Concentration Training For Peak Performance

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Introduction:

I would like to thank the conference organizers for giving me an opportunity to address such a distinguished audience. I must apologize at the start of this presentation for reading this paper to you. I much prefer to speak directly to my audience. Unfortunately, I don't speak Polish and what I have to say is not easy to translate. By staying closely to this paper I will help ensure that what I want to say makes sense to you. Hopefully, we will have time for questions at the end and at that time I can speak more directly to you and to your needs.

It was suggested to me, that I talk about the concentration skills training many of the athletes I work with go through in an attempt to optimize their performance at the Olympic games. That is what I am going to talk about today. I will do that by talking about concentration skills training at three different points in time:

1. Concentration skills training that begins very early in the athlete's career and continues throughout.
2. Concentration skills training that is designed to deal more specifically with the conditions the athlete is likely to encounter at the Olympic Games.
3. Crisis interventions engaged in by coaches and support staff (e.g., sport psychologists) at the Olympic Games to externally redirect the athletes focus of concentration.

The ultimate goal of concentration skills training and of crisis intervention with Olympic level athletes, is to help the individual reach that state of physical and mental preparation that leads to optimal performance. As a sport psychologist, I can't do that unless I can clearly define the conditions that are necessary for optimal performance to occur.

For you as coaches to believe in the usefulness of any concentration skills training program I might suggest, I need to be able to show you how the training process will have a direct influence on the athletes performance. It isn't enough to say an athlete needs to be more relaxed, or more confident, more intense, or more focused. To me, that's like saying to a swimmer, "you need to swim faster." Technically, a coach should be able to explain why a different hand position will lead to increased power and speed through the water. Likewise, a sport psychologist needs to be able to say why a relaxation procedure, or a procedure designed to increase emotional arousal will improve performance.

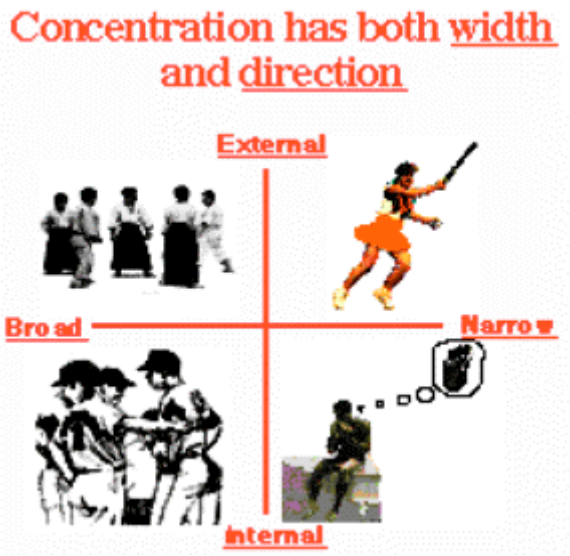
In the 100 meter final at the Olympic games a tenth of a second may separate all eight athletes. Three factors will contribute to who wins and who loses. Those are the quickness with which the athlete reacts to the start, the athlete's speed of

turn over, and the athlete's stride length. If you are a sprinter, and I am trying to use psychological techniques to optimize your performance, my intervention must have a direct effect on one of those three factors. If I tell you that you will run faster if you relax, then I should be able to convince you that relaxation will affect your start, or your stride length, or your speed of turn over, in a positive way.

For you to see how the concentration skills training that I will talk about can have a direct effect on performance, you need to understand the different kinds of concentration skills an athlete must have for optimal performance. You also need to understand the connections between an athlete's focus of concentration, his or her level of emotional arousal, and performance.

Concentration and Optimal Performance

Let me define concentration for you. Your focus of concentration is constantly shifting along two dimension. A dimension of width, and a dimension related to the direction of focus. Along the width dimension there are times when you have a very narrow focus, it's like looking through a zoom lens on a camera. A sprinter for example might focus all of his attention on the starter. There are other times when you have a very broad focus of concentration like looking through the wide angle lens of a camera. A basketball player on a fast break wants to be able to see the whole court. The direction of your focus can be either internal, attending to your own thoughts and feelings, or external, attending to events going on in the world around you. These two dimensions of concentration interact with each other creating four distinct types or styles of concentration. These are shown in the figure below.



