

## **Floatation Therapy Current Concepts**

Jeremy Bond, Head of the Sport Psychology Unit, A.I.S.

The Sports Psychologists at the Australian Institute for Sport (A.I.S.) have been recommending and supervising the use of floatation tanks by A.I.S. 'national' and training camp athletes for almost four years. This article describes how the tanks work, related research and experiences reported by athletes and psychologists.

In 1983 the A.I.S. Sport Psychology Unit installed its first salt water floatation tank on a trial basis. Literature emanating in the United States had indicated some potential benefits could be gained by way of stress management. The first tank was received courtesy of the 'Float to Relax' company. In 1985 a second tank was installed when the new Sports Medicine / Science complex was completed.

### **The Floatation Tank**

The float tank is essentially a fibreglass bath with a lid over it to reduce the distracting effects of light and noise. Entry is gained through a door. The tank contains 25% salt water 30cm deep, which is heated to skin temperature (approximately 34.5 degrees Celsius). The water is filtered and heated in much the same way as a spa, with the water quality checked daily for pH and chlorine levels. The tank is connected to a stereo tape and video systems (the colour video monitor is set into the tank roof immediately above the floating athlete and stereo speakers are set into the tank wall). Microphone contact is maintained between the tank and the adjacent control room. Average float times are approximately 50 minutes although this can vary considerably depending on the purpose of the session.

After showering, the athlete enters the tank and closes the door. The athlete then lies back in the water (25% salt solution makes floating very easy, even for slim people) to the pleasant sound of relaxing music. The athlete does not feel the water as it is skin temperature and other distractions are minimised by the enclosed tank. It is as though the floater is suspended in a weightless, extremely relaxing environment, devoid of the usual sensory input which constantly bombards us. Under these controlled 'sensory isolation' conditions, the athlete's body and mind relax to levels not usually achieved by other relaxation techniques (1). It is this deeply relaxed state which creates numerous possibilities for psychological skills training. After a five or ten minute 'adjustment' period, the music fades out and the athlete drifts through various stages of relaxation until an altered state of consciousness (not unlike that experienced during hypnosis or deep meditation) occurs. The athlete's heart rate slows down, blood pressure drops, breathing slows and brain wave (EEG) characteristics change from beta to alpha and then theta. It is at this time that the athlete becomes very sensitive or receptive and able to focus on specific input. Any sensory input (audio or video) appears to have much greater impact when delivered under these conditions. The tank session ends with the music phasing back in for the last few minutes.

The athlete emerges from the tank feeling refreshed and relaxed having experienced self programming designed to enhance subsequent sporting performances.

In the last decade it has become more widely accepted that it is not sufficient to train only an athlete's physical systems; methodically training the brain to reproduce the necessary high skills in the pressure of training and competition is now considered essential for the serious athlete. Now the question is not whether to engage in psychological skills training; but rather which kind of mental training should be used and which particular skills finely tuned. The floatation tank, used as an integral component of a planned sports psychology programme for individual athletes, represents a new dimension in sports training for the elite athlete.

### **Floatation: Possible Mechanisms of Action**

There are a number of explanations for floatation producing a potentially useful mind / body state.

1. The combination of energy used by the body to combat the influence of gravity is conserved in the 'weightless' tank environment. This explanation suggests that by freeing our brain and musculo-skeletal system from gravity, floating liberates larger areas of the brain, allowing it to deal with matters of the mind and enhanced awareness of internal states.

2. The minimisation of external stimuli in the tank allows the floater to more quickly enter the theta brain state (2). Theta waves are accompanied by sudden insights, creative inspiration, feelings of serenity and vivid imagery.

It is a situation where increased awareness in thoughts, images and feeling becomes possible.

3. The two hemispheres of the cortex of the brain operate in fundamentally different modes. The left hemisphere excels in detail, processing information that is 'small scale', requiring fine resolution; it operates analytically, by splitting or dissection. The right hemisphere on the other hand, is good at putting all the pieces together; it operates by pattern recognition, visually, kinaesthetically, intuitively, rapidly absorbing 'large scale' information. It has been suggested that floating increases right brain functioning allowing the athlete greater insight.

