning of your instructor career, you will teach the courses with more structure without leaving any room for improvisation, as this will always come with more experience. However regardless of how experienced you are as an instructor, the course should always cover all the same points without omitting any information or adding extra information that we do not teach in the Apnea Total courses.

Never say derogatory comments about other freedivers. In the classroom it is our aim not to judge other freedivers, but it is our responsibility to give the correct information according to our course. It is always better to use the word "different" than "incorrect" when referring to other freediving methods and techniques. Remember this throughout all courses.

Always remember this during your teaching career - there are no bad students, only bad instructors.

We should always take note of the following:

- Check our physical image - give the class with fresh clothes, tidy appearance and smelling hygienic. First impressions are important.
- Always remember that you are an example to your students. You have the power and control during the classroom and the water. Doubts and insecurities are not acceptable as an instructor, as they are easily detected by the students. The lack of confidence in the instructor will be reflected in the lack of student's attention during the theory classes and the poor performance of the students in the water.

Introduction

Welcome to the World of Freediving

We are happy that you have made the decision to take your first step into the world of freediving with Apnea Total, an organisation dedicated to freedive education and training that has certified over 4000 freedivers to date. During this first Freediver course we will help you to discover your natural underwater potential. You will learn breathing, freediving and rescue techniques that will help you to enjoy the ocean with safety and with confidence in your new breath hold abilities that will develop during this course.

Hold your breath...

Points to remember during the introduction:

- We do not refer too much about your personal achievements or yourselves, (your name and your title as instructor is usually enough). Instead we try to gain as much information about our students as possible including their personalities and experiences with scuba diving or snorkelling, freediving or spearfishing.
- Pay attention to their names as well as what they say about themselves.
- We are on a time limit; don't extend this introductory period, as with large groups this can become very time consuming.

Disciplines

When we cover the freediving disciplines with the students:

- Try to make the subject as interesting as possible, emphasising the disciplines that will be practised today, thereby stimulating the imagination of the students.
- The personality of the instructor will determine how interesting or tedious this part of the class is. Use the video as an important visual tool to keep the attention and energy level at the class.

There are different disciplines in the sport of freediving, some can be practised in the open ocean or lakes and others can be practised in the swimming pool.

For ocean or lake disciplines a guide rope, also known as the descent line, is most commonly used as a visual reference and for safety. These disciplines include:

- **Constant Weight (CW)** - This discipline is considered the original freediving discipline. It can be practised either with bi-fins or monofin. As the name indicates - the same amount of weight is carried down and up.
- **Constant Weight No-Fins (CNF)** - This discipline consists of swimming up and down using only your own power and without the assistance of bi-fins or monofin. Likewise, as the name indicates - the same amount of weight is carried down and up.
- **Free Immersion (FI)** - This discipline allows you to pull yourself down and up the guide rope without the assistance of bi-fins or monofin. Like Constant Weight, the freediver carries the same amount of weight during the entire dive.
- **Variable Weight (VWT)** - In the early days of freediving the diver was assisted on his descent by the amount of weight of his choice that would be left at the target depth, the diver would then ascend under his own power using bi-fins combined with pulling the rope. In modern times there are more sophisticated and more efficient methods of descent by use of hydrodynamic sleds that are weighted and guided along the descent line.
- **No Limits (NLT)** - The diver descends with the assistance of a weighted sled along the descent line and ascends with the aid of an inflatable device that propels the diver with high speeds to the surface. This is the deepest of all disciplines and the least popular among freedivers due to the difficulty of logistics and the dangers involved. However No Limits has gained the greatest media exposure worldwide in the news and in popular culture such as movies like The Big Blue.

When you have no access to open waters, you can still freedive and practise different breath-hold disciplines in the swimming pool. These disciplines include:

- **Dynamic with Fins (DYN)** - The diver swims the longest underwater distance on one breath using either bi-fins or monofin.
- **Dynamic no Fins (DNF)** - The diver swims the longest underwater distance on one breath using only his/her power with no assistance of bi-fins or monofin.
- **Static Apnea (STA)** - The diver performs the longest possible breath-hold lying motionless on the surface of the pool with airways submerged.
- It is important to mention that Static Apnea is a discipline that the students can do immediately after they finish the freediver course. Refer to the incredible results that they can achieve. Remember that subtle information is much more effective than an obvious sales push.

