

A SKYDIVER'S GUIDE TO MENTAL TRAINING

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A SKYDIVER'S GUIDE TO MENTAL TRAINING

Author resume. September 1988

Alison Quick started skydiving in 1980 and has made more than 2900 jumps. She was the APF Director of Coaching and is actively involved in both static line and AFF instruction and jump mastering, as well as coaching relative work, style and accuracy.

At the last two National Championships she has won the title of Australian Women's Champion and Accuracy Champion, and at the last National Championships also won silver medals in style and team accuracy. She represented Australia at the 1987 World Cup of Champions held in the Seoul Olympic Stadium at which she placed 6th.

Alison conducted an informal survey of all the relative work team competitors at the 1987 selection meet. The results of this survey have formed the basis of much of the information stated in this thesis about the training methods and competition approaches currently used by our top Australian competitive skydivers.

INTRODUCTION

It really doesn't take much physical fitness or strength to be a good skydiver; it does require several other things including self-motivation and self-discipline, a willingness to take on new challenges. Within skydiving there are many different sports which have one thing in common; the necessity for a parachute to get you safely to the ground afterwards. Yet apart from that we have sports which require an astonishing variety of attentional and physical skills. The basic division is between canopy sports such as accuracy or CRW, and freefall sports such as sequential relative work or style. Even within these divisions the skills required vary greatly, but one thing is true for them all: mental control is of paramount importance.

More than most other sports, skydiving requires mental skills rather than any great physical prowess. Yet mental training is an area which has been long neglected in skydiving as in many other sports. The closest that most skydivers get to mental training is their dirt dives - a good start. but really only a start.

A mental training programme for any sport involves learning to use mental skills such as goal setting, self-talk, relaxation, imagery and visualisation. Many recent studies have indicated conclusively that a structured mental training programme can improve performance. Another interesting finding is that the more a task requires "pure" skill rather than elements of power and endurance, the more likely it will be that mental practice will be useful. Sounds like the ideal thing for skydiving apart from which it's free, doesn't need a dropzone, plane, pilot or good weather, and you don't have to pack

This thesis is intended to be a guide to mental training techniques, all of which have been used extensively in other sports, with suggestions on how to use mental training in skydiving. These suggestions should be of interest to skydivers of all standards, from first jumpers onwards.

WHAT IS MENTAL TRAINING?

Mental training is the learning, practising and application of mental and psychological skills through

- short term and long term goal setting
- reframing negative thought patterns to positive thought and belief systems
- writing positive affirmations
- relaxation
- visualisation and imagery
- concentration and attentional focusing

Any skydiver can benefit from these skills, whether a student or a top international competitor.

The basic assumption of a mental training programme is that our imagination has great power; that we create our reality through the things which we think about, whether positive or negative. The idea is to focus on the positives and eliminate the negatives.

It has been suggested that through the use of mental training skydivers can change attitudes, motivate themselves, speed the learning of new skills, increase levels of performance and identify problems they may be having with a particular aspect of their skydiving. However it is only in recent years that we have had strong scientific evidence supporting these ideas.

We do not perform physical skills in isolation without mental skills. Therefore we must approach our performance from a holistic perspective, in order to integrate the mental and physical aspects of performance and achieve our full potential. Peak performances don't just happen They occur because many factors which contribute to producing that performance all came together. The only way to determine the pattern for that performance is to record all the things leading up to it; having established a pattern of preparation, you can increase the likelihood of being able to make it happen again.

As the awareness and recognition of mental training increases it becomes obvious that all training programmes should incorporate psychological principles with the same emphasis and degree as those placed on physiological and biomechanical principles. What is required for mental training to be effective is practice, development and application on a regular, systematic basis.

Mental training teaches you how to interpret what is happening to you and why, how to cope with whatever you encounter, and how to make logical decisions based on relevant cues. You need to learn these skills and strategies in order to be able to achieve consistent performance even in the most difficult conditions.

GOAL SETTING

Goal setting is the basis of any mental training programme. Good goal setting skills should be an integral part of an skydiver's psychological skill development.

Goal setting provides a structure for motivation and direction. Basically you must know where you want to go if you are to have a reasonable chance of getting there.

Goals are not something that we make judgements about; they are simply things which we choose to pursue and achieve. Whatever your goals, they must be specific to you; things which you wish to attain for your own satisfaction rather than because someone else has attained them prior to you.

Goals are sometimes the only way we can measure our progress, so it is important that our goals be measurable and specific. As you pursue your skydiving career you should begin to measure your achievements in terms of your progress rather than in terms of success or failure. If you structure your goals in a positive way, every time you do something you can achieve some goal. Goal setting is dynamic in that you can keep raising your standards with progress in performance: the effects are cumulative.

Goals need to be realistic yet challenging. The beneficial effect which goal setting has on performance can be explained by four mechanisms of motivation:

- directing action
- mobilising effort
- persisting with effort over time
- generating motivation to develop relevant alternative strategies for achieving goals.

People who set difficult or challenging goals generally outperform people who set "do your best" goals or specific easy ones. A strong dedication and commitment to optimal performance and personal improvement are probably fundamental to any serious competitive skydiver, however goal-setting can and should be used at any level, from first Jumpers all the way through to our Australian teams.