4. It is understood (3) that the human brain consists of layers incorporating the hind brain (cerebellum, pons and medulla), midbrain (tectum and tegmentum) and the forebrain (cerebral cortex, thalamus and limbic system). These layers are interconnected, and at times of peak experience, may act in 'harmony'; however communication between the various brain structures is more often interfered with by neural 'noise'. The tank provides an environment where this 'noise' is dramatically reduced; the floater experiences heightened internal awareness and decreased psychological arousal, enhancing communication and effective integration by the various levels of the brain.

5. Floating permits the increase secretion of endorphins (the body's natural opiates-substances which induce a state of wellbeing and have an analgesic effect) at the same time as it reduces the number of stress related neurochemicals such as adrenaline, norpinephrine, ACTH and cortisol (4).

This may account for the heightened sense of wellbeing commonly reported by tank users.

6. Biofeedback research has clearly demonstrated that, under certain conditions of heightened awareness it is possible to control a wide range of bodily processes, including the control of the firing of single muscle fibres. The reduced sensory environment of the floatation tank permits deep relaxation which is associated with increased sensitivity; not unlike a bio-feedback mechanism. Without external distractions the athlete is better able to focus on body systems and imaginary movement.

7. Our preferred mind/body state is one characterised by health, vigour, enthusiasm and self control/awareness. The stresses produced by the pursuit of sporting excellence often work against this state, resulting in failing adaptation (loss of motivation, sleep disturbances, changing appetite, fluctuating emotions, lack of energy, etc.) When an athlete enters the controlled environment of the tank, the constant homeostatic adjustments made to the body to counteract the disruptive affects of innumerable external stimuli cease, allowing the system to focus its energies on regeneration and restoration of a more pleasant homeostasis.

8. Perhaps less plausible or scientific is the explanation favoured by supporters of Freudian theory, which suggests that the tank recreates womb like conditions. 'Returning to the womb' has been proposed as resulting in increased feelings of security and wellbeing (5).

## **Floating at the A.I.S.**

Regardless of the explanation favoured, there is no doubt that floating in a controlled sensory environment does result in an automatic relaxation response. It is this deeply relaxed state which provides the basis for the following specialised training techniques in use at the A.I.S.

1. It has long been recognised that deep relaxation or sleep is a natural recovery mechanism. Athletes often use floating as a regenerative procedure between morning and afternoon training sessions, or after a heavy workout or major competitions. Floating appears to be an excellent way to reduce stress levels (1), to assist with the removal of waste products from the muscles and to speed up the recovery / training adaptation process.

2. During particularly heavy period, or as very important competitions approach, it is not unusual for athletes to experience any number of stress related reactions or symptoms. These may include reduced motivation, lethargy, sleep disturbances, changes in appetite (both increase and decrease), mood fluctuations, difficulty of keeping up with work, and concentration problems. These symptoms occur as the athlete's tolerance of the absorption of stress reaches a limit. Floating on a regular basis helps to reduce levels of residual stress (4), increasing tolerance for absorbing any further stress caused by the extra demands of training, plus promoting greater feelings of well being and greater efficiency.

3. The use of deep relaxation as an adjunct to injury rehabilitation programmes is currently being explored at A.I.S. A good deal of the

pain associated with intrinsic and over use injuries is a result of high levels of muscle / tendon tension. The more tense the athlete, the longer it may take for an injury to recover. Floating reduces EMG (muscle tension) and blood pressure measures and has been used by a number of athletes in a systematic way as a supplement to the medical / physiotherapy treatments offered.

4. It has long been accepted that mental rehearsal or imagery is enhanced under relaxation (9). Athletes consistently use floating as a preliminary step for rehearsal of 'perfect' performances. Reports from tank users state that specific parts of a movement are often able to be 'felt' much more clearly (in some cases for the first time) in the non-distracting and relaxing tank environment. Floating induces a deeper state of relaxation (1) and this may account for enhanced imagery reports.

