Psychological reactions and scuba diving, description of a treatment

The psychological aspect of underwater activities is an important domain (2): scuba diving requires a high degree of adaptability in behaviour. From the sports psychology aspect, the practice of diving is characterized by physical performance of long duration, a medium level of effort and a necessity for the right mental equilibrium in activation, concentration and relaxation.

During open water dives, divers are faced with a variety of events, their reaction to the various circumstances therefore constitute a prevailing variable in the management of a dive.

Reactions to danger and situations of presumed threat are as important for a diver as technical skills, like knowing how to handle equipment and how to plan a dive properly.

Learning to react adequately in situations of tension or fear is considered truly indispensable, to the extent that all underwater training courses should teach how to deal with these emotional states, as hyperbaric environments do not allow divers to behave as you would on dry land (3). In fact escape, interrupting a dive and getting quickly out of the water, are all forms of behaviour, which if not thoughtfully carried out, would imperil the health of a diver and sometimes that of his or her buddies.

Learning to handle progressively higher levels of stress, whilst maintaining lucidity and control over a situation is something that comes gradually and requires patience. It should be developed just like emotional and behavioural skills, which are strictly connected to the training of scuba divers (4).

Besides, learning to recognise one's limits and recognise one's feelings (5) allows divers to avoid difficult situations when not in the best of psychological conditions. Those who are capable of detecting a temporary sensation of inefficiency, insecurity or lack of concentration can decide to avoid a dive, or to plan it appropriately to their condition (6). A profound knowledge of oneself and the habit of a healthy internal dialogue in fact seem the best conditions
to face the small and big tension that diving can have in store for us (7).

Psychologists can play an important role in the prevention of risk and in the management of behaviour affecting diving security. They can help divers solve psychological problems following traumas, including those connected to underwater accidents.

Diving and Stress factors

Stress factors are interpersonal environmental stimuli which require the organism to adapt from a bio-psycho-social point of view. The way a person reacts to an event is called adaptation; it includes cognitive strategies, emotional responses and interpersonal resources. In dives, many variables can concur to create a stressful underwater situation. These may be environmental events, equipment failures and the behaviour of other people.

But, besides these situational elements, there are other variables which we could divide between risk factors and protection factors. They condition divers' reactions, affecting the pre-existing sensation of subjective security. This is also conditioned by elements of terrestrial life which can strongly affect divers' reactions to unexpected events.
The perception of a danger causes the organism to predispose the activation of a complex reaction with various outcomes, on the mental and physical plane, managed by a set of organs and apparatuses which

include the nervous, hormones, endocrines and circulation systems, the muscle structure, sense organs, etc. The mind contributes acting as an interface between the organism and the environment, with reactions, emotions, thoughts, etc. This bio-psychic organization is generically called the Fight or Flight System.

Fear is the emotional, lived aspect of a complex reaction, with specific characteristics and changes in the mind and body, selected in millennia of evolution, which the body enacts to best tackle dangers. Automatic reactions, which are not mediated by learning and conscious reasoning, lead to being able to manage a situation, distancing the body from the apparent threat, and thus fleeing as the organism finds attack inconvenient. That helps to explain the reaction of escaping or the temptation to escape which can sometimes be felt underwater.
Therefore the problem is not that of being scared or alarmed, but of being able to consciously handle the archaic tendencies connected to this state.

Fear is triggered by activation level (arousal) i.e. the ability to mobilise at an occurrence. This indicates that certain events are interpreted as being dangerous to the organism. With training and the addition of new emotional experiences, new meaning can be added to events, and this can modify our activation level and our consequent reaction.

To feel safe is not the same thing as being effectively safe, but our behaviour depends most often on the subjective evaluation of safety and danger (8).

Many underwater accidents are linked to behaviour management in the presence of a danger (real or imaginary).

In particular, a high level of pre-existing anxiety increases the level of alarm with which the dive is tackled, making it difficult for a person to exercise rational control and reflect before acting. We can also see how other non-diving variables condition the way we behave in water. There are aspects of our terrestrial life which can affect the sensation of safety or vulnerability in diving, if these affect the general system of certainties in life (9).

A personal predisposition to manage events in an alarmed manner and to feel in danger can thus generate a background level of anxiety, which poorly disposes a person to handing a diving experience. In fact, the presence of an anxiety disorder, especially if badly compensated for, should be at least a transitory reason for not diving, and it should certainly suggest a need to empower all those mental capacities which are needed in the management of emotional and mental states, even through specific training.

In particular, some anxiety disorders are characterised by a fear of losing control, from a self-appraisal of incapacity in the presence of a threat, and the tendency to imagine one’s imminent reaction to danger, evoking and concentrating on the various bodily sensations which are normally connected to a state of arousal.

This mechanism is called **anticipatory anxiety**, and leads people to try to control their fear level, which thus increases because the person merely reevokes, amplifies and dilates their reactions over time, being frightened by what they ascertain, thus generating a pathogenic **loop**.

