Sports Psychology
How Mental Training Can Improve Your Performance.

P. Mauro, 2005.
www.trainingsmartonline.com

What would you be thinking?

Imagine you have been leading the Olympic triathlon since the start of the race, only to find another athlete arriving at your shoulder 5 km from the finish. This situation could stimulate two possible lines of thought that would result in quite different outcomes in the race. Clearly, the athlete who thinks, “This year I really thought I had it. I have worked so hard and now I have blown it. I really am a loser . . .” will drop off the pace and fall back. However, there is a far greater chance of success for the athlete who thinks, “Well, here she is. The woman they call the best triathlete ever. And she has only been able to catch me with 5 km to go. I will just tuck in behind the soon to be ‘ex-number one’, let her do the work for a change, and see if I can break her later. After all, my 10 km time is as good as hers, and in a close finish I will have the crowds behind me as they always back the underdog.”

It is in situations such as this that sports psychology becomes so important. Champion athletes commonly exhibit a high degree of: motivation, commitment, positive thinking, focus, and mental toughness, among other factors (Gould, 2001).

Background

Psychology is the study of how we think and behave. Sport psychology is a science in which the principles of psychology are applied in a sport setting (Cox, 1990). Issues Sport Psychologists are interested in include, but are not limited to; what motivates an athlete, how athletes regulate their thoughts, feelings and emotions, and how they manage anxiety and arousal states in order to maximise performance (Parker, 2000). The principles involved in Sport Psychology are usually applied to enhance performance. The field embraces many concerns and concepts, such as motivation, arousal, reinforcement, psychological preparation, attitudes, attention, emotional health, and stress management (Davies, 1989). Rushall, 1995, proposed that sport psychology could assist athletes in the following ways:

a) The actual words an athlete uses in self-talk have an effect on the quality of performance,
b) It is possible to increase performance levels in elite athletes through thought processes alone,
c) Mental imagery is important for enhancing performance.

Sport Psychologists assist people by helping them to develop the skills necessary to become mentally strong, and prevent them from choking in key situations.

Motivation

Motivation is a particularly relevant issue in the field of Sport Psychology. Motivation can be defined as being aroused to action, to directed purposeful behaviour, although this may not always be either efficient or effective (Davies, 1989). Coaches often complain

that some athletes would be great if only they were motivated. The players are seen to have all of the physiological and skill components necessary for great performance, yet lack motivation, i.e. regularly show up late, do not try very hard during training etc (Parker, 2000). The study of motivation is important because it seems fairly certain that, with the exception of the small number of sporting champions, the majority of young athletes rarely reach their potential. Given the opportunity, most young athletes could do much better. This is true for all sports, and mainly arises from motivational problems. Quite often, as athlete's progress in their sports, the improvements become gradually smaller. It then becomes harder for athletes to make significant improvements, and often results in a loss of motivation (Davies, 1989). An appropriate level of motivation will not only improve physical performance, it will also assist in the learning of physical skills, which in turn, will affect the quality of performance (Parker, 2000). Motivation essentially comes in two forms: Intrinsic and Extrinsic. If an athlete is motivated to perform an activity for its own sake, they are said to be intrinsically motivated. These motives are said to be determined by the internal desire to achieve a high level of skill in sport. When an athlete performs an activity solely to obtain some external reward, they are extrinsically motivated (Parker, 2000). Intrinsic motivation is often seen as the preferred type, as it is generally associated with greater persistence and greater commitment (Davies, 1989).

To improve the level of motivation in athletes the following methods could be used:

d) Avoid using winning or performance outcomes, from competitive events as the measure of success. These are out of the direct control of the athlete, and so if a loss occurs, motivation will decrease. Instead use individual comparisons (based on fitness and skill tests) that are in the athlete's control.
e) Give Praise. All athletes need positive, honest feedback about their performances. Feelings of contribution to team success by their individual efforts, improves intrinsic motivation.
f) Vary the content, venue and sequence of training sessions. Boredom will lead to staleness and/or burnout and will result in not only a reduction in motivation, but individuals may also drop out of the sport (Parker, 2000).
g) Have the athletes fill in a self-reinforcement worksheet (Rushall, 1995). This exercise will increase the effectiveness of reinforcing self-talk, an important factor in increasing motivation.
h) Set Goals based on the S.M.A.R.T.E.R principle. Goals should be specific, measurable, affirmative, realistic, time based, evaluated, and recorded. They should also be short-term, intermediate, and long term. When athletes set realistic, achievable goals, and they are reached, a feeling of success is experienced. This will improve motivation.
i) Have athletes use Mental Imagery. Sport Psychologists regularly encourage athletes to use imagery to enhance motivation (Martin et al, 1999).

If a team was lacking in motivation, the following strategies could be employed:

a) Set Goals. Each training session have the team fill out a daily goal-setting sheet, and develop some team goals that are short-term, intermediate, and long term. The goals should be based on the S.M.A.R.T.E.R principle. By setting goals, the team will be motivated to achieve them, and even more motivated to achieve further once initial goals have been reached. It is important that the goals are under the athlete's control, and the emphasis is on achieving these goals, not on winning (Rushall, 1995).

b) Use Mental Imagery. Have the team create mental pictures of performing skills correctly. Mental Imagery combined with training, is more effective than training alone, and it will improve motivation by giving the players a sense of achievement.
c) Use Role-Modeling. Have the team watch elite performers in action, either on video or live. By watching successful performers, the players are likely to be inspired and motivated to reach a similarly high level. The opportunity to observe someone performing under pressure in a positive way will provide the team with an adaptive model to copy when they have to perform under a similar situation (Davies, 1989).
d) Use team-bonding sessions. Team get-togethers such as BBQs, survival games and other activities, create team cohesion. When a team is bonding well, performance improves (Roberts, 1986). The team will also become more motivated to achieve for the extrinsic reward of helping their teammates to a victory, or to achieve a goal. Positive Self-Talk and team songs, also serve to improve team dynamics, and also improve motivation.

In triathlon, maintaining motivation and remaining focused are essential to enjoying the sport and being a consistent competitor. Here are a few tips:

1. Know your objective. Why are you a triathlete? Do you want to lose weight or stay fit? Do you have aspirations to compete in the Olympics or become a professional triathlete? Think about what it is that you're working for and use that objective as a short or long-range reference point to focus on. Remind yourself that every training session can bring you closer to your goal.
2. Stay Tough. Some training days are just hard. You show up not wanting to do your workout and think to yourself "hmmm...I'll just go a little easier today...cut some corners". Days like this are crucial. These are the days that separate the champions from the mediocre athletes. Endurance athletes have to be able to push themselves. Be strong and give your training session your best effort. After the session you'll feel a sense of accomplishment and that feeling will carry over to motivate you for future training sessions.
3. Consistency. Many athletes are great at maintaining motivation for short bursts of time (a few weeks, a few months) but the triathlete must understand that improvements are a result of a consistent effort over a long period of time. Set some long-term goals. Where would you like to be 1 year or 3 years from now? Keeping focused on long-term goals will help you to remain consistent and not overemphasize training sessions or drive you to burnout. No one becomes his or her best overnight. It takes many years of correct practice.
4. Enjoy. Remain passionate about the sport. Make sure you plan some days that are light enough to allow you to get out and spin or run at a pace slow enough to enjoy nature and clear your mind. Days like this can revitalize your spirit and help you rekindle your love for the triathlon.

Attentional Control Training (A.C.T)

Attention is the term used to describe the process whereby an individual uses his or her senses to perceive the external environment (Roberts, 1986). In sport, attention and concentration are important, as a wandering mind can create mental lapses and cause mental errors during a performance (Parker, 2000). It is important to focus on only the relevant cues, and to eliminate distractions. To do this effectively, however, requires some form of Attentional Control Training (ACT). An example of how A.C.T could be used in a sport setting is outlined below:

Slow to React at the Start of a Sprint Triathlon: This athlete needs to eliminate any distractions in order to focus solely on the sound of the gun. If crowd noise, other competitors, or other factors distract this athlete, then it is likely that he/she will miss the start. In order to stay focused, the athlete needs to develop a verbal, visual, and physical cue. This could be 'power' as a verbal cue, the ground immediately in front of them as a visual cue, and 'relaxing shoulders' as a physical cue. By focusing attention on these cues, the athlete will not be distracted by irrelevant cues. The athlete may also be lacking in motivation, and so may benefit from using music as a means of increasing motivation. If the athlete is not aroused enough, or is not in their ideal performance state (IPS) prior to competition, this may also result in a slow start. In this case, the athlete may benefit from listening to certain types of music to psyche them up. The athlete should also engage in positive self-talk, such as "I am going to have a great start" or "I always start well in training", as their performance may suffer if they are dwelling on their mistakes. Each time a negative thought comes in to the athlete's head, the thought stopping technique should be used, where the athlete says STOP and immediately thinks of something positive. Imagery should also be used, where the athlete regularly visualises performing a fast start.

Mental Imagery and Visualisation

Mental Imagery is a technique in which the athlete employs as many senses as possible (sight, sound, taste, feel, smell), to recreate a sporting experience in their mind (Castella, 1996). Imagery is often regarded as preferable to visualisation, which implies a restriction to the sense of vision (Parker, 2000). Mental Imagery helps reinforce a good competition strategy, and reinforces the nerve pathways that will be used during training and competition (Castella, 1996).

Mental Imagery can aid performance by enhancing the learning and execution of physical skills. This would be useful if an individual or team is not very skilled. The use of word triggers is an important component of imagery. Golfers, for example, may use the word "ooooooom-PAH", to program the image of a slow back swing, and a vigorous downswing. Imagery can also be used to aid beginners in learning skills by helping to develop the appropriate mental blueprint of the skill (Parker, 2000). Imagery can also aid performance by enhancing perceptual skills. It can assist in the learning of new strategies and tactics. Soccer players can use imagery before competition to go through the options in a previously learned defensive strategy. It can also be used to solve perceptual problems such as analysing why a certain strategy is not working (Parker, 2000).

Imagery may strengthen muscle memory, for a task, by having the muscles fire in the correct sequence for a movement, without actually executing that movement (Martin et al, 1999). This would be particularly useful for beginners that have not yet developed the coordination to perform some movements. Mental Imagery can improve athletic performance without any physical activity (Castella, 1996). Mental Imagery will enhance performance if used regularly. It is seen as effective because the brain sends messages to the muscles in the body that would be used in a movement, even though the body does not actually move (Castella, 1996).

Imagery will also help a team with low confidence. If a team rarely wins a game, for example, they may be lacking confidence. Imagery can be a powerful means of developing confidence (Davies, 1989). Imagery can sometimes be more effective than actual practice, because the player/s can visualize him/herself playing in a competitive

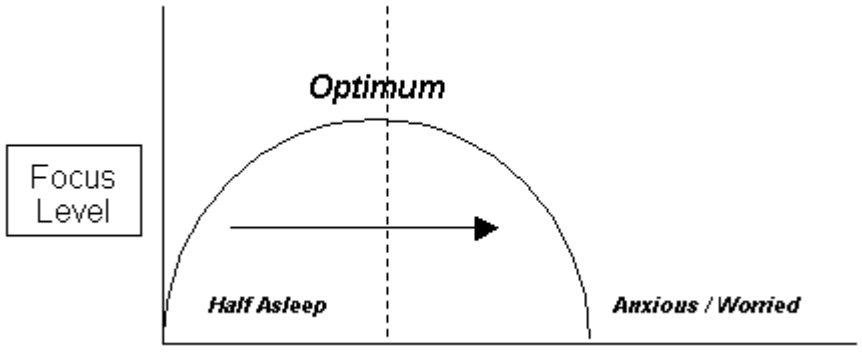
situation, and this to an extent, is more realistic and valuable (Davies, 1989). During mental rehearsal, the player imagines positive outcomes, and this creates a feeling of success, which in turn builds confidence (Davies, 1989).