At any point in time, an athlete's focus of concentration is in one of the four areas shown above. Athletes use a broad-external focus of concentration to assess

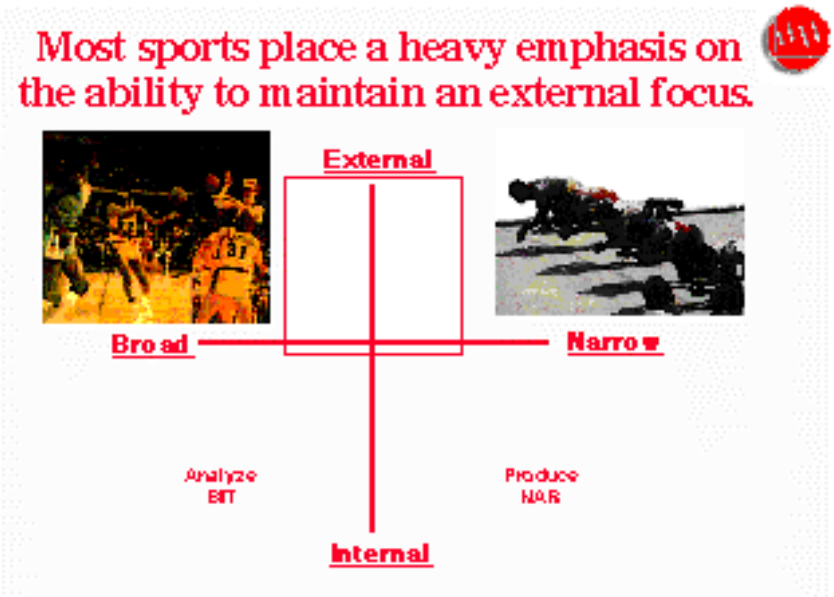
what's going on in the world around them, to make sure they are ready to react when called upon to do so. The master of the martial arts who is surrounded and about to be attacked needs a very broad-external focus of concentration.

Athletes use a broad-internal focus of concentration to problem solve, to make strategic decisions, to develop training goals and training programs, to anticipate the moves of the competition. This type of concentration requires the athlete to mentally cross time zones. To take immediate information and use that to recall information from the past which is then useful for predicting the future. In the figure above, the coach has reacted to external conditions which suggest that something needs to happen or his team may lose. He assesses the immediate conditions and then thinks about similar situations and about the management choices he has made in the past. He then uses that information to predict the best course of action and make a decision.

Athletes use a narrow internal focus of concentration to organize information and to mentally rehearse or practice. The diver in the figure is mentally practicing his next dive, in a very systematic, structured way.

At the point in time a critical move needs to be made in sport, athletes are typically required to develop a very narrow-external focus. The tennis players focus becomes increasingly narrow as the ball approaches, and then immediately broadens once she executes the shot.

To be effective, athletes must be able to shift their focus of concentration in response to the changing demands of the performance situation.



At an elite or world class level, within the actual competitive environment, success in most sports depends upon the athlete's ability to reduce the need for

an internal focus, and instead, to remain focused almost exclusively on the things going on in the competitive arena. When the athlete is able to do this he or she enters "the zone." When that happens, the athlete experiences the following: 1) Time seems slowed down; 2) The athlete feels as if he or she is in complete control, knowing what's going to happen almost before it happens, and; 3) Performance seems almost effortless, and totally automatic.

Think of Your Brain as a Camera

You can understand this if you will think of your brain as a camera that can take 40 pictures a second. Under normal conditions, your camera brain takes an equal number of pictures in each of the concentration areas. Now, think of a shot on goal in soccer that takes one second to travel from the foot of the kicker to the goal. The goalie's perception of how quickly the ball gets to him, will depend upon the number of pictures the brain takes of the ball. If, under normal conditions the camera is focused internally on the goalies thoughts and feelings for half of the time, then twenty pictures will be taken of the ball. If the athlete stops all internal processing the camera brain takes 40 pictures of the ball. With twice as many pictures to look at, the ball seems to come to the athlete much more slowly. The thing for you to remember from this is that:

- The athlete's perception of the passage of time is dependent upon the direction of his focus of concentration. The more internal the focus, the faster time seems to pass. The more external the focus, the slower it passes and the more time the athlete feel's he has to react.

Emotional Intensity

Another aspect of concentration that you need to be sensitive to is the fact that the athlete's ability to shift concentration along the dimension of width, is directly related to his or her level of emotional arousal. The higher the level of emotional arousal the narrower the athlete's focus of concentration and the less capable he or she is of broadening it. Whether a high level of arousal, and a correspondingly narrow focus of concentration is good or bad, will depend upon the demands of the performance environment. If the athlete needs a broad focus of attention, and/or must make adjustments to changing conditions, then a high level of emotional arousal is likely to interfere.

