

The Role Concentration Skills and Interpersonal Characteristics Play in Recovery from Injury

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Particularly at professional and Olympic levels, injuries of one kind or another are an inevitable consequence of competition. Play the game long enough, and train hard enough and athletes are going to get injured. Under these conditions, success is often dependent upon the ability of the athlete to recover quickly, and at times to be able to continue to compete in spite of an injury.

The emotional and economic consequences of injuries at a professional or Olympic level, can be devastating. There can be millions of dollars and the loss of an immeasurable amount of prestige and political and personal recognition at stake, when an athlete is seriously injured. Under these conditions the pressure everyone feels to get the athlete back into the competitive arena as quickly as possible becomes obvious. Unfortunately, that pressure doesn't always work to facilitate the recovery process, in fact, it can do just the opposite.

Attitudes and thought processes affect recovery

In this paper, I am going to discuss the influence cognitive skills, like the ability to pay attention, and speed of decision making, and interpersonal characteristics like extroversion, need for control, and competitiveness can have on the athlete's reactions to injury and on his/her willingness and ability to follow medical advice. The purpose of the paper is to identify specific patient characteristics that have a direct effect on the healing process, can be easily recognized and/or measured, and can be utilized in a positive way by the health care professional to facilitate recovery.

Since thought processes, attitudes, and things we pay attention to affect behavior, and the willingness or ability to follow medical advice, there's little reason to doubt those variables affect the recovery process. To my knowledge, however, there has been very little systematic research conducted to explore the reasons patients fail to follow medical advice.

Failure to follow medical advice

Here are some of the reasons given for the failure of athletes to recover as quickly as expected from an injury:

- The athlete didn't follow through on the rehabilitation plan.
- The athlete ignored advice to go slow.
- The athlete failed to communicate his concerns and/or symptoms.
- The athlete wouldn't listen, thought she had a better way.
- The athlete insisted on trying unproven treatments.

- The athlete took things said too concretely and failed to use good judgment.
- The athlete listened to the wrong people.
- The athlete was malingering.

In those examples, I've identified some of the symptoms which demonstrate a breakdown in the communication process. A breakdown resulting in behaviors on the part of the patient that slow the recovery process and in some cases lead to more serious injuries. Unfortunately, symptom identification does not get at the root cause of the problem, nor does it necessarily lead to an effective treatment.

By getting at the cognitive or mental skills, and the interpersonal characteristics that are the root cause for the symptoms being reported physicians gain the knowledge they need to get greater adherence to medical advice.

Getting at the Root Cause - The Five Factor Model of Personality

There are a number of basic mental skills and interpersonal characteristics that become more or less important depending upon the demands of any given performance situation. I'll refer to these as the building blocks of performance. Every athlete has developed these basic skills to greater or lesser degrees, and has them in his behavioral repertoire. Under pressure, or when emotionally stressed, the building blocks which are more highly developed for the athlete, begin to dominate behavior, making it more predictable.

The Attentional and Interpersonal Style (TAIS) inventory is a 144 item self-report questionnaire developed to assess the "building blocks" of performance. **TAIS** measures twenty different concentration skills and interpersonal characteristics (Nideffer, 1976; Nideffer, 1981). Although each of these scales makes an independent contribution to behavior and is conceptually independent from the others, the scales do inter-correlate and can be clustered together to create five distinct personality factors. These factors correspond directly to the "Big Five" factors of personality identified by Barrick & Mount (1991), and Tett, Jackson and Rothstein (1991), and described by Hogan, Hogan, & Roberts (1996).

Subject's scores on the five factors or clusters of **TAIS** scales can be used to anticipate the kinds of communication problems frequently cited as reasons for an athlete's failure to recover from an injury. Let me describe each of the factors and the characteristics that it measures.

Competitiveness/Self-Confidence (Factor I)

This cluster of scales measures the willingness of an individual to take responsibility, to assume a leadership role, to be willing to compete with him or herself, as well as with others. High scorers take the initiative and respond to adversity by trying harder. Low scorers are just the opposite. Low scorers lack confidence, prefer to follow, and are much less likely to challenge themselves and others.

Gather and Assimilate Information (Factor II)

This cluster of scales measures an individual's awareness of the environment, and his or her ability to analyze situations and to problem solve. High scorers look for cause-effect relationships, generate and test hypotheses as they seek to find solutions to problems. High scorers enjoy intellectual challenges and are able to multi-task and deal with a lot of information. Low scorers don't process a lot of information well, and they are reluctant to express their thoughts and ideas. Low scorers look to others for solutions and answers.