Important!

All these disciplines, as any other form of freediving, are potentially dangerous or even fatal when practised without the correct supervision. Always, always, always dive with your freediving buddies and within your limits and knowledge.

During this course you will learn and practise some of these disciplines and you should not attempt new disciplines that have not been covered in this Freediver Course. New disciplines should only be

practised after receiving the proper education.

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Equipment

While covering the equipment, points to remember:

- **Experience levels in regards to equipment** - During the Freediver course the equipment we use is the ideal equipment for beginners, which is what we should focus on. More advanced equipment should be very briefly mentioned as many students are curious, and it is good to feed this curiosity to show that there is more beyond this beginner level. However, extending too much information on more advanced equipment (monofins, carbon fins, fluid goggles, neck-weights, fancy wetsuits etc) is not beneficial for a beginner student, as our purpose in this first course is for students to see freediving as a sports experience for everyone.
- **It is important to maintain the level of energy in the classroom at this point.** Passing equipment around to the students for them to inspect is a great tool to keep their attention and curiosity.
- Although we provide all the freediving equipment for the students during the course, always remember to stress the importance of students acquiring their own personal equipment if they continue to freedive. Obviously, it is preferable that the student purchases the equipment from the dive centre in which you are teaching the course.

It is very important to choose the correct equipment when you freedive. The equipment should fit correctly and feel comfortable.

- **Mask** - One of the most important pieces of equipment. When we freedive we preferably use a mask with a low volume. As we descend we need to equalise the pressure in our mask by blowing small amounts of air through our nose. Flexible and low-volume masks are most efficient for freediving as these masks can withstand greater pressures and the least amount of air is necessary to equalise the mask.
- **Fins** - A full foot pocket that feels comfortable will be more efficient in transmitting the energy directly to the blade than an open-heel or bootie-like foot pocket. Longer fins are also more effective once the proper fining technique has been achieved.
- **Snorkel** - The most basic designs are the best for freediving. Choosing a comfortable mouthpiece is important as we are often using the snorkel for several hours in long freediving sessions. Very Important - we always remove the snorkel at the beginning of the descent and we will not use it again until the end of our Recovery Breaths after the dive.

Time to interact with the students:

- A common question from the instructor to the student will be if they have any experience in regards to dealing with the snorkel - i.e., while underwater, do they keep it in their mouth, out, etc. Preferably ask these questions one by one, as you want to keep getting information about the experience of each student.
- After the students answers you will always stress the correct way to use the snorkel during freediving. Remember this is a safety issue, so a high level of attention is required by each student when covering this subject. A different tone of voice, pauses and using words "important" and "safety" will ensure that the class will pay attention.

Important points to cover as to why we remove the snorkel:

- The snorkel is an open door that can allow water into our body.
- Our natural instinct is to maintain our mouths closed when underwater.
- The snorkel is not hydrodynamic and at high speeds during the dive can move our mask if attached to it.
- Once we reach the surface, our main purpose is to breath. The great effort of clearing a snorkel

after a strenuous dive can easily increase the chances of blacking out; and if the snorkel is not cleared properly this can lead to water entering our airways.

Remember that the students will come across magazines and other media where snorkels are used underwater, therefore we have to ensure that the student understands the logic of these points.

- **Wetsuit** - When we freedive we need to ensure our body does not get cold, nor start to shiver which is even more dangerous during a freediving session. When we shiver our oxygen consumption will increase and the oxygen supplies will be lowered more rapidly during the dive, which greatly reduces our breath hold capabilities. Choosing a flexible wetsuit that fits our bodies correctly can play an important role in the comfort of our dives.
- **Weightbelts** - Rubber weightbelts are best for freediving rather than the cloth weightbelts used in scuba diving. The benefit of using flexible rubber belts is that they stay in place on our bodies and doesn't move during the dive. It is important that the placement of the weightbelt doesn't restrict our breathing.
- **Weights** - To overcome the buoyancy of the wetsuits and sometimes our own bodies it is necessary to use weights when freediving. Choosing the right amount of weight during our dive is crucial to the comfort of our freediving session.
- **Surface Float** - We strongly recommend use of a surface float for all freedivers when out on the ocean. They add safety to our dives, helping with resting, breathing and also serving as a visual marker for passing boats.