The more clearly stated and detailed the goal, the greater the motivation towards attainment. You should have a clear understanding of what you want to achieve and how you are going to go about achieving it. Goals should be formulated according to performance, not results. "Result" goals (eg. "to win") provide little or no direction for getting there, and lead to a situation where you are always attempting to reach the goal, rather than achieving and continuing to progress towards more challenging goals. Every losing effort should provide some goal success. A goal should not be to be consistent per se, but to be consistently close to your optimum performance.

Any single goal will have several other related goals and it is important to work through these. When the final result is achieved there is a feeling of something missing if all the related goals have not been acknowledged. It is difficult to feel good about achieving something if you have not identified what you are trying to achieve!

It is a good idea to establish priorities for goal attainment, and to avoid goals which conflict with each other. Writing down your goals increases their clarity and your commitment to them, as well as providing a reference for all types of goals. It helps to talk openly about your goals; making a "public" commitment increases the probability of success.

There are many factors which can make it difficult to achieve your goals, for instance lack of :

- coaching
- opportunities for high level competition
- facilities
- financial support
- practice time
- good weather

However for the most part a skydiver who is motivated to achieve a high level of performance can find ways to overcome these setbacks, and goal setting is a major factor in generating such motivation.

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MENTAL IMAGERY

i. What is mental imagery?

Mental imagery is all about using your imagination constructively.

Imagination involves recalling from your memory bits of information gathered from all kinds of experiences, then shaping them into some meaningful train of thought. There are infinite numbers of ways to imagine things and a great variety of imaginative processes.

Imagination - the making of mental images - is generally assumed to be a process of conjuring up visual images. However, the fact is that only around 25% of people are capable of making reasonably good, controllable visual images. For many people, mental images are not visual but dominated by memories of sounds, or of touch, smell, body feelings, muscular activity, emotion or even abstract concepts. So there is a lot more to mental imagery than just visualisation. It is an experience just like a sensory experience but arising in the absence of the usual external stimuli.

The line between consciously intended imagery, and imagery arising uncalled for from subconscious activity, is uncertain at best. When we engage in imagery and try to construct images intentionally, very often images from the subconscious crowd out the ones we intended. To effectively use mental images we have to learn to control our imaginative process and develop positive images of our desired performance.

What you feel is based upon what you imagine, not what you see. In other words you observe something, and your past experiences combined with the attitudes you have formed about similar situations govern your response. This response may or may not be appropriate, but it definitely isn't based on objective analysis of the here and now!

Our bodies are literal; we cannot always distinguish amongst the stored meanings whether we have just thought about doing something or whether we have actually done it. This inability of the mind/body connection to distinguish what you have thought about from what you have actually performed is one of the major reasons for the effectiveness of mental imagery.

Mental images do more than just guide behaviour, they exert a very real action of the physiology of the body. When you imagine yourself moving, the muscle groups involved in that action actually move on a subliminal level. This develops what has been termed "muscle memory" through the neural firings. Mental imagery causes an expenditure of energy due to the neural and muscular response which occurs when imagining movement.

The more vividly you imagine something the greater the effect will be.

"Numerous studies have confirmed the fact that vividly experienced imagery, imagery that is both seen and felt, can substantially affect brainwaves, blood flow, heart rate, skin temperature, gastric secretions and immune response.... in fact the total physiology." Houston (1982)

Research by the Russians has indicated that athletes in competition think in terms of images rather than words. The limitations of language are obvious; in skydiving things happen at great speed, and if you had to use language to describe what was happening you wouldn't be able to keep up or react quickly enough.

Investigations into the effectiveness of positive mental imagery have shown that imaginably rehearsing tasks which require fast "on the ball" thinking leads to significant improvements in performance, whereas for tasks requiring pure strength it is less helpful. Skydiving has a high cognitive requirement but little need for strength (with the possible exception of CRW), so it would appear to be a sport for which positive mental imagery could be extremely beneficial.

One of the first steps to improving your imagery skills is to become more aware of what is happening in your skydives. The more that you see, feel and hear, the more detailed and realistic you will be able to make your images and the more effective they will be. The skydiver who can use visual, kinaesthetic and auditory cues to speed learning and facilitate timing and co-ordination is at a decided advantage, especially as pressure increases.

It is important to recognise that the capacity to do this is a skill; therefore it needs to be learnt and practised like any other skill. Obviously there are individual differences in ability but everyone can improve their imagery skills through practice.

ii. Which type of imagery is most effective?

Mental imagery falls into two broad categories; external and internal.

External imagery is seen from outside yourself, like watching a videotape of your performance.

Internal imagery has visual and kinaesthetic components; an image of what you actually see as you perform, and the kinaesthetic image of how you feel, the "body experience."

Recently studies have attempted to assess whether one type of imagery is more effective in enhancing performance than the other.

It is hard to make firm conclusions - it appears that both internal and external imagery can enhance performance, and that their effectiveness is affected by several variables:

a)The existing skill level.