Confidence

Confidence is in effect, a belief, or self-assurance in ones own abilities. It is essentially a feeling of having an expectation of success (Davies, 1989). To assist in the development of confidence, and improve self-belief, athletes can:
a) Use positive self-talk. Using positive self-talk such as “I am going to do well”, or “I have done the work”, will improve self-confidence. Athletes could also use the Self-reinforcement worksheet developed by Rushall, 1995, to aid them in the process of self-talk.
b) Use the Thought Stopping procedure. Each time a negative thought comes into the athlete’s head, he/she immediately says STOP and follows up with something positive.
c) Confidence Modeling. Watch videos of yourself or others performing something well to boost confidence.
d) Imagery. Imagine performing a skill confidently and correctly to boost confidence.

Arousal

Often as coaches, we hear people say "I'm really nervous about my race! What can I do?"
It's a good question. Too much nervous tension can adversely affect performance. Whether before an event, at the start, or during a particular segment of an event, some extra nervous tension at these times is good. It is your body's way of preparing for a difficult challenge - physical and mental. But too much nervous tension can drain valuable energy, interfere with the execution of skills, and impair your performance. There is an optimal level of arousal for performance in triathlon and other sports. It is a balance between being excited and energized for the event while also being relaxed and focused on executing your race. Sports Psychologists often demonstrate this using the inverted U-hypothesis below.



If the race you are doing is important to you and you have prepared well for it, then you will be positively energized. The key to finding optimal arousal then is to minimize or eliminate the extra negative tension that can come from different areas.

The first thing we always do when someone tells us that they are nervous is we respond with a simple question, "Why are you nervous?" Most athletes have never thought about it. Most reply, "Because I have a race," and we immediately ask them to look for a deeper answer. We ask them what about your race is making you nervous. What are you worried about? Then we give them some time to think about it. Listed below are some of the common reasons why people are nervous and practical tips to reduce, or in many cases eliminate the anxiety associated with this issue.

I am worried that I will have technical problems with my bike and it will ruin my whole race.

Worries in this area are very common among athletes. If this is something that makes you nervous, one thing that helps is to go through a very thorough check of your bike a few weeks before the race. Make sure that everything is in good working condition. Check for worn or poorly functioning parts. If something needs repair or replacing, have it done a few weeks before the race, so that you will get to do several training rides with the new parts. If you feel more comfortable with the guidance of an expert in this area, take your bike to a shop for a service or ask a trusted, knowledgeable, friend.
Additionally, some athletes like to do a check over of their bike really close to the race, like the day before. This is a check for tightness of bolts and nuts. Make sure everything is in order. Again, some athletes feel more comfortable with having an experienced mechanic check over their bike. After you have checked and know things are OK, release that worry from your mind. Know that your bike is ready to go.
The most common technical problem that can occur during a race is a flat tire. Many athletes are worried that they will get a flat tire. You can minimize your worries by taking a few precautionary steps on race day when you are setting up your transition area and making final preparations for your race. First make sure your tire tread is free of any foreign objects. Then make sure your tires are inflated to proper pressure. Also make sure that you are prepared to change a flat tire. Don't expect bad things to happen, but be prepared to flow with them when they do. Make sure you have with you all that you need and make sure you have practiced changing a flat on the wheels you are racing with.

I am worried that I will make mistakes in the transitions.

There are 2 keys to alleviating this worry. The first is practice, and with increasing practice, you will not only decrease your worry, but also increase the efficiency of your transitions. Practice of transitions can take on many forms.
One thing you can do is devote specific training sessions simply to transitions. For example, go to a local lake and set up a transition area just as you would at a race. After a good warm-up, do a short swim (4-5 minutes) in the exact equipment you will be using at the race (race clothes, wetsuit, cap, goggles, etc.), then come back and complete your transition as you would like to in your race, and ride for 4-5 minutes. Return to your transition area; complete a bike to run transition just as you would in a race.
Complete 3-5 of these transitions. One thing you should do is increase the intensity of the swims with each repetition. This is not for training effect but for more specific practice of transitions. It is more difficult to take a wetsuit off or buckle a helmet strap when you’re moving at race pace.