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Technique

- **This is one of the most complex subjects of the theory class.** Since we need to see the students in the water to apply the correct tuition, it is always difficult to express ourselves on dry land. Movements of the legs, demonstrating the kicking or body position are usually difficult to visualise for the students when we are on land.
- **Our main tool will be the videos,** which give visual information, together with the **instructor's step-by-step explanations** of the duck-dive, body position and kicking technique.
- **We should interact with the students** by making them practise the removal of the snorkel, body position, head alignment with spine, hand on nose, elbow tucked in and all the points that we know for sure that they will forget the moment they jump in the water.

A significant factor that determines the length of our dives and comfort underwater is our technique, which includes correct body position and correct kicking in the water. During this course we will be learning all the correct freediving techniques that will increase our confidence and comfort during our dives.

- **Duck Dive** - One-leg or two-leg entrance. This is the most common and efficient way to break the surface. A breakdown of the duck dive is as follows:
 - One hand holds the snorkel as we take our last breath,
 - we take one kick forward and bend the waist at a 90 degree angle and push the body down with one or both arms extended forward,
 - in a continuous motion we raise one or both legs in the air using their weight combined with the arm stroke to push the body below the surface.
 - We start equalising immediately, by bringing one hand to our nose in a hydrodynamic position.
 - Once we feel both fins under the water we can start kicking.
 - Our head position acts as a steering wheel. Keeping the neck aligned with our spine will help our verticality and won't stress our neck muscles, thereby helping the equalisation process.

- **Kicking -**
 - Kicking must be relaxed but not too slow, and must be strong but not forceful nor too fast.
 - Knees should be relaxed.
 - Kicking starts with the upper part of the legs.
 - The hands should be next to our body with the palms facing inwards towards our outer thighs in a hydrodynamic position.
 - Kicking during the descent - During the first 10 metres of our dive stronger kicking is required to overcome positive buoyancy, after which we can enter a more relaxed phase of kicking.
 - Kicking during the ascent - Once we reach the target depth and complete a relaxed turn, our kicking should be powerful to overcome the negative buoyancy, after which we reach the last 10 metres of our dive the kicking can become relaxed but we do not stop kicking until the completion of the dive.

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Equalisation

Explain first the equalisation and the mask briefly the way it comes in the Freediver Manual, followed by the sinuses, and then move on to the ears.

Always remember that everyone can equalise.

- Convince yourself of this; otherwise it will be difficult to convince others. We know for a fact that there will be difficulties once we jump in the water, but you should always remember that it is very difficult to encounter a student that has a true medical condition of the ears that prohibits them from diving. However, as you will experience in the water, colds, fears and stress will be our challenge in overcoming equalisation problems.
- **Do not give them an excuse of equalisation problems before we jump in the water.** Instead we have to build up their confidence in themselves and in us as their instructor that everything will be ok.

With the information that we have from the classroom regarding their background and experience, we should already know **how we are going to approach equalisation with each student.** A good method is to individually see how they equalise and the technique they use to equalise in the classroom.

Sometimes those students with lack of confidence and experience will not be able to feel the pop of the ears during the classroom. Don't jump to conclusions before entering the water. Repeat one more time to the student that everything will be ok, and remind the student that sometimes it can take a little bit of practice to equalise, but don't give up because it will happen.

Pressure increases as we dive below the surface which affects all our natural and artificial airspaces. Equalisation is a manoeuvre that will help to balance the pressure that increases as we dive deeper.

The artificial airspace is the mask:

- The air volume and the elasticity of the mask will determine when the pressure starts to feel uncomfortable during the descent. A simple and small blow through our nostrils will balance the pressure inside our masks.
- Generally a low volume mask should be comfortable and does not require equalisation during the first 20 metres of our descent, however it is more comfortable during the dive to make a small blow if we start to feel any kind of pressure.
- As we ascend the air in the mask will expand and we should always remember to inhale this air through the nose.
- Remember not to inhale the air from the mask during the descent as this will increase the pressure of the mask rapidly, which will also increase the risk of a mask squeeze.

