

A.C.T.: ATTENTION CONTROL TRAINING

Robert M. Nideffer, Ph.D.

The ability to control thought processes, to concentrate on a task (e.g., to "keep your eye on the ball") is almost universally recognized as the most important key to effective performance in sport. Mental control is typically viewed as the deciding factor in competition in both individual and team sports.

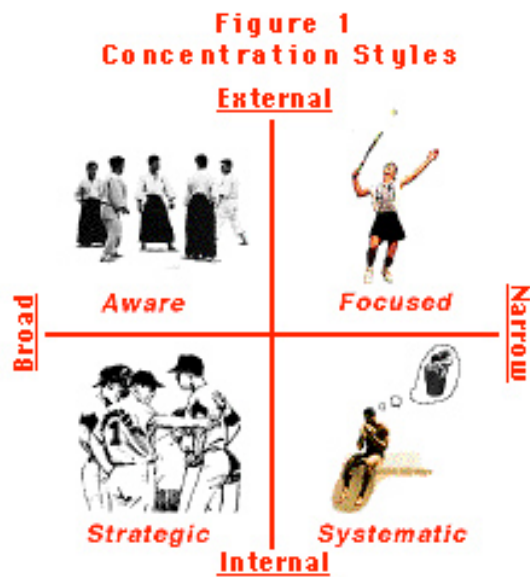
Over the past fifteen years several investigators have developed mental skills training programs. The importance of concentration skills is evidenced by the fact that virtually all of these programs incorporate some form of concentration skills training (Botterill, 1990; Dansereau, 1978; Gordon, 1990; Gould, Petlichkoff, Hodge, & Simons; Mahoney, 1979; Singer, 1988; Smith, 1980; Straub, 1989; Suinn, 1987; Weinberg, Seabourne, and Jackson, 1981; Wristberg and Anshel, 1989). Although there is a great deal of content overlap between most existing mental skills training programs, there are some important differences as well. In this paper an attempt will be made to describe the process of Attention Control Training (ACT), and to then contrast it with some of the other other programs.

Attention Control Training is more than a technique (e.g., centering). It is a complex process that theoretically based and involves: 1) assessment of attentional strengths and weaknesses; 2) assessment of the attentional demands of a given sport; 3) the assessment of situational and/or personal characteristics that are likely to affect arousal for an individual, and/or to dictate his/her behavior under pressure; 4) identification of situation specific problem areas and error patterns, and; 5) development of an intervention program (Nideffer, 1992a).

Attentional Theory Associated With ACT and the TAIS

Both ACT and the TAIS are based on the following theoretical assumptions about attention or concentration (Nideffer, 1976; 1986; 1989a):

1. At any given point in time an individual's focus of concentration (attention), will fall into one of four categories. These categories are determined by the width (broad to narrow) and direction (external or internal) of the individual's attention. Figure 1 shows the four types of concentration and describes their use.



2. Different performance situations require different attentional skills.
 - A. There are differences in terms of the extent to which any one of the four types of concentration is required.
 - B. There are differences in terms of the frequency and speed with which the individual must be able to shift from one type of concentration to another.
3. Concentration skills, like physical skills vary from person to person.
4. Attentional characteristics are at times trait like, having some predictive utility across situations. At other times they are state like, situationally determined and/or modifiable through training.
5. As arousal moves out of the "moderate range" the habit strength of the individual's more dominant attentional focus or style increases (Hull, 1951). Thus, the individual's dominant attentional style becomes more trait like, and more predictive of behavior within a given situation.
2. The individual's ability to perform effectively as their more dominant attentional style becomes more trait like depends upon two factors:
 - A. The appropriateness of their dominate attentional style.
 - B. The level of confidence he/she has within the particular performance situation (Carver & Scheier, 1989).
3. As arousal increases to the point of creating internal noise attention becomes more internally focused resulting in:

- A. Alterations in perception (time is speeded up).
- B. Interference with weight transfer, affecting timing and coordination.

Test of Attentional and Interpersonal Style

The Test of Attentional and Interpersonal Style (TAIS) is a 144 item self-report measure which requires approximately 25 minutes to complete (Nideffer, 1976). The instrument was designed to provide a behavioral measure of those attentional and interpersonal characteristics believed to be directly related to performance. As an assessment device, the TAIS is used; 1) to evaluate the theory relating attentional processes to arousal and performance; 2) to design situation specific attention control training (ACT) programs, and; 3) to evaluate the effectiveness of training. Table 1 provides a definition of the eighteen attentional and interpersonal characteristics measured by the TAIS.

TABLE 1
Test Of Attentional And Interpersonal Style Scales

Scale	Scale Description
BET	Broad External Attention: High scores indicate good environmental awareness and assessment skills ("street sense").
OET	Overloaded by External Information: High scores are associated with errors because attention is inappropriately focused on irrelevant external stimuli.
BIT	Broad-Internal Attention: High scores indicate good analytical planning skills.
OIT	Overloaded by Internal Information: High scores are associated with errors due to distractions from irrelevant internal sources (e.g., thoughts and feelings).
NAR	Narrow-Focused Attention: High scores indicate the ability to remain task oriented, to avoid distractions and to stay focused on a single job.
RED	Reduced Attention: High scores are associated with errors due to a failure to shift attention from an external focus to an internal one, or vice-versa.
INFP	Information Processing: High scores are associated with a desire for, and enjoyment of a diversity of activity.
BCON	Behavior Control: High scores are associated with an increased likelihood of either "acting out" in impulsive ways, and/or a tendency to establish one's own rules rather than strictly adhering to the rules of others.
CON	Interpersonal Control: High scores are associated with both needing to be in control in interpersonal situations, and with actually being in control.

SES	Self-Esteem: High scores are associated with feelings of self-worth and self-confidence.
P/O	Physical Orientation: High scores are associated with having been physically competitive and with the enjoyment of competitive activities.
OBS	Obsessive: This scale reflects speed of decision making, worry and anxiety. High scores are associated with increased worry and difficulty making decisions.
EXT	Extroversion: High scores indicate an enjoyment of social involvements, and a tendency to assume leadership in social situations.
INT	Introversion: High scores indicate a need for personal space and privacy.
IEX	Intellectual Expression: High scores indicate a willingness to express thoughts and ideas in front of others.
NAE	Negative Affect Expression: High scores indicate a willingness to confront issues, to set limits on others, and to express anger.
PAE	Positive Affect Expression: High scores indicate a willingness to express support and encouragement to others.
DEP	Depression: A high score is associated with situational (transient) depression.

THE PROCESS OF ATTENTION CONTROL TRAINING

Given the great deal of similarity that admittedly exists across a variety of training programs what are some of the differences? What are the variables that would cause a sport psychologist to select one approach as opposed to another? Obviously emotional factors like personal comfort, loyalty to a particular professor or theory, love of a particular psychological technique (e.g., hypnosis), play an important role. Setting aside those emotional factors in the interest of education, however, what are some of the differences between programs that may be of practical relevance to the people we work with?

Perhaps the best way for me to address the above questions is within the context of describing the process of Attention Control Training. Obviously, as the developer of a theoretical framework and a training program I am not without my bias. I too can be emotional from time to time. I will do the best that I can to avoid emotional blind spots, however, I would encourage you to be a critic. All I can do is attempt to educate, the choice and the responsibility for making a choice are yours!

Attention Control Training Formats

Individuals tend to become involved in Attention Control Training in one of two ways: 1) Some athletes are referred (or refer themselves) because of a particular problem that either they or their coach has decided is psychological in nature. 2) Often, individuals, groups, and/or teams will participate in an Attention Control Training workshop. When this happens there is rarely an identifiable

problem. Instead, participants recognize the importance of mental training and effective concentration and they are simply looking for a way to improve.

Under ideal conditions training programs are conducted over a three-day period. It takes about eighteen hours of instruction both in a classroom setting and in a training and/or competitive environment to assess the needs of the individual, educate them, and to design and implement a training program. When ever possible I request the participation of the athlete's coach so that they can be involved in the design and implementation of the program. After all, to a large extent it is the coach who must provide support and serve as a reminder to the athlete to practice and use ACT.

