

Chapter 36

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PSYCHOLOGICAL DISORDERS

Psychological Traits of Successful Divers

This topic has not been extensively researched, but the few studies which have been done on the psychological make-up of divers have shown the following — successful divers tend not to be anxious people; they are self sufficient, intelligent and emotionally stable. Their tolerance to stress often allows them to continue to function during difficulties which would incapacitate many non-divers. This may be helped by their tendency to use "denial", a mental mechanism by which they ignore the hazards which may confront them.

In spite of their overall stability, divers, like anyone else, can suffer from psychological disturbances (see Chapter 7 for a full description of stress and panic responses).

Anxiety States

It is quite normal for divers to feel concerned with the very real hazards of diving — and this book is full of them. Some people, however, develop an excessive and inappropriate anxiety to diving hazards which may become a **phobia** — an irrational fear. This may be the result of a previous traumatic event (such as near drowning during childhood) or may be an exaggerated reaction to some diving danger. Phobias may relate to diving in general or to a specific diving hazard (such as an excessive fear of sharks) or a situation (e.g. claustrophobia with the face mask, night diving, poor visibility).

Phobias can be treated by psychological de-conditioning therapy.

Most people who are anxious about diving are aware of this early in their training and quite sensibly desist. Why continue a recreational activity which causes apprehension? Unfortunately some continue because of peer pressure, ego challenge or other personal reasons. These divers tend to have a high baseline level of anxiety (**neuroticism** or "**high trait anxiety**") when diving and are more prone to panic when confronted with real or imagined hazards.

Flora Fisk Quiz for Recreational Divers:
Question: Is recreational diving supposed to be fun? Answer: Yes
Question: Are you having fun? If "yes" — continue diving.
If "no" — **STOP DIVING.**

Some divers experience a general anxiety reaction under special circumstances. It is an aquatic manifestation of a general medical (psychological) disorder produced by sensory deprivation - called the **Blue Orb Syndrome** by high altitude aviators. It usually happens to a lone diver in deep water, where there are no visual references. The diver develops an anxious feeling of being alone in the vastness of the ocean. This can lead to mounting anxiety and panic. The panicked diver may rush to the surface, omitting decompression or develop pulmonary barotrauma from failure to exhale adequately on ascent. The symptoms usually subside if the diver can establish visual contact with concrete objects such as the sea bed, a dive boat or even another diver, or by concentrating on diving instruments, such as a watch or depth gauge.

This syndrome can be avoided by diving with a buddy who provides reassuring company and a visual reference. Avoidance of deep water where there are no visual references, is also helpful.

Panic

This frenzied and irrational behaviour is the end result of a number of diving difficulties. It is more likely to occur in anxiety prone divers and frequently results in a diving accident or fatality. It is an important topic for divers to understand and is covered in detail in Chapter 7 and Case History 7.1

Psychological Disturbances due to Medical Causes

Brain function can be disturbed by physiological factors (such as **nitrogen narcosis**, **hypothermia**) and by other diving related illnesses.

Cerebral decompression sickness and **air embolism** can cause alteration of brain function during both the acute event and recovery. A diver may act irrationally because of these diseases, and not just his basic personality. Suspect this if he is acting "out of character".

Near drowning, **hypoxia** and the **gas toxicity diseases (oxygen, carbon dioxide, carbon monoxide, etc.)** may also cause temporary or permanent brain damage.

Symptoms include confusion, irritability and irrational behaviour. This should always be borne in mind if a victim of a diving accident is unreasonably reluctant to undergo treatment. People who know the diver well will normally be the best judges of whether the behaviour is out of character.

Dementia

This is a deterioration of intellectual capacity and memory which is common in the elderly and has a variety of causes. Alzheimer's ("old timers") Disease is a severe form of dementia. Diving folklore holds that divers suffer an increased incidence of dementia. This belief has been supported by media reporting and anecdotal accounts of divers suffering from the condition. Some even believe that only "demented" persons would take up diving!