From the results of several studies it seems clear that for mental imagery to improve performance, a certain amount of skill is necessary. If you try to visualise an extremely novel task, something which you have never seen before, the effectiveness of such imaginal rehearsal will be minimal. (Corbin 1972).

b)The subject's ability to conceptualise the task.

The more you know about what you are imagining, the more specific the images will be and the more effective the practice.

c)Vividness and controllability of the image.

- Vividness - refers to the clarity of the image
- Controllability - whether the images change according to intention.

The more realistic the imagery and the stronger the sensory component, the more powerful is the message to the nervous system and the more effective the act will be in organising your nervous system to respond during a skydive.

d)The type of task being performed.

Imagery is easier to practice in those sports where the execution of the skill takes place in a similar and controlled environment. Individual sports are more conducive to imagery practice because they are less complex, that is, you have more control of the situation than in a sport where you have opponents who are out to sabotage your game!

Successful performance of closed skills demands consistency in skill execution, whereas in open skills success strongly depends on reactivity or response variability. Thus it may be that internal imagery may be more useful for imagining a closed skill, whereas external imagery should facilitate imaginative practice of an open skill.

Internal imagery results in greater subliminal muscle activity than external imagery, and it has been suggested that this may make it more effective. Research has shown (Hale 1982) that a physiological difference does exist between the two types of imagery, but doesn't prove that internal imagery is superior to external.

Internal imagery appears to be better to develop physical skill and speed motor learning. External imagery seems superior to develop better timing, and learning to adjust the imagined time to real time.

It would seem reasonable to conclude that some type of guided combination of the two styles would be the most beneficial.

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MENTAL PRACTICE

"Most athletes will admit that 80 or 90% of their performance is mental. Yet they leave it to chance; if they happen to wake up feeling terrific, they succeed, if not, they fail: mental practice allows the mind to be directed where you want it to go."

Jerry Lynch (Sports Psychologist US Olympic Team)

Mental practice falls into two broad categories:- mental rehearsal, and problem-solving:

i. Mental rehearsal.

This involves an active studying of a series of images, whereas mental imagery involves the ability to develop an image without necessarily analysing its content.

The first truly significant study related to mental practice and performance was conducted by Vandell, Perris and Chigston in 1943. They attempted to isolate the effects of mental practice in the learning of a motor skill, in this instance basketball. The control group (a) practised physically on day 1 and day 20; group (b) practised physically for 15 minutes on each of the 20 days; and group (c) practised physically on days 1 and 20 with 15 minutes of mental practice from the 2nd to the 19th day.

The results showed that :

Group (a) improved 2%
Group (b) improved 41%
Group (c) improved 43%

which indicated that significant improvements in performance were made by both physical practice and mental practice groups. Many studies have been made since then, and mental practice has been found to be statistically significant in favourably influencing motor learning tasks. Mental practice in combination with actual physical practice is in many instances as effective or almost as effective as pure physical practice.

Every sport can be broken down to parts which can be rehearsed mentally. In the final analysis, there is nothing that might occur on a skydive which cannot be mentally practised in some way which will improve your reaction and response to it when it happens during a jump.

Generally speaking, for mental rehearsal to improve performance it must be performed at the same speed as you would practice the skills you are visualising, so the ability to rehearse in real time is a critical part of top-level performance. Pressure and anxiety have a tendency to disrupt the internal clock with the result that co-ordination and timing suffer. It is also important to rehearse a large enough "chunk" of an activity so that your natural rhythm is maintained.

One of the beauties of mental rehearsal is that you can practice the perfect performance, even if it rarely happens like that in real life. Such mental practice, combined with physical practice of the relevant skills, can be more effective in improving performance than purely physical practice, with the attendant fatigue and mistakes.

To use mental rehearsal effectively you must be aware of the critical cues, then learn through mental rehearsal what you should be doing, and develop the ability to maintain this level of concentration throughout. Much of the "luck" surrounding performance can be removed when you become aware of, and able to control, what you see and feel and those things you can ignore.

One of the reasons that many athletes fail to develop good imagery skills is that rehearsal does not occur to them until they are almost ready to perform, and the same can probably be said for most skydivers. It is very hard to control concentration when physiological arousal is high, especially if you have not practised imagery. For most people, mental rehearsal works best during the weeks leading up to a specific competition. It is most effective when used at least once a day at a time when you are relaxed and undisturbed for at least 20 minutes. The rehearsal should cover the lead up, performance and wind down, including as many senses as possible. It's a bit late to start doing mental rehearsal when you're sitting in the aircraft on the way up to do the jump!

ii. Problem solving

The idea here is to develop coping strategies for anything which may not go according to plan. Have a look at all the "what ifs" and imagine yourself coping with that situation. Having worked the images up to a detailed and vivid level where you have the untoward situation totally under control, you can then forget all about it - secure in the knowledge that if that particular thing happens you will make an immediate and appropriate decision without being phased out. This is a much healthier and more positive way to approach your skydiving than continually worrying about all the things which might go wrong.

Mental imagery can be used to reduce or eliminate skill difficulties or errors. There are three different ways to do this:

1. Mentally practice the correct skill and overlearn to the point of boredom.
2. Mentally practice the error to the point of absurdity then switch to the proper execution of the skill.
3. Alternate mental practice of the error with its correction time and time again until the error is overcome by the correct response.