What's Required For Optimal Performance?

Now, with that basic understanding of the different types of concentration and with an understanding of how concentration is related to the passage of time and how it is affected by the athlete's level of emotional arousal let me talk about the conditions necessary for optimal performance. Remember, that in most sport situations athlete's can perform at an optimal level only when they have developed their skills to the point that those skills can be executed automatically,

without any conscious direction on the part of the athlete. As long as an athlete has to mentally talk himself through a performance, or through the execution of a particular technique he can't get into the zone. The same is thing is true for the athlete who has to engage in conscious thinking to recover from a mistake or the unexpected.

In sport, power, coordination, and timing are all dependent upon the movement of the athlete's body around his or her center of mass. If we draw a vertical line through the middle of an athlete's body, and then also draw a horizontal line, where those two line's intersect is the athlete's center of mass. Think of an hitter in the sport of baseball who swings at a pitch. From the time the pitcher begins his delivery until the athlete completes his swing, there are several shifts in the distribution of the athlete's weight around his center of mass.

As the pitcher begins his wind up the athlete relaxes muscle tension in his legs and physically lowers his center of mass. As the pitcher begins to release the ball the athlete shifts most of his weight to his back foot. As he initiates his swing the weight is transferred forward and timed so that his weight is moving through his center of mass and toward his front foot as the bat makes contact with the ball. When timing is perfect, the athlete gets maximum power out of his swing. If the athlete is too eager and rushes, he has transferred his weight to his front foot before making contact with the ball. He has had to adjust his bat speed and even if he makes contact with the ball he has no power. The same thing is true if he waits too long to begin his swing. If he is late, his weight is on his back foot and all of his power has to come from the speed of his bat, with no real force behind it.

The timing which allows the athlete to transfer his weight at the right instant is dependent upon focus of concentration and the ability to visually pick up the ball on release from the pitcher. It's also about watching the ball as it approaches the

plate so that the brain can accurately judge the speed and position of the ball. Any shifts of the brain's camera to internal thoughts and/or feelings will reduce the number of pictures the hitter is able to take as the ball approaches the plate. For that reason, adjustments the hitter makes in his swing and/or the speed with which he transfers his weight around his center of mass, need to be automatic.

Each time there is a shift in the bodies movement around it's center of mass, the brain receives a new pattern of information. That pattern serves as check point for an athlete and is automatically compared to the external pattern of information the athlete is receiving. Based on previous experience the pattern either fits or it doesn't. If it fits, no conscious thought processes are required on the part of the athlete and the brain camera can stay focused on the ball. If the pattern doesn't fit, in means some adjustment has to be made in the athlete's swing. For example, assume the pattern signals that the athlete has started to swing too early. If slowing the swing requires conscious thinking on the part of the athlete his focus on the ball is diminished.

Using Mental Rehearsal to Make Performance More Automatic

From a concentration standpoint, early in an athlete's career, the first thing we want to do is help the individual develop his physical skills to the point that performance related behaviors and adjustments are automatic. Given enough time, this can probably be accomplished with actual practice and competition, assuming the athlete's body can withstand the physical challenges associated with constant performance. The development of the athlete's ability to perform automatically can be speeded up, without running the risk of over training and/or breaking down, through the process of mental rehearsal. Because the goal is to automate performance, however, how that rehearsal is engaged in is critical. Let me describe the different things you need to consider when asking an athlete to engage in mental rehearsal.

Mental Rehearsal

Learning vs. Maintaining vs. Improving

Perspective (Observer vs. Performer)

Speed of Rehearsal (slow vs. real time vs. fast)

Activity Flow (Components vs. Whole)

Content (Visual vs. Kinesthetic)

Frequency of Rehearsal

Emotional Intensity (Objective vs. Subjective)

How the athlete mentally rehearses performance should vary as a function of his or her skill level. An athlete who is learning a new skill, or making a technical change in an existing performance sequence will probably shift the perspective he takes back and forth between watching others perform the skill the correct way, and then mentally becoming the performer and executing the skill himself. The learner will also slow down the speed with which he performs to give himself time to make sure he is doing everything correctly. The learner should break the skill down into key parts, and pay special attention to transition points. Initially the transition points are the boundaries for each segment and the segments are practiced in isolation. Then as skill builds the athlete pays more attention to ensuring that the movement between each transition point is smooth. Because the ultimate goal is to automate performance, engaging in kinesthetic rehearsal, actually using the muscle groups while rehearsing is very important. I encourage athletes to be as active and physical as the situation will allow. If they can stand up and move around great. If they are rehearsing when others want them to be doing something else (and most great athletes are), then the movements must be very small and not obvious to others. This brings up the issue of frequency of rehearsal. Great athletes don't keep track of how much time they spend rehearsing because they do it all the time.