There are plausible theoretical reasons why divers could sustain brain damage sufficient to cause dementia from conditions such as repeated subclinical, or overt, cerebral **decompression sickness**, **air embolism**, **near drowning** or **carbon monoxide poisoning**, to name a few.

There are also some scientific studies which show evidence of at least transient brain damage in some divers. A study in Sweden showed 3.5% of free ascent trainees to have **EEG** ("electrical brain wave") abnormalities after free ascent training, and in another survey, EEG abnormalities were found in 43% of a group of Polish professional divers compared to 10% in a normal population.

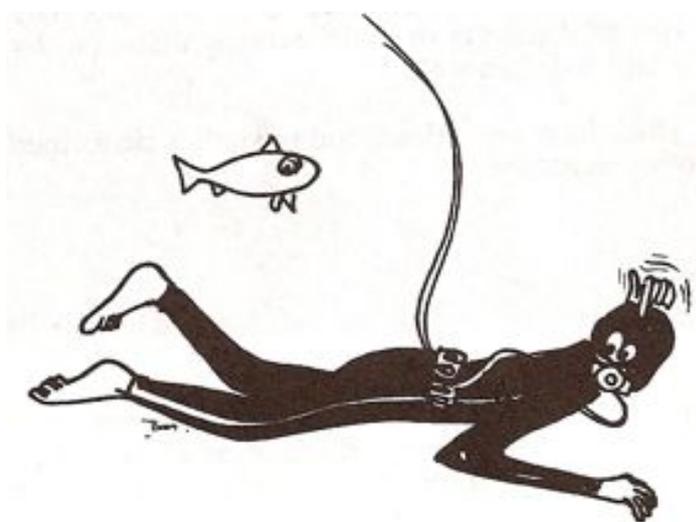


Fig. 36.1

In Australia, a group of divers, studied after treatment for **decompression sickness**, showed **neurological, psychological** and **EEG abnormalities** for some weeks after treatment, even in those who had no symptoms of neurological decompression sickness.

There have been several studies worldwide which appear to show deterioration of intellectual performance and psychological disturbances in divers suffering from neurological decompression sickness or "near miss" diving accidents. Unfortunately the methodology of these studies was grossly inadequate, making the conclusions unreliable.

To clear up some of the controversy a study of all 152 professional **abalone divers**, from a closed community, was undertaken in Australia by Edmonds and others in 1988. The divers in the study had diving exposures which would generally be regarded as extreme. On average they had been diving for 16 years and had been professional abalone divers for 12 years. They averaged 5 hours underwater per day on Hookah equipment for 105 days per year at an average depth of 15 metres

(50 ft) and admitted to being "bent" four times. Many other incidents of decompression sickness went unrecognised and untreated. Half of the divers used a dive profile which would, according to conventional dive tables, require decompression but which they omitted. Of the 69 cases of decompression sickness in this group which were actually treated, at least half were neurological.

It would seem that if there was any group of compressed air divers prone to brain injury after excessive diving exposure, it would be this one.

The divers were subjected to a wide battery of tests including **intelligence tests**, **psychometric investigations** to detect psychological abnormalities, **memory tests** and studies designed specifically to detect early dementia, **EEG studies** and **neurobehavioural tests**. The divers were compared with control groups taken from non-diving fishermen in the same localities.

The results showed the divers studied were within the normal range for the general population and displayed no evidence of brain damage or dementia. This implies that air divers, in general, have no greater risk of dementia or brain damage than non-divers. If brain damage does occur, it is either rare or so mild that it could not be detected by conventional testing.

Since the diving practices of this group were extreme, it seems reasonable to conclude that divers following more conservative practices, as well as other, more conventional, professional compressed air divers, have no greater risk of dementia or progressive brain damage than non-divers, unless they suffer a major diving accident affecting the brain (such as those mentioned above).

The signs of brain damage which have been described in studies performed soon after minor diving events are presumably temporary in nature.