Some athletes also use a cue word or words that they repeat to themselves if they find they are becoming too tense. Words like "Relax", "Smooth", "Nice and Easy" all work well.

Carbohydrate Can Help Prevent Mental Fatigue

Taking in carbohydrate during exercise may have a profound effect on mental fatigue. Scientists have known for years that ingested carbohydrate keeps muscles perking along at a high level during triathlons, extended bike rides, marathons and multi-game squash or tennis matches, but they're just beginning to realise that carbohydrate may also have a profound effect on brain cells. It happens this way: carbohydrate feedings during exercise reduce the amount of fat circulating in the blood. As a result, less tryptophan is freed from its tenuous marriage with blood albumin, and so a lower amount of tryptophan enters the brain. Your nerve cells can't chill out on serotonin.
According to Mark Davis (1994, University of South Carolina), the realisation that carbohydrate delays central (mental) fatigue leads automatically to the following practical recommendations:
1. Don't fast before workouts or competitions. Fasting raises blood-fat levels, an effect that lets tryptophan do its dirty brainwork.
2. Avoid fatty foods during the 12-hour period before training sessions or competitions (fat laden foods increase your blood-fat concentrations and launch a cascade of tryptophan towards your brain).
3. In order to reduce blood-fat levels, eat a carbohydrate meal two to four hours before workouts or competitions.
4. Take in three to four swallows or more of sports drink every 10 minutes or so during extended exercise to delay the onset of mental fatigue - and improve your performance.

Associative and Dissociative Strategies

In short, when running, you either think about everything but what you are doing i.e. your favourite TV show (dissociation) or concentrate purely on the activity and how your body feels as you run i.e. relaxed shoulders (association). In general, it is believed that competitive runners do best if they associate during races. However, it also appears that novice runners do best if they dissociate. As soon as they start associating—thinking about their running and how their bodies are hurting—they are less likely to continue exercising. Running in pleasant and varied surroundings, rather than on monotonous roads and tracks, helps the dissociation process.
Dissociation is generally easiest when the athlete is running at relatively low exercise intensities. But as the exercise intensity increases or fatigue develops, the mind starts associating naturally, especially when the run is either so hard or so long that pain intrudes. By running either faster or slower, novice runners will soon learn how to switch naturally between associative and dissociative mental states.

Appendix

Developing a Daily Goal Setting Sheet

The daily goal-setting sheet can be used to give athletes direction in each training session, and is useful in motivating athletes. Apart from the obvious aspects, such as name and date, the information which is provided by the sheet can be best utilised by an athlete if it is filled out immediately before and after each training session, and sometimes during a training session. This is important, as the information needs to be recorded before it is forgotten. It is also useful in comparing training sessions, to see if any improvements were made on previous sessions. Each section of the sheet can be best utilised in the following way:

Nature of Session: This should detail the exact reasons for completing the session, in regards to why it is important, what will be done during it, and the importance of the session in relation to the overall program.

Goal 1: This goal should include a physical, technical, and tactical component. These process goals will give direction to the training session. In running, the physical component may be to work on speed endurance, the technical component may be to keep hips high and swing arms strongly, and the tactical component may be to work the back straight.

Goal 2: This goal should be mental. It may be as simple as remain positive.

What are you going to do to prepare for the session? This section should include the preparation that will take place in order for the session to be successful. It could be to have a quality warm up, for example.

Rating: This section allows the athlete to rate/evaluate their performance in certain aspects of the session, so that future improvements can be made.
The top right hand corner of the page also includes a **NOTE** section, which should take into account this rating scale, and give the athlete a clear idea of what they are performing well in, and what they need to improve.

Comments: This section allows the athlete to add any important information that may be of use to them.

DAILY GOAL SETTING SHEET

NAME:

DATE:

NATURE OF SESSION:

NOTE:
Things most happy with:

Things least happy with:

How to improve session next time:

GOAL 1: Include a Physical, Technical, and Tactical factor

GOAL 2: Mental i.e. Be Positive

WHAT ARE YOU GOING TO DO TO PREPARE FOR THE SESSION?