Notice that I have said "under ideal conditions". There are obviously times when training programs have to be shortened because of time constraints and/or when coaches cannot participate. In addition, there have been times when it has been impossible to spend time in actual training and/or competitive conditions (e.g., I worked with a Navy Parachute Team and I was unable to make observations of their performance, other than through some video's that they had made). Programs have been conducted in a single day, unfortunately to do this, the entire time is spent in a classroom setting. The implementation of the program in the actual training setting (and any modifications that need to be made) are left to the athlete and/or coach.

Assessment:

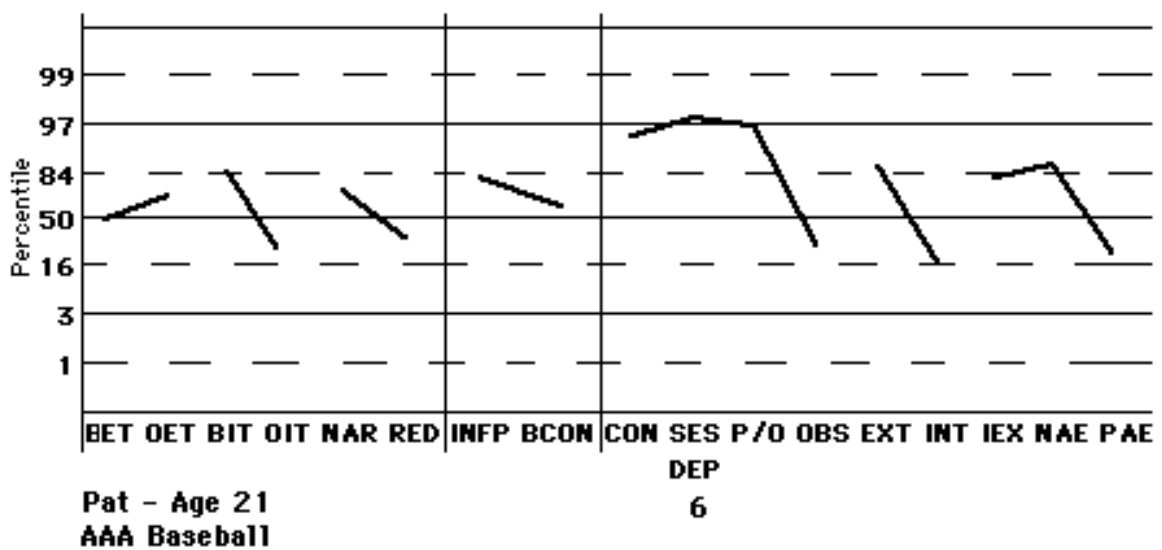
In ACT, assessment of the individual is an ongoing process. That process begins with administration of the Test of Attentional and Interpersonal Style (TAIS) whether there is a specific reason for referral or not. The TAIS is administered in advance of the training program, to both the coach and athlete. Subjects are told that the instrument measures "those attentional and interpersonal characteristics" that have been found to be important determinants of performance. Information from the TAIS will be used to help design a training program for you." At this point, no attempt is made to control the subject's response set (e.g., to ask them to respond in a sport specific way, or to give them a comparison group).

Typically, subject's do not receive a formal report based on TAIS scores. Instead, information from the TAIS is used in the following ways. 1) It is used to help the workshop leader understand some of the factors that may be contributing to an already identified problem: 2) When a particular problem has not been identified, the TAIS is used to provide direction for the trainer. Score patterns indicate areas of possible concern helping to focus interview questions, and behavioral observations: 3) Finally, information from the TAIS is used in the design of a training program, and to provide an educational focus for the subject.

Scores on the TAIS for two different individuals are presented in Figures 2 and 3. The individual who's scores are presented in Figure 2 is a baseball player on

a AAA team. This athlete was referred by the coach because of a particular problem. The athlete who's scores are presented in Figure 3 is one of the best junior tennis players in the world. He participated in a three day ACT program for tennis players and at the outset of the program had no identified problem. There are differences between training programs when there are and are not specific problems or reasons for referral. By discussing the two cases presented in Figures 2 and 3 separately, I can highlight those differences.

FIGURE 2
TEST OF ATTENTIONAL AND INTERPERSONAL STYLE (TAIS)



The baseball player who's test scores are presented in Figure 2 was referred by his coach. The coach described Pat (not his real name) as a "super kid. He has a great attitude, loves baseball and is all hustle. He tries harder than any other two kids on the team. Lately, his hitting has dropped off, particularly in situations where there are runners on the bases. He's trying too hard and it's affecting his confidence, though he says it isn't. I keep telling him to relax, but he can't seem to do it."

The coach had spoken to the Pat about talking to "an expert on concentration", and the athlete was eager to cooperate. He knew that he wasn't performing as well as he, or the coach wanted in big situations. The coach gave him a copy of the TAIS and asked him to complete it and to mail it to me. Arrangements were then made for me to spend three days with the Pat and the coach during Spring training.

I met briefly with both of them explaining that to be helpful I really needed to observe Pat in a game situation. In this brief meeting I emphasized my desire to help and at the same time attempted to subtly increase the pressure the Pat was

feeling by letting him know that I would be analyzing him. I wanted to create some stress, so that I could consensually validate the problem that the coach had identified, and so that I could see for myself the physical consequences of "trying too hard."

Looking at Pat's TAIS profile had given me a few ideas of the types of problems that might be occurring:

1. The general attentional profile was that of an effective, somewhat analytical individual. Under pressure there might be a tendency to become too analytical.
2. The high need for control (CON), high level of self-esteem (SES), and the high score on the physical orientation scale all indicated a high need to achieve. Stress would be likely to increase in any situation where Pat was not performing up to the level he expected of himself.
3. A high score on the negative affect expression scale (NAE) combined with high score on control and self-esteem suggested that Pat could become "his own worst enemy." Frustration at not performing well would be likely to lead to anger that could cause him to tighten up and to behave impulsively from time to time.

Observation Session One

The game situation provided partial support for the information that had already been gained through the TAIS and the reason for referral. Throughout the game Pat was enthusiastic and supportive of his team. He did hustle and in every sense seemed to be a positive force. At bat, however, the pressure he was feeling seemed obvious. In his first at bat he swung at the first pitch (a ball that was high) and fouled out to the catcher. He knew that he shouldn't have swung at the pitch and came back to the dug out telling himself how stupid he was.

In his second at bat, there was no one on the bases. He seemed to be concentrating a little better, waiting for "his pitch." He ended up getting on base with a walk. In his third at bat, there was runner on first. As he stepped into the batter's box the tension in his neck and shoulder seemed much more noticeable. He was continually moving his head and shoulder to try and release some of the tension. He took the first pitch for a called strike (the third base coach had told him to take the pitch), and that increased the tension. He swung at the next pitch, a fast ball on the outside corner, but he was very late. Then, he jumped at a pitch that was high and clearly out of the strike zone. He was way out in front of the pitch, striking out in three pitches. That turned out to be his last at bat as he was pulled for a pinch hitter.

Education Session One

The opportunity to observe Pat in an actual playing situation (to observe any athlete for that matter) was important for two reasons: 1) It served as another form of assessment and helped to consensually validate information gained through formal testing and from the history provided by the coach; 2) It provided me with a shared experience. Now, Pat and I could talk about real events that were directly related to his performance. Now I could use Pat's own behavior to make the points that I wanted to make about the relationship between concentration, arousal, and performance. When talking about scores on the TAIS (e.g., the tendency to become angry in Pat's case), I could relate them directly to the performance situation.