Involvement with Others (Factor III)

This cluster of scales measures a person's need for involvement with others. High scoring athletes work well within a team context. They enjoy the company of others and prefer that to being alone. High scorers tend to be very supportive of others, expressing positive thoughts and ideas. Low scores on this cluster enjoy and need personal space and privacy. Low scorers are more likely to be involved in individual sports than team sports, and find it difficult to give and/or to ask for support.

Decisions Under Pressure (Factor IV)

This cluster of scales measures speed of decision making and provides an indication of the thought processes an athlete goes through under pressure or when stressed. High scorers have low levels of anxiety, make decisions quickly and move on. High scorers are willing to take risks and make decisions before all the data is in. Low scorers on this cluster tend to ruminate and worry before making decisions. Low scorers have high levels of anxiety and often appear tentative.

Focus and Follow Through (Factor V)

This cluster of scales measures an athlete's susceptibility to external and internal distractions, his ability to focus concentration, and his impulsivity. High scorers exhibit a great deal of mental and emotional control. High scorers have the ability to stay focused and have excellent follow through. Low scorers on this cluster of scales tend to be emotionally impulsive and easily distracted.

Pressure and Predictability of Behavior

In describing the five clusters of behavior I don't want to leave the impression that they should be used to put labels on individuals or to draw overly general conclusions. Every person moves back and forth along each of the five behavioral dimensions. Usually, this movement is in response to changing demands in the environment. For example, an individual who may be highly competitive and assume leadership under one set of circumstances, can behave as a follower and/or team player when that is necessary.

Having said that, however, the ability of people to move along each of the behavioral dimensions does become restricted as their perception of the importance of the situation

and the pressure to perform, increases. Those behavioral dimensions can be thought of as habits. The more extreme an individual's score in one direction or the other, the stronger that habit, and the more likely the person is to behave in that way under pressure. Put a person with strong leadership abilities or habits into a situation where she is supposed to follow the directions of someone else. Then, increase the pressure that both individuals feel to perform. What you'll see is a battle for control. Under pressure, the leader will temporarily lose his or her ability to follow the directions of others and to compromise (Nideffer, 1989).

It isn't just the pressure to perform that will interfere with a person's movement along the behavioral dimensions I've identified. Any situation which threatens an individual's ability to accomplish an important objective, can create problems. Feelings of uncertainty, of not knowing the consequences of an injury for example, generate a great deal of anxiety. The only thing that reduces that anxiety is the structure and direction that comes from believable answers.

In the case of an injury, the athlete does not have the knowledge necessary to diagnose and prescribe his own treatment. Even if he had the knowledge, the emotional response to the injury would make problem solving difficult because it would narrow the athlete's focus of concentration and cause a breakdown in the ability to shift from an external to an internal focus (Williams & Roepke, 1993). In the absence of relevant information, highly developed habits spring into action as the athlete searches for the structure and direction necessary to reduce anxiety. Unfortunately, those highly developed behaviors can, and often do, interfere with the athlete's ability to listen to, and follow, medical advice.

For example, we should be able to use patient scores on the factor measuring speed of decision making and risk taking to identify those individuals who are likely to re-injure themselves because they try to come back too quickly, versus those who are too tentative and cautious about returning to competition. Likewise, we should be able to use an athlete's score on the scales measuring focus and follow through to predict whether or not an athlete will continue to follow medical advice for any prolonged period of time.

In the material that follows I've used four different athletes' scores on **TAIS** to illustrate how psychological information can be used in the recovery process. As you will see, in two of the cases, the data is already in, the athletes have been injured and been through the recovery process several times. In the other two cases, the injury is still out. These athletes have sustained serious knee injuries and are just completing the rehabilitation process. They are about to resume competition. **TAIS** scores predict that they will respond differently to the fact that they have been injured and that their responses will have a direct effect on their return to competition.