BELIEF SYSTEMS AND AFFIRMATIONS

"Our future success emanates totally and absolutely from our present mental attitude and self-concept."
Kay Porter & Judy Foster

Self-fulfilling prophecies are numerous in sport performances. It has been demonstrated that, as beliefs about the limits of our performance actually change, our performance actually changes. Personal excellence in any pursuit is largely a question of being convinced about our own capabilities.

Let's take a famous example from athletic history; the four minute mile. Until Roger Banister finally accomplished it, no one was sure it could be done. Once he had demonstrated that it was indeed possible, other runners began to change their beliefs and within two years more than 50 runners managed to run a mile in less than four minutes.

Several studies in sport literature reflect the important role that positive beliefs play in achieving optimal performance.

Example #1 Nelson & Furst 1972

This was a test of arm strength. Subjects were paired so that one was in fact significantly stronger, but both believed the stronger subject to be the weaker. The results revealed that the objectively weaker subject won the arm wrestling competition 83% of the time. This suggests that if someone expects to do well, he or she will perform at a higher level.

Example #2 Ness & Patterson 1979

This examined whether weightlifting was influenced by how much an individual thought they were lifting. Subjects were either unaware of the weight, or believed it to be more or less than its actual value. The results showed that subjects lifted more weight when they believed it to be less than it actually was. This showed conclusively that a subject's belief concerning his ability to lift a certain weight was an important determinant of his actual performance .

Given this evidence, it is reasonable to assume that your beliefs about your skydiving abilities will have a significant effect on your actual performance. If someone is frequently heard bemoaning the fact that they "always seem to go low" it is hardly surprising when we see them toad out yet again. Novice skydivers often go through stages both of floating and of going low, which indicates that their physical size has less significance than their attitude and beliefs about their abilities.

"Our beliefs become self-perpetuating and self-confirming. How we think and believe determines our experience by confirming our beliefs and self-concepts and creating our reality."

Kay Porter & Judy Foster

People who make comments like "my accuracy's hopeless" shouldn't expect sympathy when they frap into the hangar walls, and those who say "I can't do back-ins/10 points in time/a clean style set/ or whatever should wake up to the fact that as long as they keep thinking that way, they'll keep themselves at that same level.

As long as you hang on to your negative beliefs you'll be your own worst enemy. Our belief systems were learned, and can be unlearned. It can be difficult to be objective about self-attitudes; they become so familiar and comfortable that we don't recognise that they are counter productive, even when it is pointed out to us. We have to develop an awareness of these attitudes and beliefs; which ones are working for us, and which ones are limiting and defeating us.

"Attitudes are simply ideas charged with emotion, positive or negative, which dispose us to certain behaviours."

(Triandis 1971)

Any attitude about yourself, others or your environment is just that: an attitude - not the truth! Treat it as such. After all, however much the other person or the situation may be at fault, your most realistic objective is to change your reaction rather than change them. Bear in mind that whatever happens in the environment is there; it is entirely up to you how you choose to interpret it, positively or negatively, and how you choose to feel about it, good or bad.

The use of affirmations is a powerful tool for reframing and changing negative beliefs.

An affirmation is a positive self-statement which supports the way that you wish to view yourself and your abilities, even if it is not actually true at the time.

Affirmations are always positive, present tense and personal.

Positive:- because the idea is to change the doubt or negative belief to one which supports and enriches our performance and self-concept

Present tense:- because it is very important to think in the here and now; an affirmation that you will achieve something does not help you achieve it now

Personal:- because we have control only over ourselves and no-one else

Your self-image will tend to reflect the sum total of your experience, thoughts and emotions. Affirmations will tend to drive a wedge between your old self-image and the new positive one which you are developing. They work best when written out a number of times, and read at least daily.

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CONCENTRATION AND ATTENTIONAL FOCUS

Despite the importance of concentration and effective attentional focus in sport performance, little research has been conducted in these areas. However Robert Nideffer (1976) has provided a theoretical framework which should help skydivers better understand the role of attention in their skydiving performance.

He defines attention across two dimensions: width and direction. Width of attentional focus falls on a continuum from broad to narrow, and can be conceptualised in terms of how much information an individual must attend to within a given period of time. Direction of attention can also be viewed on a continuum and refers to whether individuals are attending to their own thoughts and feelings or to the things going on around them.

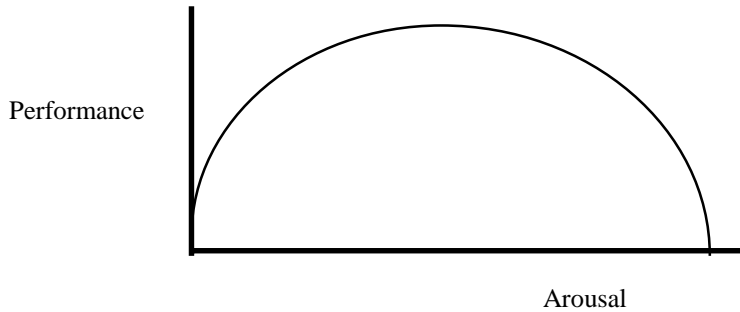
Since a skydiver's attention falls somewhere along the width and direction continuum, at any given point in time his focus of attention may be described as broad internal, broad external, narrow internal or narrow external.