To facilitate the education process, and to further validate the information gained from the referral, the TAIS, and behavioral observations, I provide subject's with an Attention Control Training workbook that is either sport specific (Nideffer, 1989b), or business specific (Nideffer & Pratt, 1990) depending upon the setting I am working in. There are several specific goals that I hope to accomplish through education:

1. I teach subject's about the attentional requirements of their sport, and about their own attentional strengths and weaknesses. This is accomplished through the use of the *Inventory of Concentration and Communication Skills (ICCS)* which is contained in the workbook. The subject is asked a series of 15 questions relating to the different attentional styles, and to the different types of attentional distractions that can occur. In responding to the questions they are asked to answer them as "they relate to their particular sport", and to compare themselves to "the average person that they compete against." An example would be, "*I am more capable of narrowing my attention, of shutting out distractions under pressure, of focusing my concentration on one thing, than ___% of the athletes I know.*" They are told that the average person in their sport scores at the 50th percentile on each question.
2. I teach subject's about the relationship between focus of attention, physiological arousal, and performance. This becomes highly situation specific based on actual behavioral observations. To make sure that the information is being absorbed, the subject is asked to fill in the following table.

Pat's chart (Table 2), is extremely instructive in that he has identified two problems or responses to the pressure he is feeling. First, he is aware of tightening up (that is important because that awareness will become a cue telling him when to use his arousal control strategy. So too will his thought patterns serve as cues.). Not only does the awareness of a change in tension tell him that he needs to make adjustments, but he has identified those that are most important to him (e.g., grip on the bat). He believes that if he can relax his grip a little, the rest of his body will relax as well.

From an attentional standpoint, Pat's attempts to give himself instructions serve as distractors, keeping him from attending to the ball. He can't "be in his head", consciously giving himself instructions and/or problem solving, and consciously attending to the release of the ball at the same time. In addition, his negative self instructions "Don't blow it." have a tendency to make him tentative or defensive. The end result is that he reacts too slowly and when he swings his weight is on his back foot. If he were being more aggressive and his timing were correct there would be a weight transfer from the back foot to the front foot as his bat made contact with the ball. Hitting off his back foot he loses a great deal of power.

Once he finds himself being tentative and thinking too much, Pat becomes angry. At this point he jumps from one problem to another. Becoming too aggressive, he rushes and swings too early. His weight transfers too far forward. If he does make contact with the ball, he must rely on the strength in his arms instead of being able to use the weight of his entire body.

TABLE 2

Problem Situation

1. Hitting with men on base.

Physical Changes

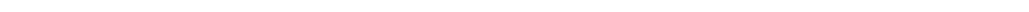
1. Increased neck and shoulder muscle tension. Gripping the bat more tightly.
2. Breathing more rapidly and up in the chest.

Attentional Changes

1. "Don't blow it, you can do it."
2. "Relax."
3. "Watch the ball Stupid."

Performance Consequences

1. Don't "pick up the ball on release", react too slowly cause I'm thinking too much end up swinging off my back foot.
2. Get angry and rush, jumping at the ball. I end up way out in front.



Observation Session 2

Once Pat had learned about the various types of concentration, and attempted to rate himself, and once the link between concentration arousal and performance had been describe, there was a second observation session. The purpose of this session was to provide Pat, myself, and the coach with an opportunity to consensually validate previous findings. I want to emphasize the importance of this session.

First, often individuals are attempting to rate their concentration skills for the first time. They may never have thought along these particular dimensions before. Likewise, they may never have made direct comparisons between their abilities and those of other players. This observation session provides them with an opportunity to do that. Often, their initial impressions change (Pat's did not).

In addition, the second observation session and discussions with the coach help to pin point specific things that should and should not be attended to. This session answers questions like: "What specific thoughts increase (or decrease) muscle tension and/or arousal?" " What are the particular stimuli that are reminding the athlete about outcome and the possibility of failure?" "What simple task relevant (process cues) can or should the individual be attending to in order to perform more effectively?" As you might imagine, the technical and tactical knowledge of most sport psychologists is much more limited than that of the coach and/or athlete. For this reason, their assistance in identifying critical task relevant cues is essential. This is especially true with ACT because programs focus on making very specific behavioral changes in very specific performance situations.

Pat's performance in the second observation session was somewhat different because he was busy analyzing his own behavior. He still did not have "good at bats". Mistakes were occurring, however, because he was too analytical and not watching the ball. Anger and rushing were not issues in the second session.

For Pat, the primary external distractor came from his coach and or the third base coach. When there were runners on base, he was extremely sensitive to any anxiety on the part of the coach. He interpreted that as a lack of confidence in him and his ability to get the hit. That external cue would often be enough to increase muscle tension, and to cause him to have doubts (internal distractions).

Education Session Two

Following the second observation session, Pat filled out the information in Table 3. His goal, checked out with the coach, was to identify the feelings and thoughts which would most likely lead to a "good at bat."

Table 3

Situation

1. Hitting with men on base

Physical Feelings

1. Feeling balanced in the batters box prior to the pitch. Weight evenly distributed between both feet.
2. Holding the bat firmly, yet relaxed. Feeling "loose."

Attentional Focus

1. Checking weight distribution and grip.
2. Picking the ball up on release from the pitcher's hand.

Performance Consequences

1. Reacting instinctively to the flight of the ball.
2. Feeling weight transfer from the back foot to the front foot on point of contact.

It is important to notice that as far as performance consequences are concerned, Pat didn't list "get a hit." To improve his performance, Pat has to set reasonable goals. That means controlling those things that he has the power to control, mainly himself. From a baseball perspective, a reasonable goal means having a "good at bat." A good at bat is one where you don't swing at bad pitches and do swing at good pitches. It is an at bat where you make good contact with the ball (e.g., hit a line drive), independent of whether the ball is caught and you are out, or not.

Reasonable goal setting also means not expecting that every single at bat will be a good at bat. Instead, Pat's goals had to involve reducing the frequency of errors due to not watching the ball, and/or rushing. It also had to do with learning to recover from an error more quickly.

Pat's problems had reached the point that the coach sought help, not because he swung at a bad pitch once in a while, or because he got too aggressive occasionally. The problem had become acute because when Pat would make the first mistake he would tighten up more and a second mistake would follow. Thus, another goal for Pat was to reduce the frequency (duration) with which he strung together mistakes.

Introduction of Training Techniques:

In the second classroom session Pat was introduced to the concept of centering as a means for controlling physiological arousal, and for disattending to negative and/or task irrelevant stimuli. Details about centering and how the technique is used are covered in several publications (Nideffer, 1989b; Nideffer & Pratt, 1990; Nideffer, 1992b). In essence, Pat was instructed to use the centering technique immediately prior to each pitch, only when he was hitting with men on base. He was to time the end of his centering breath so that it was as close to the time the pitcher began his wind up as possible. At the end of the breath, he used two words to create the physical feelings and mental focus he wanted. He used the word "loose" to remind him of the feelings he wanted in his hands as he held the bat. He used the word "focused" to remind him to "pick up the ball on release."

In Pat's case, the coach served as a facilitator in two ways. First, he acted as an external reminder, signaling Pat to use the centering procedure when there were base runners. Second, he made sure he reinforced Pat for "good at bats" rather than hits.

In addition to using the centering and attentional refocusing procedure in the actual game situation, Pat was encouraged to mentally rehearse. It is perhaps important to point out a couple of key differences between mental rehearsal as used with ACT and mental rehearsal as used with other programs.

First, many mental rehearsal programs involve lengthy relaxation sessions prior to rehearsal. In ACT, the athlete is shown how to use just three centering like breaths to quickly relax prior to rehearsal.

Second, most programs emphasize that the rehearsal perspective subjects use should be "an internal" one, as if they were actually engaging in the performance. Programs also emphasize that subjects should use all of their senses, seeing, feeling, hearing, etc. in the rehearsal process. Actual physical movements, however, are not overt in most programs. With ACT, athletes are encouraged to actually initiate and/or engage in the movements. This often facilitates imagery. In addition, some athletes are encouraged to rehearse with their eyes open. Many find this results in eye movements that also facilitate imagery.

Finally, subjects are encouraged to rehearse as frequently as they can, in the performance situation (when appropriate) and away from the performance

situation. Pat for example was encouraged to rehearse in the dugout and in the on deck circle.