Natural airspaces includes the ears and sinuses:

- **Sinuses**
 - The sinuses are cavities located in the skull and these normally equalise automatically as we descend. However allergies and colds can make this process more difficult and we might feel the need to equalise our sinuses during the dive.
- **Ears**
 - Our eardrums have a sensitive membrane that flexes as the pressure increases causing pain. If the pressure is too great the membrane can even rupture which is a serious and dangerous condition.
 - Equalisation will compensate the pressure inside the eardrums with the water pressure outside of the ears.
 - Equalisation must be done before any pain is felt.
 - Equalisation begins at the surface and must be performed continuously every metre of our descent.
 - Different techniques can be used to equalise the ears:
 - Valsalva is the easiest technique. The nose is pinched combined with a soft blow through the nostrils, ensuring no air will escape from the nose. The air is forced from our lungs by using our abdominals and diaphragm, and therefore while it is still an effective technique it is not the most relaxing.
 - Frenzel is the recommended technique for freediving. It does not involve any effort from our diaphragm or lungs, rather we keep our entire body relaxed during the dive. Many divers use this technique naturally, without realising . The technique involves pushing the air with the back of our tongue against the soft palate, and by pinching our nose at the same time we will then equalise our ears. A bit of practise is required for beginners who are not familiar with this technique.
 - Other manoeuvres that will help our equalisation include moving our jaws down and forward, swallowing simultaneously and tilting the head from side to side.

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Breathing

This is the **most exciting part of the theory class** in the freediving course. The interaction with the students is maximum, so it is quite easy to keep their attention of the class at a high level.

Depending the amount of **students** in the class, it can be quite challenging to pay equal attention to all of them. You will soon realise that some students breathe better than others to begin with.

Hyperventilation - We will start with a simple question - do they know or understand what hyperventilation is and if they ever used it. Without going into too much complicated detail, you will follow the manual to prove the logic that this technique is not suitable for freedivers.

Breathing Technique - The next step is to explain and demonstrate the correct breathing technique. A breakdown of the stages of breathing is the most effective way to demonstrate the correct breathing technique. The students should perform one stage at a time before putting the cycle all together.

In large groups, some students need more care than others, but always remember that you cannot change the rhythm of the class according to slower students.

Perfection will be impossible to achieve in the first day of breathing and practice will rapidly speed the process. Remember always that we are looking for **improvement** in the students, in regards to the level at which they started.

Breaking down the breathing cycle and technique into steps:

- **Sitting down position** - with straight spine and putting the gluteus on the edge of the chair, with relaxed arms resting over our legs.
- **'O' shape with the lips, make the breathing sound and ask them to repeat.** Your breathing sound should be loud, the same loud sound that you would like to hear from the students. You will have to encourage and remind your students of the loud breathing sound, as students often forget. As an instructor you will soon realise this is an important tool for you to be able to follow the students breathing technique.
- **Diaphragmatic breathing (stomach breathing)** - demonstrate by extending your stomach. First ask the students to make the motion alone with one hand placed on their stomach. When reasonably successfully, then incorporate the inhalation breathing at the same time.
- **Upper Chest Breathing** - demonstrate by moving your chest forward. First ask the students to make the motion, and when reasonably successfully, then incorporate the inhalation breathing at the same time.
- **Full Cycle** - Demonstrate first the full cycle, and put a special emphasis on the duration on the inhalation and exhalation. You will realise that there is not enough stress that you can put on the sentence "Do not over exhale", as you will notice that some of the students tend to push a bit too much air out at the end of the exhalation. Get the students breathing a few cycles - keep reminding them to concentrate on the act of breathing and feeling how the air goes in and how the air goes out.
- Following the beginner manual, explain how many cycles should be done before the dive.
- **Last Breath** - We demonstrate the last breath as described in the freediving manual with special emphasis on relaxation. We practise the last breath with the students a few times until we are satisfied with the results.
- **Recovery Breathing** - The students must understand the importance of the recovery breathing technique as a safety issue. It will be difficult for them to feel that they need this technique every single dive as most of the beginners won't be tired. It is our aim to remind the student that we want to install recovery breathing as a natural process for when the body doesn't have enough spare oxygen to think about it. After demonstration, practise recovery breathing with them, ensuring that they are not breathing too fast or carelessly.