Secretly, many divers have experienced fear during diving, small traumas which have afterwards generated a difficult psychological situation. This is an ambivalent sensation that divers are most often ashamed of: on the one hand a person tries to avoid situations similar to the ones that had frightened them, on the other, their thoughts continue to be attracted to recollections of sensations or other fear-

generating elements.

Following problematic situations, counselling or psychological rehabilitation sessions are effective, based on cognitive-behavioural methods such as EMDR (10) (Eye Movement Desensitization and Reprocessing), a method which in the clinical case described I have adapted to a diving scenario.
Such methods are also useful in bouts of Post Traumatic Stress Disorder (11) (PTSD) or adaptation disorders. (12). These conditions can arise following unpleasant or stressing diving experiences of various nature, and are described in the Diagnostic and Statistical Manual of Mental Disorders (13) (DSM IV TR), which lists and defines disorders according to the criteria adopted by the international clinical community.

Clinical Case

The patient is a 25-year old male, whom at the time of the stressful event was working as an underwater guide, which he'd been doing for about two years.

The man came to me for a psychotherapeutic consultation after about two years of clinically significant problems, which were heavily affecting his lifestyle. The main request was help for improvement in the quality of life and health, the possibility of taking up diving again, even if just recreationally.

The symptoms first appeared at the beginning of a circa 27-metre ascent, just after leaving the seabed, far enough away from it for it to be out of sight, like the surface.

The episode was recounted to me and defined as a panic attack, with the loss of the mask. The main symptoms of the ensuing period recalled to me were a persistent impossibility to go diving, symptoms of social isolation, anxiety, a depressed mood. Symptoms of anxiety such as agoraphobia had become consolidated and increased in the year after the accident, accompanied by a reduction in social activities and working hours.

It was at that time that the man consulted a psychiatrist with whom he began a course of pharmacological treatment with Escitalopram 20 mg (14) a day, a therapy still in course a year later, at the time of the psychotherapy consultation with me.

The symptoms present at the time of my consultation were: difficulty in getting to sleep, frequent states of anxiety, preoccupation for one's state of health (forced breathing), a sense of respiratory constriction; avoidance of highly stressful and involving situations, especially when connected with evaluation and performance.

The experience of underwater panic had led to a traumatic event in a hostile environment incompatible with the behavioural reaction the patient had, and with the consequent sensation of danger the diver had exposed himself to through his own behaviour.

A first reconstruction revealed that the panic attack had led to an **anticipatory anxiety** mechanism which led the person to a progressive limitation on behaviour and habits in life. The first avoidance had involved the person's social life, strongly connected to identity (of diver and guide). This had engendered a depressive reaction, connecting giving up work and social life with feelings of defeat, shame, incapacity and secretiveness.

There was an anxiety episode with panic in **remote anamnesis** in a situation not connected to diving, with a subjective experience of "fear of not making it" and a cognitive organisation of a phobic nature (15) (characterised by periods of constraint a fear of physical inadequacy to effort).

In **recent anamnesis**, in the days immediately preceding the dive, the person had had to face a very important interpersonal conflict, a choice between a constraint on activity and the risk of bandonment.

Treatment lasted 15 sessions, and was carried out with individual cognitive-behavioural psychotherapy. After the assessment phase we proceeded with the identification of disturbing recollections and their desensitisation, through the EMDR protocol (16), an activity which took up about half of the sessions. In particular, three different recollections of images were desensitised, non-elaborated recollections of as many frightening moments of the event, which had been connected to the psycho-physical response of anxiety. These images were still vividly present at the beginning of the treatment, as a sensorial remembrance.

Other aspects of psychotherapeutic intervention involved a change in the coping style, supporting the person in facilitating the learning of more adequate tackling strategies, particularly the change from a prevention strategy to one for managing the state of anxiety once it is present. Finally, two sessions were dedicated to psycho-educational activities, to recognising physiological responses to effort and fear and recognising the relative emotional connotations.

Half-way through treatment the person was experiencing a ignificant drop in sleep-related problems until their complete disappearance. At the end of the treatment, the signs of depression relative to social withdrawal and “putting one’s self to the test” had gone.

The man reported a social form of behaviour and a great propensity for his interests and the avoidance relative to diving had disappeared, firstly with a progressive approach by the patient to people connected with diving, then by going on three dives, carried out before the end of treatment. A progressive decrease in the dosage of the drugs given by the psychiatrist was also possible, leading to its almost complete elimination.

Conclusions

The value of involving a discipline like psychology in the prevention of risk and the management of psychological stress connected to diving experiences is now widely considered apparent.

The use of tools and methods specific to the psychological profession proves useful in helping divers handle unpleasant moments and avoiding consequences which affect quality of life and well-being. Furthermore, those that have been exposed to situations that were dangerous to themselves or others, such as a serious accident underwater, can suffer biological as well as psychological consequences. But besides objective traumas, there can be strongly emotional experiences with no apparent consequences, as they do not translate into events from a medical point of view. However, these experiences, which are not usually shared by divers, can concur in generating situations of unease, which, if not individuated, can last for long causing useless damage to quality and style of life.

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