The attentional focus may shift very rapidly, within fractions of a second. However most people have one attentional focus with which they feel most comfortable; their "attentional strength. In times of stress people tend to use their attentional strength, and problems arise when this is not the most appropriate attentional focus for the task they have to perform. Mistakes often occur when an individual focuses on inappropriate attentional cues in the skydiving environment.

Obviously it is important for skydivers, as all sportsmen, to know their attentional strengths and weaknesses so that they can analyse what is happening to their concentration and take positive steps to ensure that they overcome any attentional problems.

MENTAL CONTROL - AROUSAL AND RELAXATION

Studies have show that as arousal increases, performance improves up to a certain level after which it deteriorates, as shown by the following diagram:



An increase in arousal effects each person differently. We have to learn to recognise and then maintain our optimum level of arousal; mental imagery is a very useful strategy to help alter arousal levels.

It has been hypothesised that tasks predominantly requiring strength, speed and endurance need high levels of arousal for optimal performance, whereas tasks requiring fine muscle co-ordination and precision are best performed at low levels of arousal (Weinberg, Gould & Jackson 1980). Obviously skydiving falls into the second category; it is easy to see why the execution of skydiving skills can present problems to the novice skydiver, who is probably performing at a greater than optimum level of arousal due to perceived difficulties or even dangers of the sport. Heightened levels of anxiety may undermine performance by causing increased muscular tension, nausea, inappropriate attentional focus and decreased psychological flexibility. Therefore it is a good idea to incorporate relaxation techniques into a mental training programme, designed to reduce anxiety and muscular tension, and allow the skydiver to function at their optimum level of arousal.

There are many different relaxation techniques, about which many excellent books have been written so I do not propose to go into detail about them in this thesis.

The ultimate goal of any relaxation training programme is to be able to relax when required in response to any stressful situation. It requires a great deal of practice in the beginning; it is unrealistic to expect to be able to elicit the relaxation response at will after only a couple of practice sessions. However after a few months of practice and training it should be possible to switch into "relaxed mode" in a couple of seconds. (Nideffer 1981). It should be kept in mind that the indiscriminate use of these procedures does not guarantee better performance; relaxation can under-arouse if improperly applied. Hamberger & Lohn (1980) tested the hypothesis that controllability of imagery increases as a function of relaxation training. The results revealed that relaxation training reduces tension and anxiety, but does not improve imagery abilities.

It seems clear that relaxation procedures can help to reduce physiological arousal and muscular tension. Theoretically this should help you to reduce anxiety tension in stressful situations, thereby performing at your optimum level of arousal, but says nothing directly about improving your skydiving performance.

MENTAL TRAINING FOR COMPETITIONS

After competitions, the greatest percentage of excuses are generally attributed to the mental and emotional aspects of the event; yet most skydivers spend very little time incorporating these into their training routine. Using vague psychological jargon about difficulties (eg. "he couldn't handle the pressure") does not excuse one from the responsibility of doing something about coping with the situations encountered in competition. Not including coping skills and strategies constitutes a training failure in this day and age. It is unfair to continue attributing shortcomings in performance to psychological factors and not do something about it. It is a sad fact that many skydivers display a high level of performance during practice but fail to maintain that same level of skill production during competitions.

Generally speaking there is no marked change in your physiological capacity or in your skill level or biomechanical efficiency during a competition. What does change is psychological control. By developing appropriate coping skills and strategies you can prevent the fluctuations in psychological regulation, thus avoiding performance deterioration.

The objective of adequate mental preparation is to reach such a level of *deja-vu* that you do not have to be concerned about anything in competitive situations except what is happening right now and what is about to happen in the immediate future. If you know in advance that certain conditions will exist, and that those conditions will be distracting, then practice controlling the distractions through mental imagery, and through actually creating those conditions during practices wherever possible.

It is important to develop your general skydiving awareness, in order to gain insight into the possible situations which may occur - otherwise it is difficult to prepare for what might happen. Through the use of mental rehearsal procedures you can train yourself to recognise what the important cues are in competitive situations. Through learning what you should be attending to and by developing concentration, you also become more capable of recognising when you are becoming distracted and are able to break away from the distractions more quickly. This combination of attentional changes results in greater involvement in the activity and possibly in an increase in "peak performances". Furthermore, by becoming aware of what you should be experiencing you learn to recognise mistakes which otherwise would have passed unnoticed and which now can be avoided.

Skydivers should develop detailed plans of what they want to do and what they want to focus on in their particular event and make checklists of these things. For skydivers who do this, a competition then becomes a relatively simple matter of putting full effort into doing all the things on the checklist, in the right order. Competition jumps become just the same as their training jumps. They will then look forward to any opportunity to perform, whether in competition or training, because they always know what they have to do and what they want to achieve. Having their performance planned out increases confidence, because they feel that they are in control of their performance rather than being victims of the nature of the competition.

Skydivers should think about what "success" means for them; are they more successful if they win, or if they produce a personal best?