Like many programs, rehearsal involved rehearsal of the entire situation including: 1) Rehearsal of the thoughts and feelings associated with coming to bat with men on base; 2) rehearsal of tightening up; 3) rehearsal of remembering to center; 4) rehearsal of centering and redirecting attention; and 5) rehearsal of a successful experience.

The last thing accomplished in classroom session two involves putting the subject through a series of concentration tests, designed to test their ability to control arousal and the focus of attention. These tests include using centering to make it impossible for someone to bend their arm. Using centering to keep two people from lifting them off the ground. Using centering to focus attention in order to break a one inch board.

The tests have two purposes. The first purpose is to provide the subject with some support and motivation. They can see the effectiveness of what they are trying to do. The second purpose (since they are usually only partially successful) is to demonstrate that centering and the refocusing of attention are skills that must be continually practiced. Although they can learn the technique in a few minutes, they cannot expect to execute successfully without continued practice. These skills, like any biomechanical skill require repetition and over-learning before they can will hold up under pressure!

Third Observational Session:

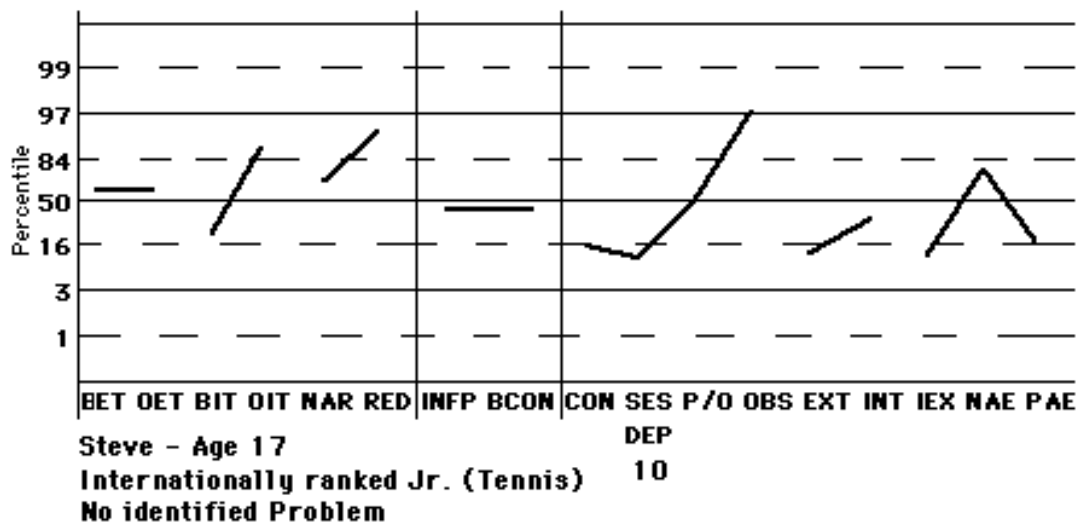
The final observational session provides the subject with an opportunity to practice what he/she has learned under supervision. Emphasis here is on providing support and encouragement, and on making corrections when necessary (e.g., if the subject is mentally rehearsing at the wrong time). Realistic goals are re-emphasized and when appropriate, information from the TAIS is used to facilitate communication between the coach and athlete. For example scores on the TAIS might indicate that the athlete is easily overloaded with information (Not Pat's case), and that the coach is highly verbal (high BIT and IEX). I might emphasize to them that they need to find ways of keeping things simple and focused, especially in the identified pressure situation.

CASE 2

Steve (not his real name), was a 17 year old tennis player who was one of the top ten juniors in the world, and had been playing as a professional for over a year. He was tested along with five other top players who were taking part in a three-day ACT program. Steve's TAIS scores are presented in Figure 3. Although there was no identified problem, Steve was participating in the program because he had been told it would help him improve his concentration skills. The workshop outline for tennis

players was actually quite similar to the program used with the baseball player, and included the following: 1) Brief introduction and program outline - 1 hour; 2) Mini-round robin tennis tournament to create competitive pressure and provide for some initial observations; 3) Class room session to work through the ICCS, educating the players about attention in tennis and it's relationship to arousal and performance; 4) Observation session two to check out (consensually validate) findings from the first observation and classroom sessions; 5) Second classroom session to develop individualized intervention programs which used "centering" and "rehearsal" procedures; 6) Third performance session giving players an opportunity to practice their ACT programs; 7) Testing of attention control and individual feedback sessions with each player and his coach.

FIGURE 3
TEST OF ATTENTIONAL AND INTERPERSONAL STYLE (TAIS)



TAIS Results

Given that Steve was one of the best junior tennis players in the world, some of his scores on the TAIS were surprising. Normally, I would expect an athlete performing at Steve's level to score around the 77th percentile on the TAIS scales measuring control (CON), self-esteem (SES), and physical competitiveness (P/O). As you can see, Steve's scores on these scales are quite low (16%, 10%, 50%, respectively). In addition, Steve has indicated that he is internally overloaded (OIT), and not very expressive of his thoughts and/or ideas. Based on these scores, I entered the first observation session with several hypotheses about Steve:

1. Because he did not express himself (IEX) and because he seemed to have a low level of self-confidence, and was more introverted than extroverted, I doubted that the coach would be aware of Steve's feelings, and/or of the fact that he was feeling overloaded.

2. Relatively low scores on the control, self-esteem and physical orientation scales suggested to me that Steve was not the "competitor" that a lot of other athletes were. It was my guess that he needed and/or drew a lot of support from the coach.
2. Because of the overload and the low scores on self-esteem and intellectual expressiveness, and his tendency to ruminate and worry (OBS), I doubted that Steve would be much of a problem solver on court. I felt he would need a lot of structure and direction, and that instructions and/or discussions prior to a match would have to be fairly simple.
4. Finally, one of the things that seems most stressful to individuals who are low in confidence, is positive expectations on the part of others. The more positive the situation for Steve, the more likely he would be to feel pressure.

First Observation Session

Coming into the training session, both Steve and the Coach anticipated that he would dominate the Round Robin tournament. In fact, the coach and I had spoken before hand about ways we could "equalize" things should Steve or any other player not feel enough pressure. As it turned out, Steve seemed to feel more pressure than any of the other players. Typically he would start out very well (e.g., win the first three or four games easily), and then begin to tighten up. His response to the loss of points and/or games as the match continued was to become angry at himself, saying negative things, and then to behave as if he didn't care (e.g., not moving for balls).

Talking to the coach during the mini-tournament about Steve, he indicated that he was surprised by his performance. At the same time, he mentioned that Steve had a "habit" of getting ahead of an opponent ranked higher and/or more experienced than he was, and then losing the match. Up to this point, the coach had attributed it to a "lack of experience."

Education Sessions

As you might imagine given his TAIS profile, Steve was not very verbal during the classroom sessions. He listened and he took notes, but he didn't contribute. He was uncomfortable and defensive in front of others. As a result, it was very important to pull Steve aside and to provide him with positive support about his game, in order to draw him out. Within the context of these one on one conversations Steve was able to admit that he had a tendency to become angry when he wasn't "winning every point" against "people like these" (referring to the other five players). Then, when things wouldn't work out he would become depressed and "stop caring." When asked about playing against people that were "better than he was", he indicated that he usually started out well, but as soon as he

would be in a "winning position", he would begin to feel the pressure. When that happened he would "play not to lose, rather than playing to win."

During these courtside sessions, Steve was prepared for the material that would be presented in the Classroom. He was told for example that "we will be identifying a problem situation and then trying to see exactly what happens to you physically, and to your ability to concentrate. The situation I would like you to think about is the situation where you find yourself ahead at the end of the first set, and begin to play conservative.

Although there were clearly two different problems that could be worked on, I believed it was important to focus on one of them. Even if Steve didn't have a tendency to become overloaded, I would have felt this way. It has been my experience that the biggest factor keeping people from making significant changes is the fact that they don't stay focused on one thing long enough. A good coach would never dream of asking an athlete to work on several different technical or biomechanical issues at the same time. The same thing is, or should be true of psychological or concentration issues. From a motivational standpoint (e.g., to maximize the likelihood of cooperation) it was important to let Steve pick the problem that he felt was most important, and that he was most willing to work on. He choose to work on the situation where he was ahead of someone that he wasn't really expected to beat. A situation by the way, that we would expect to create stress for him given his TAIS profile. Table 4 presents Steve's analysis of his problem situation.

