

Exposure to Cold & Immersion

Symptoms

- Numbness, pallor, blueness of extremities
- Shivering, difficulty with co-ordination
- Confusion, apathy, & weakness
- Loss of consciousness
- Weak pulse, cessation of heart beat & breathing

Treatment

- Remove diver from cold water and wet clothing
- CPR if necessary
- Re-warm in water bath at 36°C warming to 40°C in 10 mins
- Or re-warm by body heat of other divers
- Give warm drinks (Never alcohol unless homicide is intended!!)

Prevention

- Adequate insulation with wet or dry suit

Near Drowning

Features

- Shortness of breath, gasping, rapid breathing
- Pain behind breast-bone when breathing
- Blood stained or pink frothy sputum
- Blue lips & tongue, pallor, cold skin
- Unconsciousness
- Weak or absent pulse, no breathing

Treatment

- Remove from water
 - Start resuscitation ABC
 - **A**irway – clear mouth, throat
 - **B**reathing – start mouth to mouth or Oxy-viva etc. (15 breaths/min)
 - **C**irculation – start external heart massage (60 compressions/min)
 - Oxygen supply if available
- DON'T** give up – above treatment can keep patient alive for hours!!

Salt Water Aspiration Syndrome

May occur in

- Free ascent
- Buddy Breathing
- Faulty demand valves
- Poor mouth piece seals or many other causes

Features

- Within 1 to 2 hours there will be
- Shortness of breath, cough and pain behind breastbone
- Uncontrollable shivering
- Hot & cold flushes, feverishness
- Nausea, vomiting

Treatment

- Keep warm, rest, breathe pure Oxygen by mask if available
- Pain killers, anti-nausea drugs (e.g. sea sickness)
- Consult doctor to confirm diagnosis
- Condition will improve within 24 hours without treatment

Dangerous Marine Animals

Sea snakes

Features

- Symptoms may appear 20 mins to few hrs after bite
- Stiffness of limbs, muscle cramps, weakness
- Muscle paralysis ascends up limbs to body, breathing difficulty
- Panic, irrational behaviour

Treatment

- Apply compression bandage between body & bitten part of limb
- Flush wound to remove surface venom
- Local incision to promote bleeding (?value)
- Rest, reassurance
- Antivenins used only under medical supervision

Prevention

- Most sea snakes have short fangs so unlikely to penetrate wet suit

Hypoxia in Diving

Failure of Oxygen supply to the tissues

- Inadequate O₂ conc. in breathing gas
- O₂ unable to reach lungs e.g. drowning
- O₂ unable to pass from lungs to blood e.g. drowning
- O₂ unable to pass from blood to tissues e.g. air embolism

Causes

Breath hold Diving

- Hyperventilation before a dive

Diving Equipment

- Exhaustion of air supply
- Equipment failure

Features

- Rapid fall – sudden loss of consciousness
- Gradual fall – poor co-ordination, sluggish, apathy, headache, blue lips & tongues, headache

Treatment

- **Airway**
- **Breath** pure O₂, mouth to mouth if necessary
- **Circulation** – restore with cardiac massage if necessary

Dangerous Marine Animals

Jelly Fish

Treatment

1. Severe systemic venomous reactions: requires life support, BP management etc. Treat as any form of Respiratory distress or failure.

2. Local reactions: Cold packs or ice stops the majority of skin pain. Apply for 5 to 10 mins. Repeat when necessary. After acute severe pain has passed, apply local anesthetic cream to further reduce discomfort. Also, check ABC (Airway, Breathing, Circulation) just in case! Use steroid cream on residual redness and wheals on following days.

3. Some of the species in Australia and the South Pacific need Acid (vinegar, urine) to ease pain.

Disorientation under Water

Common causes

A.Poor Visibility

B.Vertigo

1. Unequal stimulation of balancing organs

- Wax in 1 ear
- Outer ear infection
- Ruptured ear drum
- Middle ear barotraumas
- Decompression sickness

2. Unequal sensitivity of balancing organs

- Cold water
- Ear barotraumas

Try to re-orientate by

- Visualising bottom or surface
- Rising bubbles (seen or felt)
- Knife or weight belt hang downwards
- Position of life line
- Variation in ease of breathing when head-up or head-down
- Body at rest tends to float head-up (heavy fins, buoyant chest)

DCI : DECOMPRESSION SICKNESS (DCS)

Symptoms of DCS

- Unusual fatigue
- Skin itch
- Pain in joints and / or muscles of the arms, legs or torso
- Dizziness, vertigo, ringing in the ears
- Numbness, tingling and paralysis
- Shortness of breath

Signs of DCS

- Skin may show a blotchy rash
- Paralysis, muscle weakness
- Difficulty urinating
- Confusion, personality changes, bizarre behavior
- Amnesia, tremors
- Staggering
- Coughing up bloody, frothy sputum
- Collapse or unconsciousness

DCI : ARTERIAL GAS EMBOLISM (AGE)

Symptoms of AGE

- Dizziness
- Visual blurring
- Areas of decreased sensation
- Chest pain
- Disorientation

Signs of AGE

- Bloody froth from mouth or nose
- Paralysis or weakness
- Convulsions
- Unconsciousness
- Cessation of breathing
- Death

Treatment DCS / AGE (Both are forms of DCI)
REFER TO NEXT CARD

Refer to symptoms and signs to confirm either form of DCI (DCS or AGE)

DCI : DECOMPRESSION SICKNESS (DCS)

DCI : ARTERIAL GAS EMBOLISM (AGE)

Treatment

- 1) Any form of DCI must be treated immediately with Oxygen first aid**
- 2) Severe DCS and any symptom of AGE MUST be Treated with RECOMPRESSION after the initial O2 First aid, even if the patient improves after O2 administration**

DCI - INFORMATION

- DCI has 2 types : DCS (Decompression sickness)
: AGE (Arterial Gas Embolism)
- DCS is often called 'the bends'
- DCS is the result of bubbles growing in the tissues causing local damage
- AGE is the result of bubbles entering lung circulation through arteries, causing tissue damage

CAUSES – DCS / AGE

- Inadequate decompression
- Obesity
- Dehydration
- Hard exercise after surfacing
- Pulmonary disease
- Violation of dive tables

CAUSES - AGE

- Rapid, panicked or ascent without breathing



First Aid Information for Divers