Coverage of sport in the Australian media puts the emphasis on winning - people who won against all odds, or people who didn't win when they were expected to. The implication is that winning is all that is important.

Consequently the natural tendency is to focus on your scores, your position in the placings and what people will think of you. However there is no point thinking about such things because you cannot control other people, only yourself. Rather than being concerned with results it is much more constructive to concentrate on the things you can control - the quality of your jumps. Performance planning and the use of checklists will help you to concentrate on the right thing. There is no doubt that a well structured training programme incorporating mental training techniques will help you to achieve optimum performances in competition.

BURNOUT

Burnout is a debilitating condition which happens as a response to stress over a period of time. It may manifest itself psychologically, emotionally or physically, and generally occurs in stages of severity. The first symptoms may be fatigue, frustration, irritability or a general lack of motivation, and if unchecked it may deteriorate to feelings of helplessness, lack of control, and even physical symptoms such as headaches or chronic back pain.

Burnout can affect anybody, but the people most susceptible to it are those who are extremely dedicated, high-achieving and goal orientated. Some people with these characteristics do manage to cope effectively, resisting stress and avoiding burnout, but more often these high-achievers refuse to accept the fact that they have limitations or weaknesses. They are likely to blame others, or blame circumstances beyond their control, before they will admit that their problem came from within themselves.

Burnout in skydiving usually occurs as a result of training too hard for too long with little apparent reward. It also happens when skydivers do not give themselves enough variety in the type of jumps which they do, and after competitions. There can only be one winner, and even if the losers have achieved their best ever performance the rewards for putting forth effort are unfortunately nothing like those for the achievement of winning.

Skydivers can avoid burnout by having a realistic mental training programme. It is essential to have expectations which are in line with reality; individuals must be careful not to judge themselves or their team-mates by unrealistic standards of perfection. Goals should be challenging but they should also be achievable, and it is important to create a realistic time frame by which to interpret results. Skydivers who try to achieve all that they hope within the first month or year are setting a virtually impossible task for themselves. Hard work is fine but it has to be kept in perspective. Skydivers will find that they will benefit more if they do whatever is necessary to remain enthusiastic and excited about the sport; they should not lose sight of the fact that they chose to go skydiving because they enjoy it!

When training for competitions it is important for an individual or team to provide variety in their skydiving, and to take sufficient time off. The best time to have days off is when they are still enthusiastic about jumping rather than waiting until their performance goes downhill. Burnout in skydiving seems to develop fairly rapidly, especially when people who normally jump only at weekends embark on a full time training camp.

For many skydivers who are trying to fit their training in with their work commitments, it may seem that the most practical method is to concentrate their training into a relatively short period of time immediately prior to the competition. Unfortunately such a training programme does not give them the best opportunity to achieve good results. What tends to happen is that instead of entering the competition at a level where they are likely to achieve peak performances they are usually suffering from some degree of burnout and do jumps which are not up to the standards of which they are capable.

Too many skydivers fail to ensure that they have sufficient time off; they take days off only when the weather is no good for jumping, and make the decision on the morning of that day. This means that they are unable to plan other activities in advance and their days off are always spoilt by bad weather - hardly a refreshing break! If they put more emphasis on mental training rather than doing as many jumps as humanly possible, and put more thought into a training programme which develops both psychological and physical skills they could help to keep burnout to a minimum. It is sad to see skydivers who have great talent and potential but who are not achieving the results they deserve because they are neglecting the psychological skills required to achieve peak performances in competition.

Competition skydivers are not the only ones who suffer from burnout; it can also be a serious problem for instructors. When teaching students every weekend it is easy to become burnt out; to lose energy and enthusiasm. This may lead to lack-lustre instruction and consequently a lower rate of student retention, and it has been suggested that instructor burnout may even contribute to a higher rate of student injuries. This area in particular is one on which it would be well worth doing further studies.

For skydivers who are suffering from burnout, the immediate solution is to check their long-term goals and re-establish their direction. They must increase their self-awareness and be honest about what is important to them. It is also essential that they accept that they are solely responsible for their own actions and behaviours - and that other people are responsible for theirs. If they feel like having three months off they should have three months off without feeling guilty about it!

Skydivers should realise that burnout is a very normal reaction to stress; it is not a disease and cannot be cured by pills or drug treatments. Burnout is usually a product of poor approaches to competition and training; in other words a psychologically induced problem. Obviously mental training can help skydiver to deal with it and to ensure that they are not suffering from it during competitions.

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MENTAL TRAINING FOR TEAMS

"The most successful groups it seems are those whose members know each other well enough to be tolerant of their strengths and weaknesses, can communicate effectively, and have a leadership pattern appropriate to the task performance, but whose primary orientation is towards the specifics of the task rather than towards social interaction as an end in itself."

Cratty (1973)

The performance which a skydiving team achieves is basically a combination of their cohesiveness, motivation and learning. The team cannot expect to achieve their optimum performance if they neglect any of these, so it is vitally important that team members understand and develop these factors.