Second Observation Session

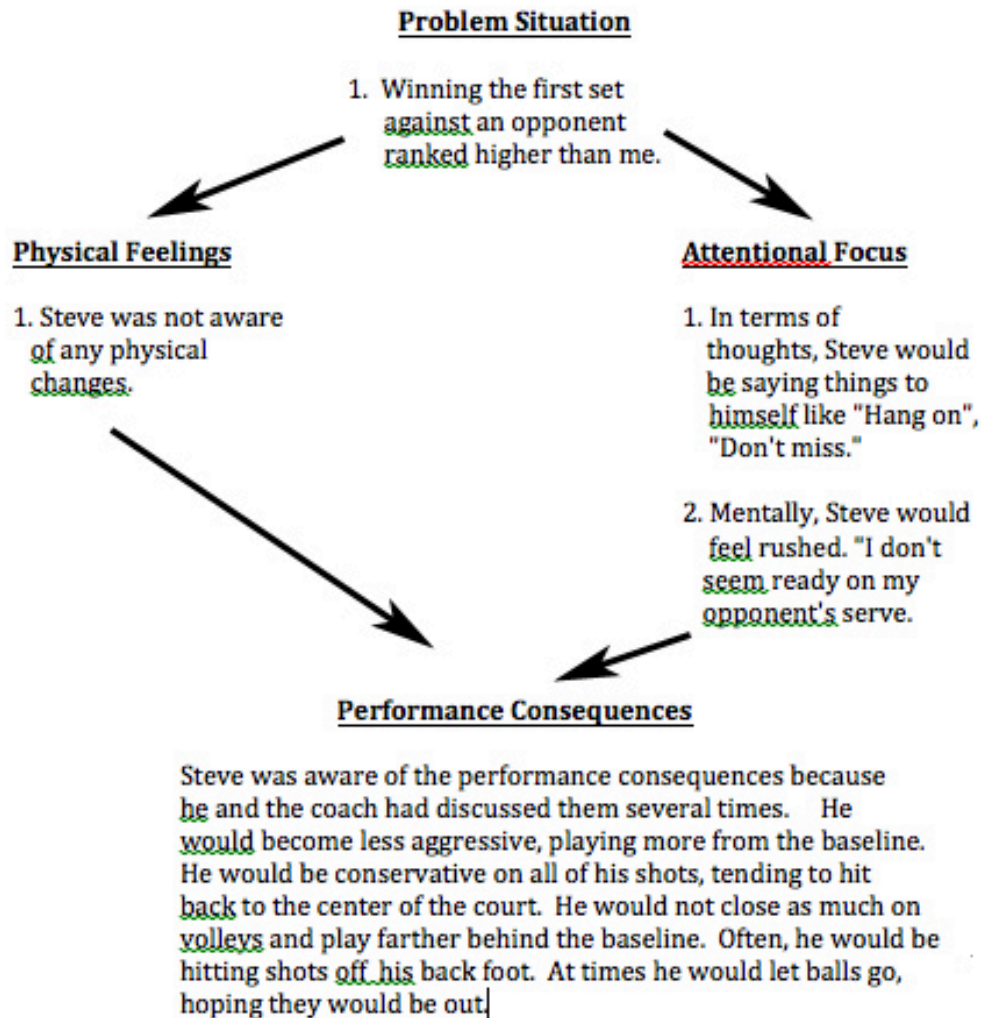
Watching Steve play, it appeared as if his arousal level dropped too low in pressure situations. It was as if the pressure of possible success resulted in an emotional shutting down. As a result, he would appear lazy or lethargic and/or preoccupied, caught up inside his head. There was no physical evidence of muscle tension (e.g., low ball toss on serve, the inability to generate racquet head speed, difficulty bending). Instead, he simply didn't seem to be ready, and/or attending to the task.

In ACT being "centered" is described as "that feeling you have in your body when you are maximally ready. You feel solid and confident, certain that you will perform well. This confidence is tied to the way your weight is distributed (e.g., over the "one point" or center of mass).

Athletes are asked to imagine an arousal continuum. At one end of the continuum is a triangle that is standing on it's base. This triangle represents the lowest level of arousal and the number one is assigned to that arousal level. "When your arousal level is at 1, you are so relaxed you can't even move." At the other end of the continuum is a triangle standing on it's point. The number assigned to this triangle is a 10. When your arousal level is at a ten, you are so "wired" that your feet are

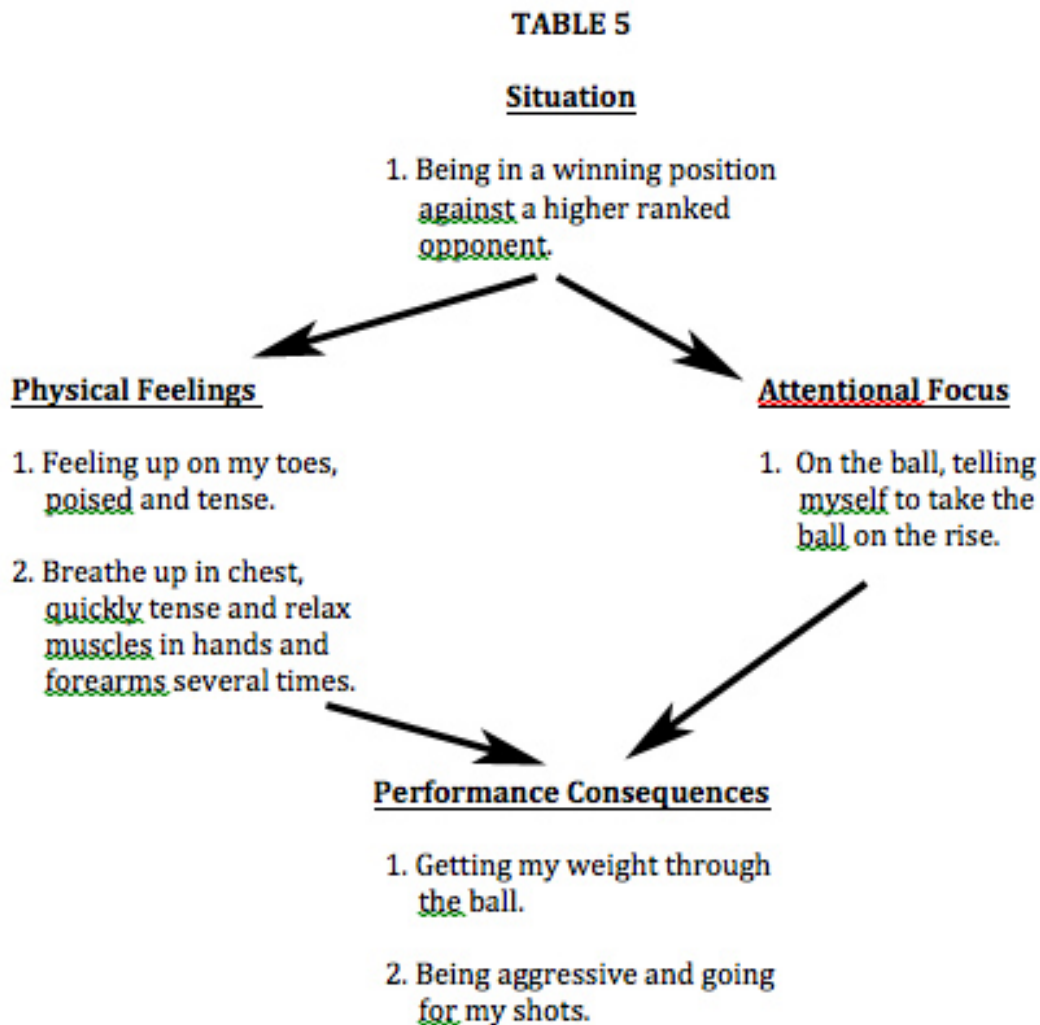
hardly touching the ground. Your center of gravity (one point) is high and you don't feel solid. "Where along this continuum are you when you are feeling most confident?"