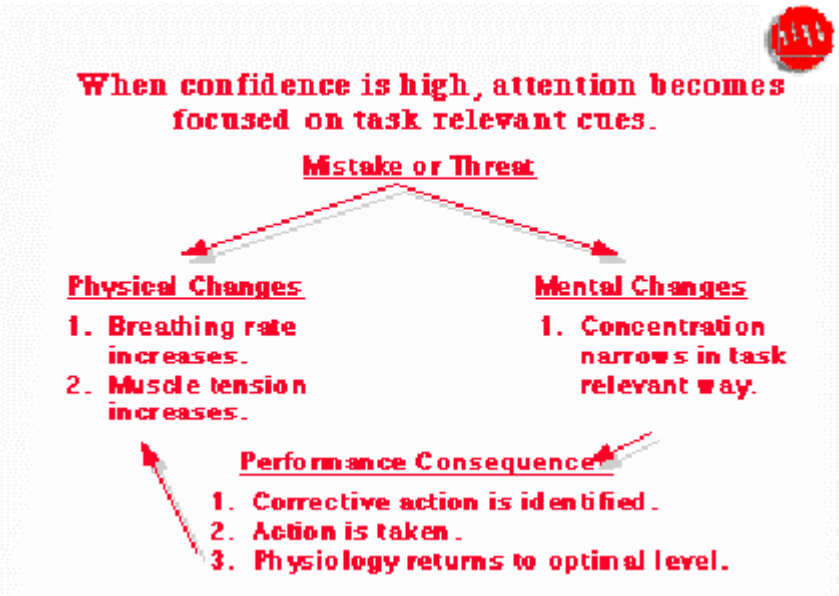
The goal for an athlete is to reach the point where he is kinesthetically rehearsing entire performance sequence, in real time, from a performance perspective (e.g., from inside his own body).

Controlling Distractions

Once the athlete is capable of performing and of making adjustments without having to consciously think about it, we are ready to begin work on learning to control distractions or those thoughts and feelings that interfere with performance in the actual competition. As you will see, developing the athlete's confidence in himself, in you as a coach, in his team, and in his training both mental and physical will play a very critical role.

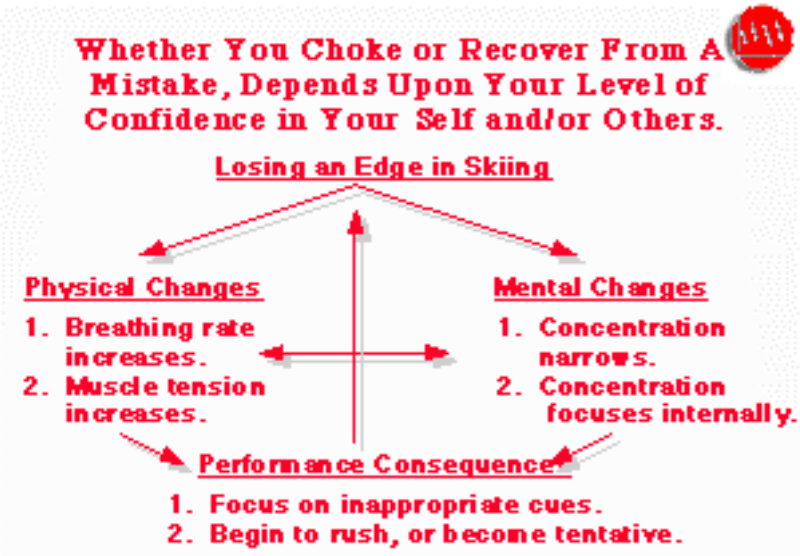
In most Olympic competitions, it is not the athlete who has the perfect performance who wins, instead it is the athlete who makes the fewest mistakes, and/or the athlete who recovers from minor problems most quickly. Because we know that mistakes will be made, and that unexpected events will take place at the Olympics, it becomes critical that our athletes have some strategies and/or techniques available to reduce the amount of time it takes for them to let go of distractions and refocus concentration to meet the competitive challenge. Let me

describe what happens to concentration, physiology, and performance in a down his ski race when an athlete loses an edge. I'll begin by talking about a very confident athlete.



