



Atlanta Underwater Explorers

AUE Bubbles

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The Atlanta Underwater Explorers, P. O. Box 55048, Atlanta, GA 30308 www.diveaue.org

DECOMPRESSION SICKNESS AND SCUBA DIVING

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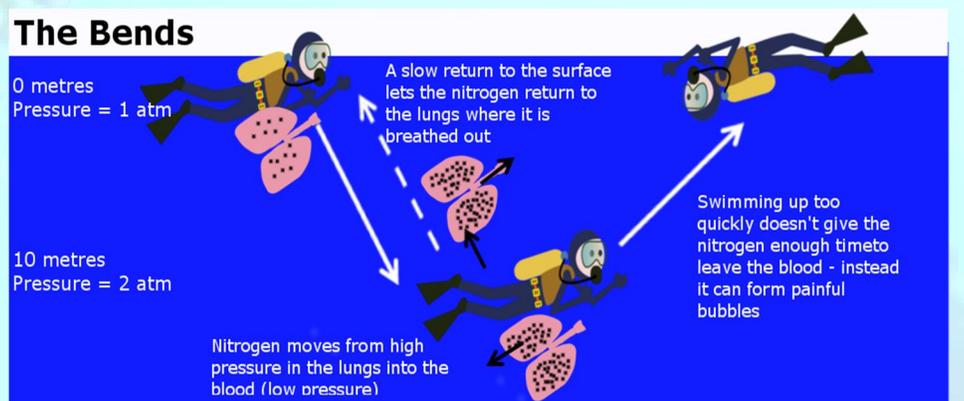
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By Nadia Aly, CEO –Founder & CEO of ScubaDivingLife.com

The Bends

0 metres
Pressure = 1 atm

10 metres
Pressure = 2 atm



After reading this article, take a look at the video:

<https://youtu.be/Osgow5KcBYs> DDRC Healthcare UK Equitant of DAN US

When we breathe underwater, approximately 79 percent of the air (depending on gas blend) we're breathing is nitrogen. As we descend deeper, the pressure around our bodies increases, causing nitrogen to be absorbed into our body tissue.

Decompression sickness is the term used to describe the illness and effects that result from a reduction in the ambient pressure surrounding the human body.

As long as the diver remains at pressure, the gas presents no problem. If the pressure is reduced too quickly, however, the nitrogen comes out of solution and forms bubbles in the tissues and bloodstream. This commonly occurs as a result of violating or approaching too closely the dive-table limits, but it can also occur even when accepted guidelines have been followed. (Like in the video above)



"Symptoms and signs usually appear within 15 minutes to 12 hours after surfacing"

DECOMPRESSION SICKNESS AND SCUBA DIVING -CONT.

The diagnosis of DCS is made on the basis of signs and/or symptoms after a dive or altitude exposure.

There are two types of DCS

Type 1: Type 1 DCS is the least serious form of DCS. It usually involves pain in the body and is usually not an immediate life threat. It is important to understand that type 1 DCS can be warning signs of type 2 DCS.

- **Cutaneous Decompression Sickness**
This occurs when nitrogen bubbles come out of solution in skin capillaries, resulting in red rashes, often near the chest and shoulders.
- **Joint and Limb Pain Decompression Sickness**
This type is recognized by aching and or pain in the joints. The pain can be in one place or it can move around the joint.

Type 2: Type 2 DSC is more serious and can be life threatening, usually affecting the nervous system.

- **Neurological Decompression Sickness**
When nitrogen bubbles affect the nervous system they can cause problems throughout the body. This type of decompression sickness normally shows as tingling, numbness, respiratory problems, and unconsciousness. Symptoms can spread quickly and if left untreated can lead to paralysis or even death.
- **Pulmonary Decompression Sickness**
This is a rare form of decompression sickness that occurs when bubbles form in lung capillaries. Fortunately, the majority of the time, bubbles dissolve naturally through the lungs. However, it is possible for them to interrupt blood flow to the lungs which can lead to serious and life-threatening respiratory and heart problems.
- **Cerebral Decompression Sickness**
It is possible for bubbles that make their way into the arterial blood stream to move to the brain and to cause an arterial gas embolism. This is extremely dangerous and can be identified by symptoms such as blurred vision, headaches, confusion and unconsciousness.