TABLE 4



Within the second observation session Steve was asked to pay attention to his physical feelings as he played. As a result of this he indicated that he felt most confident and ready when his arousal level was around a 7 or 8. He felt that when he was ahead, his arousal level seemed to drop and he tended to be around a 4 or 5. On the basis of his observations, the centering procedures were modified during the training phase to help him increase his level of arousal every time he was in a winning position (e.g., at the start of the second set, when he had break points).

Table 5 provides a summary of the things that Steve was supposed to do in specific performance situations.



Steve's entire training program, with the exceptions noted, was very similar to the one for Pat. The information he received about attention, arousal, centering, and mental rehearsal was basically the same. He was encouraged to mentally rehearse as frequently as possible. Because of Steve's tendency to become attentionally overloaded in pressure situations, however, and because he was alone on the tennis court, it was necessary to find ways to remind him to implement the ACT program. Initially, Steve made very little progress because he would "forget" to practice, and/or to use the things he had learned in either training, or match situations.

To help Steve remember and to encourage him to practice, he was given an "Intention Arousing Device (IAD)." This is a small countdown timer that clips to a belt or pocket. The IAD can be set to time any interval from one minute to 24 hours.

At the end of the time interval it vibrates, then resets itself, and starts timing the interval over again (Nideffer, 1988b). Steve was instructed to wear the IAD in those matches where he was playing opponents who were ranked higher than he was. He was also asked to wear it during the last half-hour of each training session. This was to get him to focus on controlling concentration and arousal (e.g., to use the centering and attentional refocusing) for a short period during each training session.

In the final feedback session with Steve and his coach, emphasis was placed on: 1) Having the coach keep instructions relatively simple and structured; 2) Getting the coach to draw Steve out to make sure he understood what was expected (e.g., by paraphrasing what the coach had said); 3) Encouraging Steve to do more of his own problem solving and to assume more responsibility in relatively non-stressful situations, like practice.

Because ACT programs are so situation specific, it is easy to evaluate the effectiveness of training. For Pat, success could be measured by an increase in the frequency of "good at bats." Good at bats were defined as those at bats where he confined his swings to those balls that were strikes, and where he made good contact with the ball. In Pat's case there was marked improvement following training.

For Steve, positive change could be measured in terms of an increased frequency with respect to the number of times he would continue to "go for shots", take the ball on the rise, and get his weight through the ball, when he was ahead in a match. Or, to put it the other way, progress was seen as occurring when there was a reduction in "tentative" shots.

Steve showed some immediate change, but his improvement was short lived. Steve's lack of self-confidence indicated at the outset of training that for lasting positive change to occur he would need considerable support from the coach. Unfortunately, the coach was not able to provide as much support as Steve needed.

Too often athletes lacking in confidence are looking for a quick fix, or a miracle that is somehow going to make them believe in themselves. They seem unable to accept the fact, that real confidence must be based on real success. You need to be a winner to have the deep seated conviction that you are a winner. Without that past history, you cannot expect to be free of doubts. To be able to control those doubts under pressure requires practice. The athlete must use ACT or other psychological training programs on a regular basis. They must practice the procedures just as they would practice anything else.

Had Steve been able to be consistent in his practice (he might have if he had more support from the coach), he would have gradually seen improvement in his concentration skills. As those skills grew, so would his self-confidence. Unfortunately, Steve finds it very difficult to stick with something when he is under

pressure. His fear of failure causes him to abandon and/or to forget to implement his training program. He expected a miracle and when it didn't occur, he gave up.

Steve may overcome his problem in the future. If he does, it will be because he finds a coach and/or an environment that provides the structure and support he needs to stick with something. Real growth in terms of changes in his feelings of self-worth, and in his ability to assume more independent responsibility will take a long time!

COMPARING PSYCHOLOGICAL SKILLS TRAINING PROGRAMS

A comparison of ACT to some of the other psychological skills training programs should begin with a comparison of their theoretical frameworks. This isn't as easy as it should be because most of the programs have not been very explicit when it comes to articulating theory. As a result, I am forced to draw my own conclusions regarding theoretical similarities and/or differences on the basis of the educational information provided to participants.

From my perspective all of the programs mentioned in this paper teach coaches and athletes that the relationship between arousal and performance can be described as "an inverted U" (Yerkes & Dodson, 1908). In addition, all of the programs emphasize that cognitive content (thoughts, ideas, etc.) can have a direct effect on arousal. Thus, what one thinks about and/or attends to has performance relevance. Finally, all of the programs teach that low levels of self-confidence and/or beliefs in one's "self-efficacy" within a performance situation have negative effects on performance.

As a result of the above similarities, all of the programs emphasize the need to: 1) Learn to gain greater control over physiological arousal; and 2) The need to attend to positive and/or task relevant stimuli and/or thoughts.

The Importance of Greater Theoretical Specificity

All training programs recognize that there is some "optimal level of arousal" and that problems can occur on either side of the optimal level. In practice, however, most programs are designed to deal only with problems that result when arousal is too high. In addition, concepts like anxiety and arousal seem to be treated in a global way. It's as if a highly physiologically aroused individual is also anxious, worried, externally and internally distracted, etc.

ACT differs from the other programs in that the underlying theory is much more explicit. For example concentration (attention) is behaviorally defined and so are the different types of concentration errors. Individuals can be highly aroused physiologically, without being anxious, worried, distracted, impulsive, etc. The greater differentiation allowed by the theory allows the practitioner to make predictions about the types of situations that are likely to be stressful to a given

individual, and to predictions about the specific behaviors that are likely to occur under pressure.

The education phases of ACT teach participants to differentiate the types of concentration required within their particular sports. They are taught to think in terms of the width and direction of attention required. They learn to recognize when to shift from one focus to another. Greater definition allows them to be much more exact when it comes to describing problems and helps them learn more quickly. This behavioral specificity carries over into the assessment process, leading to the development of individualized, situation specific, training programs.

Assessment Differences:

With ACT, assessment includes formal testing (use of the TAIS and the ICCS) to gather information about those attentional and interpersonal processes that are predictors of performance. Assessment also includes a structured interview that covers past performance history, and repeated behavioral observations in actual performance settings.

The assessment of the individual examines the extent to which given behaviors are state like, and/or trait like. This is accomplished by observing the subject's attentional and interpersonal behavior under differing levels of arousal, and by looking at attentional and interpersonal characteristics under both general and situation specific instructional sets.

The breakdown of attention on the basis of the width and direction of attentional focus leads to the identification and classification of the specific types of errors that occur within a performance situation (e.g., internal vs. external distractions, rushing and over aggressive responses as opposed to becoming tentative.). This breakdown also leads to the identification (with the assistance of coach and athlete) of the technical, tactical, and/or motivational cues that should be attended to in the identified performance situation.

In most other performance enhancement and/or anxiety management programs assessment is more limited in scope. Typically, programs involve an interview to determine problem areas as identified by the subject and/or referral source. When testing is conducted it is often limited to some measure of trait and/or state anxiety. Often, the purpose for assessing a subject's level of anxiety is to: 1) convince them that it is too high, and; 2) provide a baseline measure so that the effects of training can be demonstrated on a post-test. In fact, the assessment process may have relatively little effect on the design of, and/or content of the training program.

State and Trait Differences

Most of the programs that have been developed would recognize the fact that behavioral and/or personality characteristics (e.g., anxiety, extroversion) seem to have both state and trait components. In spite of this fact, however, from a training and/or intervention standpoint programs treat anxiety, negative thinking, low self-esteem, etc. as traits. Programs also tend to collapse several conceptually distinct characteristics into more global, all encompassing constructs like anxiety or arousal (Nideffer, 1990).