Important Points - Finalise the class with important points as described in the freediving manual.

The correct breathing for freediving is with a very slow and deep pattern, both for inhalation and exhalation and with a small pause in between.

Hyperventilation or very shallow, short, fast breathing is not suitable for freediving and can be dangerous. Hyperventilation will fool the body into feeling that you do not need to breathe when in fact there is less oxygen in our body due to the high oxygen consumption of an increased heart rate, and there is a lack of physical alarms that notify us that it is time to return to the surface and breathe.

A **Breathing Cycle** consists of two phases - inhalation and exhalation.

- **Inhalation** - is relaxed, consistent and slow. We focus on the lungs as divided into two different areas:
 - the lower section - includes the stomach and diaphragm.
 - the upper section - includes the ribs and upper chest.
- **Exhalation** - is relaxed, consistent and slow. We do not focus on any particular part of our lungs as we exhale.

One Breathing Cycle will be as follows:

- **Inhalation** - firstly we focus on the lower part of our lungs by extending the stomach outwards, which stretches the diaphragm and creates room for the lower part of our lungs to expand. In a continuous motion we move our focus to the upper part of our lungs by opening our rib cage, moving our upper chest outwards and inhaling as much as possible without forcing the air in. The entire inhalation is relaxed and performed without tension in any part of our bodies.
- **Pause** - between the inhalation and the exhalation we make a small pause, half a second is sufficient
- **Exhalation** - the exhalation commences with a small pop of our mouths, this allows a small portion of air to escape from between our lips, which releases pressure and tension from our body and allows us to continue exhaling in a consistent, long and slow manner. We exhale only until the air stops to flow naturally from our lungs, and without forcing our muscles to expel more air than is necessary.

Breath up refers to the time that you will spend at the surface relaxing the body and performing our breathing cycles. In this first Freediver level before our target dives we will be using between 10 - 12 breathing cycles. The time estimated for these 10 - 12 cycles is about 4 minutes. Only then do we know that our body is ready to dive. Dive only when you feel physically and mentally ready, and don't go for your target dives with less preparation than this.

The **Last Breath** should be made as a fluid and continuous motion, starting from the diaphragm and finishing with the upper chest. The last breath is a bit faster than a normal breathing cycle, about 4 to 5 seconds and without making the breath too stressful or forced, especially at the end of the breath. The last breath is always 100% of our capacity.

Recovery Breathing is one of the most important parts of our dives. This is the breathing on the surface that will complete the dive. The breathing will be short and strong, making sure that we inhale the same amount of air that we exhale, and never more than 50% of our maximum lung capacity. Hence recovery breathing is also known as 50 - 50 breathing. It is necessary to perform at least 8 to 10 of these recovery breaths before doing anything else. Respiration is the most important priority after reaching the surface.

This process should happen as a natural reflex once we reach the surface. In order to achieve this as a natural reflex we must ensure that we always perform our complete recovery breathing cycles after every dive, regardless of what depth or time was achieved or how easy or difficult the dive felt. Repetitive practise like this ensures that recovery breathing is incorporated into all our dives, which increases our safety at the end of each and every dive.

Never exhale before reaching the surface as we will be using the positive buoyancy in our lungs at the end of the dive to assist in reaching the surface.

Important points to remember!

- Always dive with a buddy.
- Rehydrate when you freedive - so drink a lot of water.
- Never freedive after scuba diving - a safety margin of at least 12 hours is required.
- You can eat before freediving, but it is not recommended. You will feel more comfortable underwater with an empty stomach since your body will not be going through the process of digestion which consumes extra oxygen while you freedive.
- Always freedive with a dive flag which is easily visible for passing boats.
- Freediving can be dangerous after partying the night before! No matter how good you think you feel, you are highly jeopardising your safety.
- Taking medication can effect freediving and therefore decrease your safety.

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Class Time - Class time should be 90 minutes, and no longer than 2 hours for large groups.

Remember - you are in charge. Questions from the students always should be answered at the correct time. Do not make the mistake of disrupting the flow of the class by incorrectly focusing on answering individual questions that are irrelevant to the progress of the course.

Freediver Course Day 2

At the beginning of Day 2, you should always get the **feedback from the first day of diving**, asking each student individually and reinforcing that the second day is going to be even better.