Team cohesiveness may be viewed as the interpersonal attractiveness of the group as a whole, the sense of belonging to the group, and the desire of members to remain in the group. It is a feeling of unity or "team spirit", and is not something which can be imposed; it comes from self-discipline, trust, understanding, caring, and freedom of expression. Having a wealth of individual talent does not guarantee that a team will do good skydives; their success depends on how well they can interweave those talents. Often a very cohesive team with less ability and experience may be able to channel the total group effort in the most productive manner, and out-skydive another team with members who are technically superior but who do not work so well together.

Cohesiveness is also affected by previous success or failure. Failure often causes dissension within a team because certain individuals may blame others. Obviously the quality and quantity of communication within the team is very important in such an instance, and also the ability to view a situation from another angle - after all "failure" is merely an interpretation of a certain situation. The skydives which may initially appear to be failures may in fact be very valuable, as they provide worthwhile lessons which, if learnt from, will prevent a repeat of that mistake in the future. For team members to learn the maximum amount from a jump they should develop an objective approach which allows them to analyse their mistakes, learn from them and then let go of them. No matter how much of a disaster a skydive may have been, every team member should be able to find a couple of things which he did well. It is far more productive to concentrate on the positive aspects of a skydive than to dwell on the mistakes.

For a team to stay together and make progress they must be positively motivated, which requires good goal-setting skills. It is very important to consider the goals of individuals as well as the goals of the team. Goals

should be clearly defined for all team members from the beginning. The extent to which members of a team are able to bind themselves into a cohesive unit will depend on the extent to which individual differences and goals can be integrated into team goals. The satisfaction and fulfilment which each team member feels will depend on having determined relevant goals which are compatible with team goals.

For specific team goals it is essential to have a consensus on goal attainment. Without it, team members may not be attempting to attain the same performance outcomes. An understanding of and commitment to team goals allows everyone to accept what is expected of them. Otherwise they may find themselves wondering whether what they are getting out of their skydiving is worth the time, energy and money they're putting into it.

Unfortunately many skydiving teams put a lot of work into their actual skydives but neglect the psychological side of things. A structured mental training programme can only raise the standard of a team's skydives, and when planning their training, a team should give careful consideration to psychological strategies as well as to the practicalities of their skydiving programme.

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MENTAL TRAINING FOR FEMALE SKYDIVERS

There is no question that both physiologically and psychologically there are significant differences between males and females. Female skydivers have to come to terms with these differences and develop strategies to cope with the problems which are unique to them as women in a male-dominated sport.

i. Physiological issues.

Generally speaking males have a greater proportionate muscle mass than females, so they have an inherent advantage in skills which require strength, speed and power. On the other hand females have the advantage when it comes to flexibility and suppleness.

It is difficult to make any firm conclusions regarding sex differences in reaction time and movement time. In tasks which require both speed and accuracy, or small precise movements, females tend to be more accurate and males faster. Females appear to have a slight advantage over males in reaction time to a predetermined stimulus whereas males have an advantage over females in movement time as long as a certain amount of strength or power is involved. However there seems to be no sex difference in movement time in tasks which do not require excessive amounts of speed and power. (Ikai 1966, Fulton & Hubbard 1975)

This would tend to indicate that in freefall sports, where the emphasis is on fine motor co-ordination rather than strength, males and females should be able to perform and compete on the same level. In fact freefall skydiving is one of the few sports where men do not appear to have any physiological advantages over women. If anything women have an advantage in that they are on average smaller, and therefore have less mass to move around the sky.

However with canopy sports such as CRW, a good deal of strength and endurance is required so men do have certain physiological advantages. For women to be able to perform on the same level as men in these sports they have to accept their physical limitations and get to work on building up the necessary muscles and general level of fitness.

Sex differences in motor performance cannot be explained purely in terms of biological differences. The impact of biological differences may be significantly affected by social, environmental and psychological differences.

ii. psychological issues.

Women tend to think differently from men, and have different priorities. If women are to achieve optimum performance, especially in competition, there are various psychological issues which they have to face. They must learn to:

- deal with society's stereotyping and attitude towards women in a sport which is generally perceived as dangerous and "macho"
- stop worrying about what other people think of them and their performance
- accept that they can be self-confident and assertive without losing their femininity
- feel OK about beating their friends in competition
- cope with a many negative comments from some male skydivers
- deal with sexual harassment

Obviously all women are individuals and will be affected by these issues to a greater or lesser degree, but generally speaking most female skydivers are aware of some or all of these problems and may have developed strategies to deal with them. Unfortunately many women in skydiving do not develop adequate coping strategies and either leave the sport or accept for themselves a standard of performance which is much lower than that of which they are capable.

For some reason society seems to try to "protect" women from themselves or from physical injury in sports. Only in 1984 was the first women's Olympic marathon held amid much controversy and resistance. It is hardly surprising that women receive little support from their peers when they become involved in a sport with a high perceived danger such as skydiving, and small wonder that so many women doubt themselves and their abilities.

However not only do women receive little support from their peers when they take up skydiving, but they also have to deal with sexism and negativity within the sport. Most female skydivers will be able to relate to the following scenario, which unfortunately is fairly typical of the things which Australian women have to face in their first few hundred jumps.