Symptoms of DCS

- Extreme fatigue
- Joint and limb pain
- Tingling
- Numbness
- Red rash on skin
- Respiratory problems
- Heart problems
- Dizziness
- Blurred vision
- Headaches
- Confusion
- Unconsciousness
- Ringing of the ears
- Vertigo
- Stomach sickness

Signs of DCS

- Skin may show a blotchy rash, paralysis, muscle weakness



“Decompression sickness normally shows as tingling, numbness, respiratory problems, and unconsciousness. Symptoms can spread quickly and if left untreated can lead to paralysis or even death.”



Photos from Alert Diver

DECOMPRESSION SICKNESS AND SCUBA DIVING -CONT



Examples of divers in distress

- Difficulty urinating
- Confusion, personality changes, bizarre behavior
- Amnesia, tremors
- Staggering
- Coughing up bloody, frothy sputum
- Collapse or unconsciousness

** Symptoms and signs usually appear within 15 minutes to 12 hours after surfacing; but in severe cases, symptoms may appear before surfacing or immediately afterwards. Delayed occurrence of symptoms is rare, but it does occur, especially if air travel follows diving.

Preventing Decompression Sickness:

You can help minimize the risk of DSC by using a dive planner or a dive computer properly. You also need to follow other dive-safety practices that you should have learned in your scuba training.

There are many things you should be aware of when diving:

- Never dive to the limits: always have a margin before you hit your dive/table limit.
- Fat: Nitrogen dissolves easily into fat tissue. People with a larger ration of fat to body weight may absorb more nitrogen when diving.
- Age: As you get older your circulatory system becomes less efficient, affecting nitrogen elimination.
- Alcohol: Any type of alcohol before or right after a dive can accelerate and alert your circulation.
- Cold Water: Diving in cold water can cause your extremities to receive less circulation as they cool, this effects nitrogen elimination.
- Hot shower/bath: Hot showers and baths after a dive cause skill capillaries to dilate, which will draw blood away from other areas. These areas will then eliminate nitrogen more slowly.

Published in Scuba Diver Life

<http://scubadiverlife.com/2011/04/24/decompression-sickness-scuba-diving/>

How to Ascend from a Dive



By Thomas Gronfeldt

A [recent accident](#) in Koh Phi Phi's Maya Bay, Thailand, where two surfacing Russian scuba divers were struck by a speedboat propeller, resulted in one of them losing a leg and the other receiving deep lacerations. When accidents like this occur, it's worth revisiting the safest possible ascension procedures. The exact details of the accident are still unclear, so this article is in no way intended to assign blame or claim to know how it could have been prevented. Rather the incident serves as a reminder that, as scuba divers, we must always be vigilant as we ascend in mid-water to minimize the risk of run-ins with passing watercraft. Here are a few of our tips on how to ascend from a dive.

Carry a Dive-Flag Buoy

If you're on a guided dive in an area with boat traffic, the divemaster should have a dive-flag buoy, which will accompany your party on the surface during the entire dive to let watercraft know exactly where you are underwater. When it's time to surface, do so as near as you can to the buoy. If it's just you and a buddy on a dive, one of you should deploy the dive-flag buoy for the same reasons.

Start Early

Once it's time to ascend, remember that a proper ascent takes some time, so make sure to begin by taking into account your remaining air, your no-decompression limit and personal factors, such as cold and fatigue. Ascend while you're still fresh and on top of things.

Go Slow

Most organizations recommend a maximum ascent speed of 30 feet (9 m) per minute. Orient yourself as you begin your ascent, getting an idea of where you are in terms of your planned surfacing point. Start looking up to get an idea of the conditions above. Is the sea calm or choppy? Do you see a lot of boat traffic, or do you have the water to yourself? As you ascend, also keep an eye on your depth gauge and timer to make sure you're rising slowly enough.

How to Ascend from a Dive - Cont.



“Rotate as you ascend to give yourself a 360-degree field of vision.”



Stop

Even if it isn't a requirement for non-decompression dives, pretty much all dive organizations and dive computers recommend a safety stop for any dive deeper than 33 feet (10 m), typically at 15 feet (5 m) for three minutes. Use the time during your safety stop to scan the surface for any boats (including your own dive boat), kayaks, or other vessels you may need to navigate around. Listen for propellers as well, as you'll hear a boat much sooner than you'll be able to see it. You won't be able to determine where it's coming from though, so watch the surface for it.