Check with the students if they performed their **homework** - twelve cycles with four minutes duration - and let them know that if they feel a bit short of breath after the long exhalations, that we are ready to introduce an additional breath in between the cycles called a 'flush'.

We should demonstrate how a **flush** should be made, ensuring that they understand that no more than one flush should be made in between the cycles. Also explain that two flushes before our final breath will also help to relax the body.

We then make the **students to perform the whole breath up** with one flush in between the cycles when needed - 10 cycles are usually enough. Remind the students to count their cycles and point out to them how their breathing technique has improved in comparison to the first day.

Following this we brief the students about how the **Vagus Nerve** plays a role during diving for beginners. Explain that during the dive some of the students might feel the urge to breathe when it is actually not necessary since our body is full of air and unused oxygen; but there is an instinct in our head that tells us to turn around and come back to the surface. The students should ignore this instinct because it will disappear after adapting the body and diving a few times. Remember that not all of the students feel this urge to breathe.

We then proceed to explain the shallow water blackout and proper safety procedure and buddy system.

Safety Diver and Rescue Procedures

Safety Procedures

As our instructors always remind us - the most important rule in freediving is that we should never freedive without a buddy. However, not only is a diving buddy necessary but also the proper knowledge of how to perform a rescue from a shallow water blackout if necessary.

Shallow Water Blackout

A shallow water blackout is the loss of consciousness caused by hypoxia or lack of oxygen at the end of a breath hold dive. The danger zone is typically in the last few metres of the dive during the ascent and at the surface. However it is good to consider the last 10 metres as a risky zone.

Loss of motor control (LMC), also known as a samba, is a strong sign of hypoxia without losing consciousness that can sometimes be previous to a blackout.

Follow the manual to explain the shallow water blackout without making it complicated. Remind the student that this is not a situation that can occur during the freediver course, however it is very important for them to learn the proper safety procedures and to familiarise themselves with the situation.

Safety Diver

The diving buddy, known as the safety diver, should escort the diver in the last 10 metres of the dive and watch closely during the ascent, as well as watch closely for one minute after the dive at the surface to ensure that there are no signs of hypoxia.

Remember, as a safety diver, the dive only finishes when the recovery breathing has been completed. It is better to be over cautious than too confident in your diving buddy abilities, no matter how well you know him/her.

The best freediving safety team is always made of two people, one safety diver escorts the diver in the last 10 metres of the dive and the other safety diver waits and watches on the surface.

During the final metres of the ascent, the safety diver should look closely into the eyes of the diver and observe the movements of the diver's body. Scared eyes and uncoordinated movements will be clear signs that the diver will soon be in trouble. Other signs will be an uncoordinated exhale underwater, when this happens rapid intervention is essential.

Following the manual explain the importance of the safety diver and the signs that they are looking for to detect when someone is in trouble. Reinforce the importance of the proper recovery breathing.

Rescue

When underwater a rescue is performed as follows:

- The safety diver should rapidly grab the diver, passing one arm under the arm of the unconscious diver to have control of the body as shown in the photo.
- With the other free arm, the safety diver will ensure to push forward the head of the unconscious diver, thereby closing the airways.
- The safety diver will be positioned at the back of the unconscious diver and at an angle from the body will kick his way to the surface.
- Once at the surface, the safety diver rests the head of the unconscious diver over his chest and shoulder, thereby opening the airways. This is followed by removing the mask, a gentle pat on the cheek, blowing air towards the nose and calling the name of the unconscious diver and instructing him/her to 'breathe'.

Explain and practise with them how the rescue should be performed underwater and when reaching the surface. Make them practise in between them on dry land. Remind them that this is something that they will practise in the water later in the day.

Also mention that when someone has blacked out, the diver will most likely not remember, as a short memory period is always lost. The sensations are comfortable; it will most likely feel like a pleasant dream. However this is not what we are looking for when we freedive and this only proves the misjudgement of the divers capabilities.

Very important to remember!

After a blackout or after a dive with signs of hypoxia our diving session has ended for that day.

Reinforce the point that when someone has signs of hypoxia at the end of the dive, he should immediately stop diving for that day.