The loss of an edge sends a pattern of stimuli to the brain that says something is wrong. That pattern is perceived as a threat and causes almost instantaneous changes in the skier's body. Physically, muscles tighten and breathing and heart rate accelerate. The focus of concentration narrows. Instinctively and automatically the skier begins to make changes in body position in an attempt to recover balance.

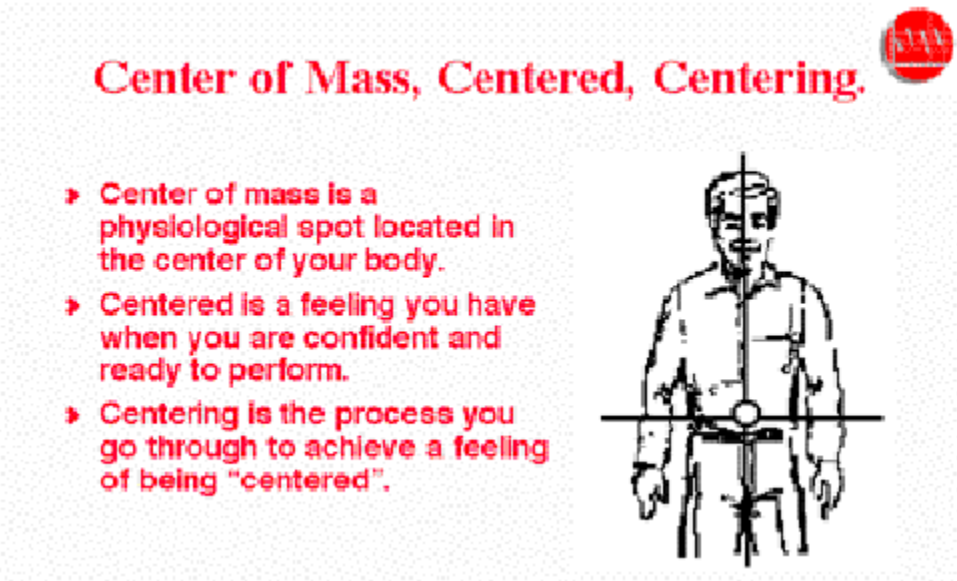
The confident skier becomes aware very early in the recovery process that he is regaining control and will not fall. His confidence allows him to let go of any thoughts and concerns and to almost immediately relax and get back over his ski's and into his racing position. For the confident skier, the loss of an edge and the adjustments that had to be made, required little in the way of conscious internal processing. As a result, the skier was able to maintain an external focus. His perception of time wasn't speeded up that much and he didn't lose any awareness of the course. Time lost was minimal.



When an athlete lacks confidence the recovery processes is slowed and this can have a very dramatic effect on performance. The longer muscles remain tense, the longer it takes the athlete to get back into his racing position, and the less sensitivity and feel for the snow under his skies. The skier loses time, and without flexibility in his legs the likelihood of a fall increases. Focus of concentration remains narrow and the skier fails to see far enough down the hill to anticipate and set up properly for turns. If he falls, the anxiety and concern that contributed to his problem increases as does the likelihood of similar problems should he lose an edge in the future.

Centering

To help the athlete recover more quickly we teach them to use a simple breathing technique to help them regain control over both the physiological changes that have occurred and their focus of concentration.



Athletes are taught to use the length of time it takes to exhale, to consciously attend to their level of muscle tension, especially in their shoulders and lower body, and to quickly adjust those tension levels and their body position relative to their center of mass, so that they feel "centered." That occurs when the pattern of stimulation the brain is getting from the athlete's position signals everything is okay. That momentary conscious internal monitoring of feelings shouldn't take more than a second of the athletes time. In that second, however, the athlete has let go of distractions and has completed his recover. The skier is back in position, over his skis, feeling the snow, and looking down the course.