A lack of greater specificity in defining problems leads quite naturally to a lack of specificity in training. Participants are treated as if the only problems they have occur because arousal is too high and/or because of negative, self-destructive thinking. As a result, they are often taught general relaxation procedures (e.g., progressive relaxation), and told that negative thinking (e.g., self-depreciatory comments) is universally bad. They may be instructed to program themselves with positive self-statements. Somehow, by learning to relax and/or by expressing more positive thoughts independent of the situation, performance is expected to improve.

ACT programs pay much more attention to the situational specificity of problems. There are indeed times when arousal may be too high and some type of relaxation is required. The likelihood of training in a relaxation procedure which requires fifteen to twenty minutes of self-instruction being useful within a specific performance situation, however, is not high. In addition, even with the most anxious athletes, there are times when arousal levels are not too high! In fact, there are times when they are too low.

The same specificity that affects the use of relaxation strategies in ACT programs applies to the elimination and/or use of self-critical and/or derogatory statements. There are times (e.g., with highly confident subjects who are under-aroused) when self derogatory statements are helpful, and just what "the doctor ordered."

Technique Differences

The more strongly a training program emphasizes the negative consequences of excessive arousal, the more they seem to emphasize the need for extended relaxation training. Psychiatric patients and/or individuals with chronically high levels of arousal do seem to have difficulty relaxing, even under relatively non-stressful conditions. Often, chronically anxious individuals are also overloaded, distractible, and have difficulty focusing their attention. When this is the case, it can be difficult for them to mentally rehearse performance situations, without first learning to relax. In addition, it can be very important for them to reduce the potential distractions in the environment. Thus, they get away from noise, close their eyes, etc.

Many of the mental skills training programs that are being used in sport evolved from programs designed to treat psychiatric patients. As a result, they employ lengthy relaxation procedures and they insist that relaxation accompany mental rehearsal. In addition, mental skills training typically occurs "off site." The individual is encouraged to engage in the relaxation and rehearsal process away from the competitive site.

Working with highly anxious individuals such programs make sense. From a practical perspective most performance settings don't allow enough time for relaxation and rehearsal to occur when the procedures require from 15 to 30 minutes. In addition, with lengthy relaxation procedures, arousal levels can often drop well below the levels that would be optimal for the actual performance setting.

When working with highly anxious individuals, it takes a great deal of training to get "average" performance under normal conditions. With these individuals extensive relaxation and rehearsal can be helpful to so overlearn a response that it can become automatic. Then, in spite of excessive arousal under average conditions, the individual manages to perform.

The average individual, and certainly more effective performers, are capable of altering arousal and of focusing their concentration under less than "ideal" conditions. The average individual for example can sit down in a chair in a crowded room and ignore people as he/she quickly concentrates on breathing and relaxes muscle tension (e.g., within a few seconds). The average person is capable of momentarily shutting out distractions and of focusing concentration. In fact, from a mental rehearsal standpoint the average person is quite capable of visualizing and rehearsing a performance with his/her eyes open in a crowded room.

ACT programs tend to be designed to: 1) help effective individuals deal with a highly stressful situation, or; 2) help them quickly recover from problems generated by the unforeseen and/or unexpected. By limiting the relaxation portion of the training program to a few seconds, and by not requiring such a dramatic reduction in arousal in order to mentally rehearse, its possible to use the ACT procedures in the actual performance setting. In fact, mental rehearsal of the attention control training program can be engaged in almost anytime, anywhere.

There is another difference between ACT and other programs with respect to the way that individuals are encouraged to mentally rehearse. At the present time, there is a debate in the research literature regarding whether or not mental rehearsal results in the actual use of muscles required by the performance situation (Hale, 1982; Hale, 1986; Harris, & Robinson, 1986; Ryan & Simmons, 1981; Ryan & Simmons, 1983; Jowdy & Harris, 1990).

From some researchers point of view it has been important to separate out whether any performance improvements which occur following "mental rehearsal" are really due to mental rehearsal or not. For this reason many mental rehearsal

programs have emphasized the importance of rehearsal in the absence of any visual evidence of motor behavior. Mind and body were artificially separated in an attempt to show that thinking when separated from actual movement could result in skill acquisition. Under these conditions, it seems as if mental rehearsal is primarily effective when the task being rehearsed has a large cognitive (e.g., decision making and/or attentional shifting) component.

From a practitioners standpoint, the argument in the literature is totally irrelevant. In the first place, the separation of mental and physical components is artificial and does not reflect the real world. In the second place, the reason for training is to facilitate performance. From a logical perspective it does not make sense to inhibit or restrict motor responses that would normally be associated with performance rehearsal. For this reason, the mental rehearsal component of ACT encourages the individual to actually move through the situation being rehearsed. This movement is restricted only by the situation within which rehearsal is taking place. Thus, if you are sitting in a chair rehearsing, movement is restricted, but it is not eliminated. If you are standing on a street corner (and not inhibited by observers), movement is much less restricted.

Philosophical Differences

In addition to structural differences that exist across programs, there are philosophical and/or value differences as well. Those programs that are more clinically oriented tend to emphasize enjoyment and/or personal satisfaction over performance outcome. The belief is that if the person is feeling better about him or herself, he/she will perform better. With ACT, the reverse is emphasized. Performance outcome is important, and with success comes satisfaction and happiness.

From a procedural standpoint the philosophical difference just mentioned often affects the development of intervention programs. ACT programs for example tend to be problem and approach oriented, and tend to look for the most direct path to a successful performance outcome. Often, this means manipulating the environment to reduce distraction, and/or using others to help the athlete control concentration, arousal and/or motivation. ACT programs may encourage the use of extrinsic motivators and/or the use of emotional relationships to either control and/or to get the athlete to control arousal and concentration in the interest of successful performance.

In contrast, more clinically oriented programs tend to emphasize the importance of self-control (as opposed to environmental or other control), and intrinsic motivation. That is, the individual should be performing because it brings him/her pleasure (intrinsically rewarding), and the individual should be learning to gain greater self-control independent of outcome. Perhaps an oversimplified example will help clarify this point.

If an athlete was highly anxious and having difficulty concentrating in a performance situation, most clinically oriented programs would want to teach him/her to be able to recognize the problem and to be able to take the appropriate steps themselves to correct it. Because performance outcome is secondary to personal self-worth and enjoyment, the clinical program would be willing to tolerate some continued (and perhaps worsened) performance impairment, while the person learned. In ACT, the emphasis would be on getting the person to accept that set of conditions which would lead to immediate improvement. That might mean allowing someone else to remind them to settle down, and/or to provide structure and problem solve for them in the identified setting.

ACT programs assume the average individual is able to accept the fact that he/she has some limitations without feeling like a total failure. For the average person, success is its own reward and success can be shared. It's okay to be part of a winning team. It's okay to need others from time to time. Self-esteem is built on the basis of the fact that the individual is "strong enough" to accept some limitations.

CONCLUSIONS

A critical difference between ACT and other mental skills and/or stress management training programs has to do with the fact that the Theory underlying the TAIS is much more explicit. By behaviorally defining those attentional and interpersonal skills that are directly related to performance, and then measuring the individual's ability to match these (e.g., via the TAIS), it becomes possible to anticipate the specific types of situations that are likely to lead to performance impairment for the individual. In addition, knowledge about attentional and interpersonal abilities leads to predictions regarding the specific types of problems that are most likely to occur, and to predictions about the behaviors of the individual under pressure.

Although the literature is generally supportive of a variety of mental skills training programs, there are some special features of ACT that should influence its use. First, in contrast to most other programs, Attention Control Training was designed to be used with healthy, high functioning individuals. An assumption that underlies the use of ACT, is that the individual functions quite well the vast majority of the time. Thus, when problems appear to be fairly chronic and/or anxiety levels are high even in relatively low stress situations, ACT would be inappropriate.

ACT is especially appropriate when working with individuals for whom "the bottom line" or performance outcome, is critical. Most professionals, and in fact most high school and college athletes are more concerned about winning, than they are about "feeling good." In fact, for most of these athletes feeling good is tied to success. Because we are working with healthy, high functioning individuals the desire to be a winner is not an unreasonable goal. By the same token, healthy individuals are not so likely to be traumatized by failure that they can't confront it, and grow.