Surface

When you've finished your safety stop, become neutrally buoyant before beginning your ascent, and maintain neutral buoyancy throughout. Fin very gently if you must to ascend. Keep the ascent rate as slow as possible, but don't spend the entire time looking at your dive computer. Instead, look around, scanning the surface. Rotate as you ascend to give yourself a 360-degree field of vision. Most organizations recommend that you ascend with one hand above your head, holding your low-pressure inflator at the highest possible point to allow you to quickly release air from your BCD if your ascent becomes too fast. This is also partly to ensure that if you do have an unfortunate encounter with a boat propeller, at least it will be your hand and arm that takes the hit instead of your head. If there's boat traffic overhead, you may want to delay your final ascent until it's clear, air-permitting, or swim to another location.

Come up Close

Ascend as close to your dive boat or dive buoy as you can, as mentioned above, since other boats will typically keep their distance. If you have neither, and there is boat traffic in the area, send up a DSMB before surfacing to give boats and other vessels fair warning that people are coming up.

Published in Scuba Diver Life:

<http://scubadiverlife.com/2016/03/18/how-to-ascend-from-a-dive/>

Upcoming AUE Activities

- **AUE Annual Cookout July 30, 2016 2:00 thru 6:00 p.m. @ Sweetwater Creek State Park - Details at web link below and Facebook :**
<http://www.diveaue.org/newsletters/AUE%202016%20Picnic%20flir.pdf>
<https://www.facebook.com/events/1044820365567721/>
- **Coral Restoration Dives July 25 thru 29, 2016**
Details: Contact Ken Stewart (615) 730-4906
- **AUE Panama City Beach Dive Trip and Naval Hard Hat Diving School tour. September 2016 -**
Details: Dates TBA by Bruce Mitchell trip/tour organizer.
- **Coral Restoration Dives October 25 thru 8, 2016**
Details: Contact Ken Stewart (615) 730-4906
- **2016 NABS Summit November 5 thru 12, 2016**
Renaissance Aruba Resort & Casino
Visit NABS website or Facebook page for details.
https://www.facebook.com/groups/120032470724/10156328458380725/?notif_t=group_activity
- **2016 AUE Holiday Party December 2016** Details: TBA

Recent AUE Activities

- **Coral Restoration Dives June 1 thru 4, 2016 in Key Largo, FL** Contact: DWP- Ken Stewart @ (615) 730-4906
- **STEAMsport, Inc. Sea Perch Challenge (Robotics) Competition - AUE members (Elleen Yancey & Alex Adams) provided in water support to youth participants May 7, 2016, Event organizer William Oliver appreciates AUE's support.**
www.steamsport.com
- **Atlanta Underwater Explorers @ Martinis & IMAX at Fernbank Museum of Natural History, May 6, 2016** Several AUE members and two potential new members enjoyed a wonderful evening of food, fun and fellowship.
- **YMCA Youth Swim Team Scuba Training** Elleen Yancey, AUE Originator, Jimi Mack & Alex Colvin, instructors, April 30 & May 1, 2016. Two youth divers & one parent became certified SCUBA divers. Much appreciation and thanks to Jimi & Alex for training our youth at their own expense with minimal cost to the parents of these young people.

In The News/Announcements

YDWP IV- In the News: Young people join effort to identify slave ship "Guerrero." - July 18-23 young divers of Youth Diving With Purpose will join National Park Service (NPS) in Biscayne National Park, Florida, on a mission to search for and identify the slave shipwreck Guerrero.... Read full press release on club website at:

<http://www.diveaue.org/membersinthenews.html>

Discover SCUBA Sessions:

Available at Divers. Contact: Chris Roberts for more information.

Divers Supply 950 Cobb Parkway S.

Suite 160, Marietta, GA 30060, (770) 419-1976

Reference Atlanta Underwater Explorers for discount pricing. If you give us notice, some AUE members may attend sessions with you.



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Editor's Corner

AUE Members & Subscribers:

We hope you enjoy the July 15, 2016 edition of *AUE Bubbles* newsletter. I trust you find this and future editions informative. Suggestions, comments and story ideas are welcomed.

Check out our dive and social calendar for 2016. You can find us on the web at www.diveaue.org and view the calendar page or on Facebook at

<https://www.facebook.com/groups/ATLANTAUNDERWATEREXPLORERS> also via *AUE Bubbles*, our club newsletter.

Story ideas are always welcomed. Completed story submissions must be received one week prior to the publishing date (Bi-monthly on the 15th of the month).

The next edition will be published September 15, 2016.

Please submit your story ideas and comments to my attention via email.

Dive safely,

Alex Adams,
Publisher & Editor

scuba1aja@gmail.com

www.diveaue.org