We know from experience that there will be a great many potential distractions at the Olympic games. If the athlete isn't totally confident, and most of them are not, then these distractions can become the difference between winning and losing. As part of our preparation we want to minimize possible distractions, by anticipating as many as possible and becoming adjust to those. For example, we do as much as we can to prepare the athlete for the conditions he will encounter in the holding area, when he first sees the crowd, as he waits for the start of the race. We try and create simulation experiences for the athlete these may range from actual competition in the Olympic setting, to visualization and mental rehearsal. We encourage the athlete to try and feel the emotions and to rehearse using the centering procedures to block out distractions, negative thoughts, or doubts, and to refocus on preparation and/or the competition. I may talk an athlete through a situation, asking them to rehearse as I talk. "You just false started in 100 meter semi-final. Walking back to the blocks you find yourself worrying about being disqualified. As that thought enters your mind it reminds you to take a deep breath and to center yourself as you exhale. On the exhale you make adjustments in your body position and as soon as you feel comfortable focus your attention on the starter.

The centering process gets used by athletes at many different times. It may be used routinely, to control distractions a second or two before the start of a competition. It may be used in the warm up to recover from doubts or concerns and to refocus on preparation. It may be used during the competition to facilitate recovery.

The thing to remember about the centering process is that by consciously attending to the process of adjusting one's body position relative to it's center of mass the athlete is accomplishing two things. First, by becoming centered he eliminates any internal distractions associated with physical feelings of discomfort. Second, by consciously attending to the centering process he is effectively blocking out negative thoughts or mental distractions. Thus, at the end of the centering process he has enough control to refocus concentration on the task, and to get back into the zone, maintaining an external focus and reacting automatically to the competitive situation.

There are a number of details about the centering technique that I don't have time to go into here. I have given a couple of copies of materials that go into these details to the conference organizers.

Crisis Intervention at The Olympic Games

In a perfect world, if everything goes as planned athletes arrive at the Olympic Games prepared and they perform up to their potential. Too often, however, that isn't the case. Between an athletes selection to the team and the games themselves a lot can happen to reduce the athlete's confidence and his or her ability to voluntarily control emotions and focus of concentration.

An athlete gets a minor injury or becomes ill and misses some training. At a pre-Olympic competition a competitor performs better than the athlete expected. The athlete's own training isn't going as planned. The athlete arrives and in spite of attempts to prepare emotionally for the intense attention and the challenges presented by the games and village life, the athlete isn't prepared. A multi-event athlete performs more poorly than anticipated in one of his strong events.

Attempts on the part of the athlete to control negative thinking don't work. When the athlete tries to mentally rehearse he gets distracted and/or can't focus long enough to complete the rehearsal processes. As panic sets in, the athlete tightens up physically and mentally. Focus of concentration narrows and becomes more and more internal. The athlete pays attention to physical symptoms associated with anxiety and that only increases feelings of worry and doubt which in turn add to the feelings. The athlete is unable to get himself out of that negative cycle. The longer those symptoms last, the more likely the athlete is to make the mistake of over-training and becoming injured in an attempt to cope, or the more likely he is to loss valuable energy through a lack of sleep and a constantly high level of anxiety.

On these occasions, physiology and focus of concentration have changed enough that the athlete cannot voluntarily change what is going on. Something has to happen in the environment that captures the athlete's attention and refocuses it on neutral or task relevant cues. This is the area where the athlete's confidence in the coach and in support staff becomes critical. This is the area where magic takes place.

The athlete's anxiety and very narrow focus of concentration makes him more susceptible to suggestion but it takes a fairly strong and consistent external stimulus to break through and keep concentration focused in a way that will allow the athlete's level of anxiety and physiological arousal to decrease to manageable levels. What technique will work depends on the athlete and on the extent to which he or she trusts what you do and/or say. I have seen coaches use massage very effectively to settle the athlete down, but the massage has to be very firm, almost painful, and shouldn't be too close to the actual competition. I have used hypnosis and guided imagery. Getting the athlete involved in a physical activity that requires an external focus of concentration will help. Make sure it's one that won't lead to injury, and/or interfere with the athlete's performance. At times powerful movies and/or inspirational speeches can get through.

- Remember your goal is simple it's to get the athlete to focus concentration on something external and to keep that focus long enough to settle down.

In closing, I hope that you find this information helpful. As I mentioned, I have provided some additional materials dealing with concentration skills training to the conference organizers. Now, if you have any questions I will be happy to try and answer them.

This article is courtesy of Robert Nideffer, Ph.D. founder of Enhanced Performance Systems in San Diego, Ca. Website: http://www.enhanced-performance.com.