As you might imagine, the philosophy behind ACT, and to a lesser extent the procedures themselves, would appear to be less appropriate when working with younger athletes, and/or recreational athletes. If the primary emphasis within a sport situation is having fun, and if the skill level of the individual's involved is generally low, then some other form of mental skills training may be more appropriate. For example, Inner Mental Training (Unestahl, 1983) was designed as a very basic program to be used with young children. This program presumes little knowledge and/or skill on the part of the individual. In many ways it would seem to be ideal for children, whereas much of it's content would be irrelevant and/or distracting to the experienced, highly competitive athlete. Programs like Anxiety Management Training (Suinn & Richardson, 1971) and Stress Management Training (Smith, 1980) which involve more extensive relaxation training than ACT may prove to be more useful with highly anxious subjects.

Because ACT programs make successful (improved) performance the primary goal, they are more likely to be appreciated by coaches and/or organizations who must be concerned about outcome. The educational process associated with ACT, as well as the training focus is one which is linked in very concrete, behavioral ways to performance. This tends to take the mysticism out of training and allows both coach and athlete to see exactly how an individual's thoughts and/or focus of concentration is affecting their play.

When ever possible ACT programs involve the coach. First as a problem solver, identifying the most task relevant cues the athlete should be attending too. Next, feedback from the TAIS (both coach and athletes) to facilitate communication. Finally, the coach is shown how the ACT program should be integrated into both practice and competitive settings. Throughout the training process, everything possible is done to maximize the likelihood that the coach will encourage and support the athletes use of the ACT procedures.

Because ACT programs do involve the coach, and because the first priority of the training program involves the improvement of performance, it is not the program of choice in clinical situations. When athletes have relatively severe problems issues of confidentiality and dependency issues (e.g., coach-athlete) can become extremely important and difficult to manage. There is so much communication going on between the trainer in ACT and the coach, that it could be difficult for an athlete with clinical problems to develop the level of trust required to deal effectively with highly emotional issues. Those programs which maintain greater distance between the service provider and the coach and/or competitive situation would probably be better suited to dealing with clinical issues.

Finally, ACT would appear to be the program of choice when some type of arousal and/or concentration intervention is required within an actual performance situation. This may mean training an individual to react to unexpected events (e.g., to recover quickly from a mistake or an accident). It may mean training the

individual to overcome a problem that consistently appears within a particular situation (e.g., the tendency to become tentative when leading.). Too many programs create (and/or add to) an artificial mind-body split which affects the way many athletes and coaches see sport psychology. Programs which are developed and applied outside of the actual practice and/or performance setting feed the misconception that mental training is somehow separate from physical training. ACT programs are designed for implementation within the performance setting.

BIBLIOGRAPHY

- Botterill, C. (1990). Sport psychology and professional hockey. *The Sport Psychologist*, 4, 358-368.
- Carver, C.S., and Scheier, M.F. (1989). A control- process perspective on anxiety. *Anxiety Research*, 1, 17-22.
- Dansereau, D. (1978). The development of a learning strategies curriculum. In H.F. O'Neil (Ed.) *Learning strategy research* (pp, 1-30). New York; Academic.
- Gordon, S. (1990). A mental skills training program for the Western Australian state cricket team. *The Sport Psychologist*, 4, 386-399.
- Gould, D., Petlichkoff, L., Hodge, K., & Simons, J. (1990). Evaluating the effectiveness of a psychological skills educational workshop. *The Sport Psychologist*, 4, 249-260.
- Hale, B. D. (1982). The effects of internal and external imagery on muscular and ocular concomitants. *Journal of Sport Psychology*, 4, 379-387.
- Hale, B.D. (1986). Internal and external imagery concomitants Revisited: A comment on Harris and Robinson. *Journal of Sport Psychology*, 8, 347-348.
- Harris, D.V. and Robinson, W.J. (1986). The effects of skill level on EMG activity during internal and external imagery. *Journal of Sport Psychology*, 8, 105-111.
- Hull, C.L. (1951). *Essentials of behavior*. New Haven, CT: Yale University Press.
- Jowdy, D.P., & Harris, D.V. (1990). Muscular response during mental imagery as a function of motor skill level. *Journal of Sport Psychology*, 12, 191-201.
- Mahoney, M.J. (1979). Cognitive skills and athletic performance. In P.C. Kendall & S.D. Hollon (Eds.) *Cognitive-behavioral interventions* (pp. 423-444). New York: Academic Press.
- Nideffer, R.M. (1976). Test of attentional and interpersonal style. *Journal of Personality and Social Psychology*, 34, 394-404.
- Nideffer, R.M. (1986). Concentration and attention control training. In Jean Williams (Ed.), *Applied sport psychology*, Palo Alto: Mayfield (pp. 257-269).
- Nideffer, R.M. (1989a). Theoretical and practical relationships between attention, anxiety, and performance in sport. In Hackfort & Spielberger (Eds.), *Anxiety in sport: An international perspective* (pp. 117-136).
- Nideffer, R.M (1989b). *Attention Control Training for Athletes*. Oakland: Enhanced Performance Services.
- Nideffer, R.M. (1990). Use of the Test of Attentional and Interpersonal Style in Sport. *The Sport Psychologist*, 4, 285-300.

- Nideffer, R.M. (1992). ACT: Attention Control Training in *Handbook on Research in Sport Psychology*, Singer, R.N., Murphey, M., and Tennant, L.K. (Eds.). To be published by Macmillian.
- Nideffer, R.M. (1992). *Psyched to win*, Champaign, IL., Lesiure Press.
- Nideffer, R.M. & Sharpe, R. (1978). *A.C.T.: Attention control training*, New York, Wyden Books.
- Nideffer, R.M. & Pratt, R.W. (1990). *Attention Control Training for Business*. Oakland, Enhanced Performance Services.
- Ryan, E.D., & Simons, J. (1981). Imagery, and frequency of mental rehearsal as factors influencing acquisition of motor skills. *Journal of Sport Psychology*, 3, 35-45.
- Ryan, E.D. and Simons, J. (1983). What is learned in mental practice of motor skills: A test of the cognitive-motor hypothesis. *Journal of Sport Psychology*, 5, 419-426.
- Singer, R.N. (1988). Strategies and metastrategies in learning and performing self-paced athletic skills. *The Sport Psychologist*, 2,1, 49-68.
- Smith, R.E. (1980). A cognitive-affective approach to stress management training for athletes. In C.H. Nadeau, W.R. Halliwell, K.M. Newell, and G.C. Roberts, *Psychology of Motor Behavior and Sport - 1979*. Champaign, IL: Human Kinetics.
- Straub, W. F. (1989). The effect of three different methods of mental training on dart throwing performance. *The Sport Psychologist*, 3, 133-141.
- Suinn, R.M. & Richardson, F. (1971). Anxiety management training: A nonspecific behavior therapy program for anxiety control. *Behavior Therapy*, 2, 498-510.
- Suinn, R.M. (1987). Behavioral approaches to stress management. In May, J.R., and Asken, M.J. *Sport Psychology: The psychological health of the athlete*. New York: PMA Publishing Corp.
- Unestahl, L-E. (1983). *Inner mental training: A systematical self-instructional program for self-hypnosis*. Orebro, Sweden: Veje.
- Weinberg, R.S., Seabourne, T.G., and Jackson, A. (1981). Effects of Visuo-motor Behavior Rehearsal , relaxation, and imagery on karate performance. *Journal of Sport Psychology*, 3, 228-238
- Wrisberg, C.A., & Anshel, M. H.(1989). The effect of cognitive strategies on the free throw shooting performance of young athletes . *The Sport Psychologist* 3, 95-104.
- Yerkes, R.M., & Dodson, J.D. (1908). The relationship of strength of stimulus to rapidity of habit formation. *Journal of Comparative Neurology and Psychology*. 18, 459-482.