After this we will introduce the **pranayama exercises** adapted to freediving that will greatly improve our breathing control. These exercises should not be used at a breath up for diving, but used for exercises on dry land.

Pranayama - Yogic Breathing

Pranayama:

- Pranayama is a Sanskrit word meaning the 'extension of the prana or breath' or more accurately, the 'extension of the life force'.
- The word is composed of two Sanskrit words; 'prana', life force, or vital energy, particularly the breath; and 'ayama', to extend, draw out, restrain, or control.
- *Benefits:* Pranayama techniques are beneficial in treating a range of stress related disorders, improving autonomic functions, relieving symptoms of asthma. Practitioners report that the practice of pranayama develops a steady mind, strong will power, and sound judgment, and also claim that sustained pranayama practice extends life and enhances perception.

When practising Pranayamas:

- Always breathe through your nose.
- Keep your spine, neck and head aligned.
- Don't practice Pranayama after meal.

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Bandhas:

- In order to follow the techniques of Pranayamas, it is necessary to put into practice the bandhas.
- Bandha means bondage, joining together or catching hold. It also refers to a posture in which certain organs or parts of the body are gripped, contracted and controlled. There are three internal locks or Bandhas described and employed in Hatha Yoga.

Mula Bandha

- Mula Bandha is a Sanskrit compound term; 'Mula' denotes root, base, beginning, foundation, origin or cause, basis, source.
- The root referred to here is the root of the spine, the pelvic floor or, more precisely, the centre of the pelvic floor, the perineum. The perineum is the muscular body between the anus and the genitals.
- By slightly contracting the pubo-coccygeal (PC) muscle, which goes from the pubic bone to the tailbone (coccyx), we create an energetic seal that locks prana into the body and so prevents it from leaking out at the base of the spine.
- Mula Bandha is said to move prana into the central channel, called sushumna, which is the subtle equivalent of the spine.
- Practice Mula Bandha in combination with the pranayamas.

Jalandhara Bandha - Chin Lock

- It is performed by dropping the head slightly so that the chin is tucked close to the chest.
- *Benefits:* Jalandhara Bandha clears the nasal passages and regulates the flow of blood and prana to the heart, head and endocrine glands in the neck (thyroid and parathyroid).
- Practice Jalandhara Bandha in combination with the pranayamas when doing retention.

Uddiyana Bandha - Abdominal Lock

- Exhale quickly; the air is forced from the lung in a rush.
- Hold the breath with empty lungs while pulling the whole abdominal region back towards the spine and lift upwards.
- Relax the diaphragm and breathe.
- *Benefits:* It tones the abdominal organs, increases the gastric fire and eliminates toxins in the digestive tract. It makes the diaphragm and rib cage flexible. It massages all the internal organs.
- Practice Uddiyana Bandha on an empty stomach only. It can be combined with the other two Bandhas.

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Pranayamas:

Kapalabhati - Skull Shining

- 'Kapala' means skull and 'bhatai' means light or lustre.
- Kapalabhati breath: exhale forcefully through the nose. This should cause the abdominal muscles to contract sharply and should draw the abdomen inwards towards the spine. Then allow the inhalation to occur completely passively without any additional effort. Maintain a comfortable rhythm.
- Take 2 breaths.
- 60 Kapalabhati breaths.
- Take 2 breaths.
- Hold your breath for 45 seconds up to 1 minute. During the retentions apply Jalandhara and Mula Bandha
- This is 1 round. Repeat 3 times.
- *Benefits:* It tones and activates your diaphragm, stomach, spleen, pancreas, heart and liver. It releases toxins from your lung. It improves digestion and cleanses the sinuses.

Samavruti Pranayama - Square Breathing

- 'Sama' means equal, even or perfect; 'vritti' means movement or action.
- In this pranayama one full respiration is divided into four equal parts. Each inhalation, internal retention, exhalation and external retention is of equal duration (Could be counts of 4 or 6).
- Inhale, to the count of 6.
- Retention (full lungs), to the count of 6. Apply Jalandhara and Mula Bandha.
- Exhale, to the count of 6.
- Retention (empty lungs), to the count of 6. Apply Jalandhara and Mula Bandha.
- Continue breathing this way for 5 minutes.
- *Benefits:* calms the body and focuses the mind.