During their student training they may have had to cope with sexual harassment from their male instructors. Once they have their "A" licence they have less trouble than the average male novice of finding people to jump with - for the next 50 to 100 jumps the males are often fairly keen and helpful, not so much because of a desire to help the female progress in her relative work but more because of an interest in helping her progress with her sex life. After these early stages the female runs into problems; the guys around the DZ have either already got what they were after or decided that they're not going to be able to, so they lose interest in jumping with her and she's on her own. The next few hundred jumps are probably harder for women than for men - generally speaking most men prefer to jump with men rather than women, and the novice female may receive a certain amount of unjustified criticism and negativity from some people. Women have to develop coping strategies to deal with sexism or it is easy to become demoralised and lose self-confidence. Obviously mental training techniques can be of great value to female skydivers; it is far easier and more effective to change attitudes than to change situations. No matter how much the situation or the other person may be at fault, it is up to the woman to decide how she feels about it and whether she chooses to let it affect her positively or negatively.

To cope with the other issues facing women in skydiving, such as competitiveness and allocation of priorities, women must get in touch with their inner selves and decide what they want, rather than trying to live their lives according to what their boyfriend/parents/employers want! A structured mental training programme will be of immense benefit to all women skydivers, helping them to keep in touch with what they are doing and why.

Mental training is just as valuable to skydivers during their initial student training as at any other stage, in fact students who develop good mental training skills are bound to progress more rapidly. Even if they have setbacks in their training, goal-setting will help them to keep motivated.

Students generally think of the dangers of skydiving as being much greater than do experienced jumpers, and because of these perceived dangers they are usually functioning at a higher than optimum level of arousal. Mental training can help them to recognise and control their arousal level so that they can concentrate much more effectively on their jumps.

The value of mental imagery for student skydivers should not be underestimated. If they haven't got a clear mental picture of what they are meant to be doing, they haven't got much of a chance of getting out there and doing it! Video is an excellent training aid in this regard, but the emphasis must be on good videos of the jump as it is meant to happen.

Instructors should take the time to brief students on their next jump well in advance, so that they have plenty of time for mental practice before the actual jump. It is essential not to rush - rather than hurrying to get on the last load of the weekend and doing a less than satisfactory jump it is far more valuable to practise a perfect jump mentally during the following week, in which case the chances of doing it perfectly the next weekend will be greatly increased.

It is very important for students to develop self-confidence and a positive attitude to their skydiving. If they have any doubts about their ability to perform a particular task they should seek further instruction and explanation before they attempt it. Before doing any jump students should have a complete understanding of what is required and firm belief in their ability to do it.

Students sometimes have to cope with excess negativity. It is easy for an instructor to spend much more time telling students about all the things they did wrong, than praising them for the things they did right! consequently the "problem students" who most need positive reinforcement often receive the least of it, hence perpetuating their problems. Students should not allow themselves to be disheartened by this, and it will help immensely if they have a good grasp of mental training principles.

Generally speaking if student skydivers make the effort to acquire the psychological skills used in mental training they will make much faster progress in the sport, and have even more fun!

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CONCLUSIONS

In this skydiver's guide to mental training I have examined mental training as used in other sports, and suggested ways in which we can use these techniques in skydiving. There can be no doubt that a well-structured mental training programme, when combined with quality skydives, will produce faster skill acquisition and a higher performance level than either alone.

The mental training techniques described in this thesis, when used on a regular, systematic basis can help skydivers to:

- speed learning
- improve techniques
- direct development towards worthwhile goals
- maintain motivation
- improve concentration

- achieve emotional control
- increase self-awareness
- improve self-confidence
- develop self-discipline
- control physiological arousal
- achieve peak performance in competitions
- avoid and cope with burnout

For skydivers to achieve the performances of which they are capable they should make use of the mental training techniques which have proved to be of benefit in other sports. Skydivers have a tendency to set themselves aside from other sportsmen - but in the final analyses skydiving is a sport, and like any other sportsmen, skydivers cannot expect to achieve their full potential if they do not include mental preparation in their training. There is much more to becoming a good skydiver than simply jumping out of aeroplanes!

The majority of Australian competitors feel that the greatest problems facing our teams in international competition are lack of financial support and our geographical location, which makes it difficult and expensive to gain international competition experience and also isolates us from the latest methods and techniques. Consequently mental training would appear to be of particular value to Australian skydivers as it costs nothing and can simulate competition situations without actually having to be there! When the number of training jumps is limited for instance by lack of finances, bad weather, aircraft breakdown, or injuries, a good mental training programme will really pay dividends.

So, whether you've done one jump or thousands, if you work on the techniques described in this thesis they will help you to become the skydiver you want to be. You can make things much easier for yourself. Mental training **WORKS** - if you choose to use it.

YOU ARE WHAT YOU THINK YOU ARE

If you think you are beaten, you are
If you think you dare not, you don't
If you'd like to win but think you can't
It's almost certain you won't

If you think you'll lose, you've lost
For out in the world we find
Success begins with a person's will
It's all in the state of mind

If you think you're outclassed, you are
You've got to think high to rise
You've got to be sure of yourself
Before you can ever win a prize

Life's battles don't always go
To the stronger or faster man
But sooner or later the man who wins
Is the man who thinks he can

Anon .