5. The tanks are equipped with video monitors. The relaxation response is used as a preliminary state for video modelling of sports techniques. The increase receptiveness and sensitivity to sensory information which comes from the controlled tank environment means that video information has greater impact when compared with video viewing in other uncontrolled settings. The cybernetic (6) approach to mental programming via video feedback has gathered an impressive following amongst Australian coaches and athletes.

6. Given the altered state of consciousness (deeply relaxed and focussed) produced during floating, it is also possible to use audio taped scripts or microphone contact in a similar way to the self hypnosis

technique now commonly used in sport (7, 8). In this way the athlete is self programming with positive statements and goals to enhance performance, confidence and wellbeing.

7. Although further research is necessary, there is evidence to suggest that floatation tanks may be useful as a therapy for hypertension (4), and the sport Psychology Unit has case study evidence supporting the use of floating as an adjunct therapy in the treatment of rheumatic joint complaints. We are currently researching the effects of floating on mood state change as measured by the Profile of Mood States (9, 10).

### **The future for Floatation Tanks**

There has been an increase in the use of floatation tanks in the general community. There are now commercial float centres in most capital cities hiring out tanks on an hourly basis for the purposes of 'general stress' management. It is quite possible, given the inquiries received about our float tanks, that floating will become a feature of physiotherapy rehabilitation programmes in the near future. There is a new development in floatation tank design which is aimed at the home market, and this application may be a useful addition to the current interest in spa baths.

It is clear that there is a need for Australian research on the effects of floating directed at the general (community), medical and sporting usage. Most of the available research is from the United States and more often than not in unpublished form. The current trend towards research fellowship arrangements with the A.I.S. may provide an excellent opportunity for an Australian floatation

research effort. The sport psychologists at the AIS believe the tanks work in both a preventative and rehabilitative way and athletes and coaches support their use.

## References

- (1) Jacobs, G.D., Heilbronner, R.L. and Stanley, J.M. (1980) The Effects of Sensory Isolation on Relaxation. Unpublished paper, St. Elizabeth Hospital, Lawrence University, Appleton, Wisconsin.
- (2) Green, E.E., (1970) Voluntary Control of Internal States: Psychological and Physiological. *Journal of Transpersonal Psychology*, 2, 1-26.
- (3) Thompson, R.F., (1967) *Foundations of Physiological*, Harper & Row, New York.
- (4) Fine, T.H.L. & Turner, J.W. (1980) Environmental Stimuli Model. Unpublished paper, Medical College of Ohio.
- (5) Miller, B. (1987) Athletes Problems Float Away. *Australian Doctor*, February.
- (6) Maltz, M. (1960) *Psycho cybernetics*, Wiltshire Book Company, Hollywood, California.
- (7) Bond, J.W. (1986) Sports Hypnosis at the A.I.S. *Exel*, Vol2, No4, June.
- (8) Morgan, W.P. (1980a) Hypnosis and Sport Medicine. In: G.D. Burrows and L. Dennerstein (eds), *Handbook of Hypnosis and Psychosomatic Medicine* Elsevier/North-Holland Biomedical Press, Amsterdam, 259-376.
- (9) McNair, D.M., Lorr, M. and Droppleman, L.F. (1971) *Manual: Profile of Mood States*. Educational and Industrial testing service, San Diego, California.
- (10) Morgan, W.P. (1980b) Test of Champions. *Psychology Today*, July.

Strev, G.S. (1980) Physiological and Mood Effects of Salt Water Floatation Periods. Unpublished paper, Department of Psychology, University of Colorado, Denver, Colorado.

Suinn, R.M. (1980) Body Thinking: Psychology for Olympic Champs. In: Suinn (ed) *Psychology in Sports: Methods and Applications*, Burgess Publishing Company. Minneapolis, Minnesota. 306-351.

---

**Mr Bond is head of the Sport Psychology Unit at the Australian Institute of Sport**