RATING: 1=Poor, 2=OK, 3=Good, 4=Excellent

CONCENTRATION:

WILLINGNESS TO LISTEN:

CONFIDENCE:

ATTITUDE:

MOTIVATION:

COMMENTS:

Mental Skills Profile – by Joe Friel

This survey is useful for determining whether you could benefit from using mental training techniques.

Read each statement below and choose an appropriate answer from these possibilities:

1=Never 2=Rarely 3=Sometimes 4=Frequently 5=Usually 6=Always

___ 1. I believe my potential as an athlete is excellent.
___ 2. I train consistently and eagerly.
___ 3. When things don't go well in a race I stay positive.
___ 4. In hard races I can imagine myself doing well.
___ 5. Before races I remain positive and upbeat.
___ 6. I think of myself more as a success than as a failure.
___ 7. Before races I'm able to erase self-doubt.
___ 8. The morning of a race I awake enthusiastically.
___ 9. I learn something from races when I don't do well.
___10. I can see myself handling tough race situations.
___11. I'm able to race at or near my ability level.
___12. I can easily picture myself training and racing.
___13. Staying focused during long races is easy for me.
___14. I stay in tune with my exertion levels in races.
___15. I mentally rehearse skills and tactics before races.
___16. I'm good at concentrating as a race progresses.
___17. I make sacrifices to attain my goals.
___18. Before an important race I can visualize doing well.
___19. I look forward to workouts.
___20. When I visualize myself racing, it almost feels real.
___21. I think of myself as a tough competitor.
___22. In races I tune out distractions.
___23. I set high goals for myself.
___24. I like the challenge of a hard race.
___25. When the race becomes difficult I concentrate even better.
___26. In races I am mentally tough.
___27. I can relax my muscles before races.
___28. I stay positive despite late race starts, bad weather, poor officiating, etc.
___29. My confidence stays high the week after a bad race.
___30. I strive to be the best athlete I can be.

SCORING: Add up the numerical answers you gave for each of the following sets of statements.

Statement numbers			Score*
2, 8, 17, 19, 23, 30:	Total _____	Motivation	_____
1, 6, 11, 21, 26, 29:	Total _____	Confidence	_____
3, 5, 9, 24, 27, 28:	Total _____	Thought habits	_____
7, 13, 14, 16, 22, 25:	Total _____	Focus	_____

4, 10, 12, 15, 18, 20: Total _____ Visualization _____

Total	Ranking	*Score
32-36	Excellent	5
27-31	Good	4
21-26	Average	3
16-20	Fair	2
6-15	Poor	1

Inspirational/Thought-Provoking Quotes

"Winners never quit and quitters never win"

"The flowers of tomorrow are the seeds of today"

"You miss 100% of the shots you never take"

"If you do what you always did, you will get what you always got"

"Tough times don't last but tough people do"

"Focus on the process, not the outcome"

REFERENCES:

Castella, R. D. (1996). Smart Sport. RWM Publishing, Australia.

Cox, R. H. (1990). Sport Psychology: Concepts and Applications. 2nd Edition. Wm C Brown Publishers, USA.

Davies, D. (1989). Psychological Factors in Competitive Sport. The Falmer Press, London.

Davies, M. (1994). Carbohydrates, Branched-Chain Amino Acids and Endurance: The Central Fatigue Hypothesis, Gatorade Sports Science Institute Nutritional Ergogenic Aids Conference, Chicago, November 1994.

Gould, D.; Dieffenbach, K. & Moffett, A. (2001). Psychological talent and its development in Olympic champions. Unpublished final grant report, Coaching and Sport Sciences Division, U.S. Olympic Committee, Colorado Springs, Colorado.

Lecture Notes 2001. Much information was gained from this.

Martin, K. A. et al. (1999). Imagery Use In Sport. The Sport Psychologist. Vol. 13. Pp 245-268.

Parker, R. (2000). Health Moves 2. Heinemann, Australia

Roberts, G. C. (1986). Learning Experiences in Sport Psychology. Human Kinetics

Publishers, SA.

Rushall, B. S. (1995). Mental Skills Training For Sports. 2nd Edition. Sports Science Associates, San Diego.