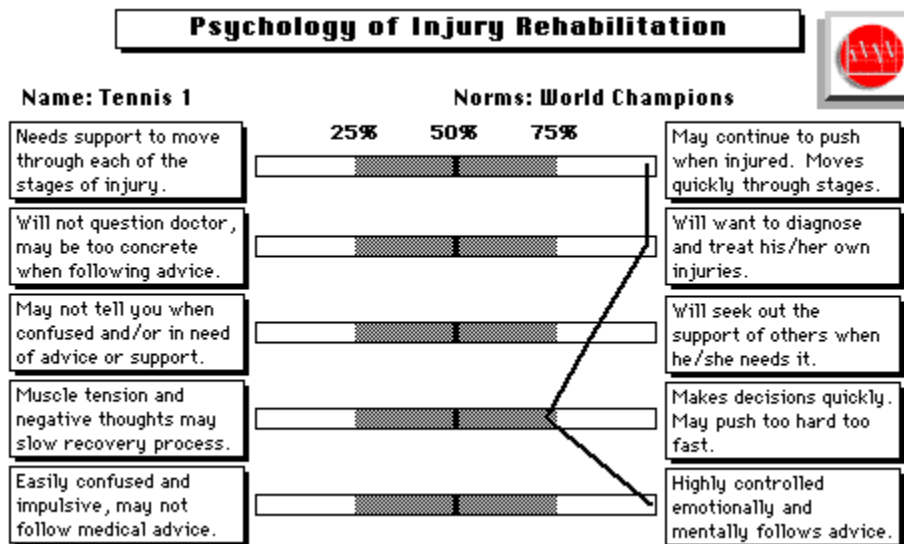
Using TAIS to Anticipate and Prevent Recovery Problems

In the following four cases the athletes' scores on the five factors have been compared to scores for a group of world champions from a variety of both team and individual sports. The five factors are presented graphically, and in order with factor 1 located at the top of

the graph and factor five located at the bottom. The farther an individual scores to right of the five factor graphs, the higher his or her score on that factor.

Figure 1, shows the scores of a female, professional tennis player. This player has had a long, and very impressive career. During her career she sustained a number of relatively minor training injuries. Injuries that did keep her out of competition and required rehabilitation. Injuries which if treated improperly would have gotten worse, rather than better.

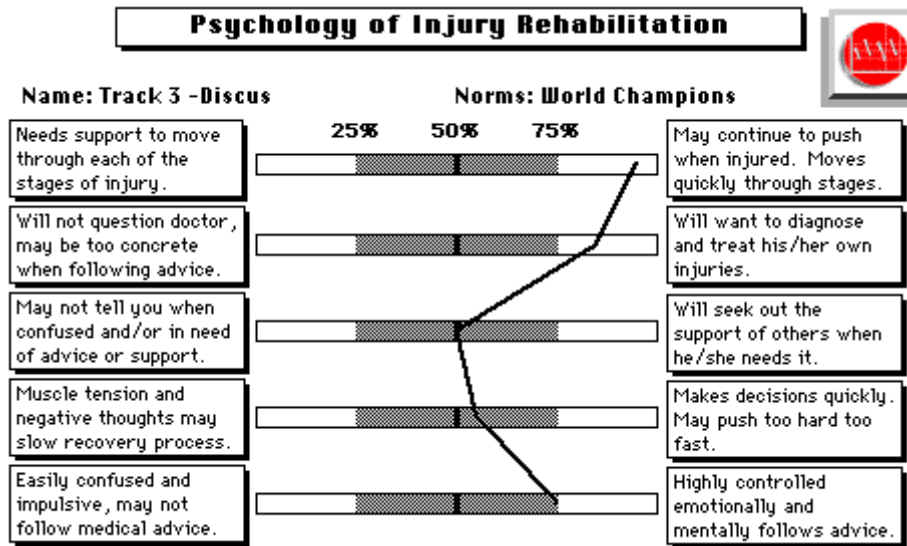
Figure 1



Consistent with the profile, the athlete shown in Figure 1 responded very well to injuries. She was responsible about following through on rehabilitation programs. This athlete's high level of self confidence and competitiveness (shown in graph 1), combined with good analytical and problem solving skills (shown in graph 2) sometimes resulted in conflicts with those prescribing treatments. She would challenge others advice, and expected them to be able to logically justify any recommendations they made. If a physician became defensive she would quickly seek help else where, and/or develop her own rehabilitation program. Once she decided upon a program, she would follow it religiously.

Figure 2 shows the profile of a former world record holder in the discus. This individual sustained a minor injury to the elbow on his throwing arm just prior to an Olympic trial. Acting as his own coach at the time, he failed to seek medical attention and continued his training with only a slight reduction in his throwing. He managed to qualify for the team, but in the process further injured his elbow.

Figure 2



Following the trials, the athlete sought medical attention. Fortunately, he found a physiotherapist who recognized the pressure he was feeling to compete, and who realized that he would have to pull information about the injury out of the athlete (Graph 3). Together they worked out a training program that protected the elbow as much as possible while keeping the athlete focused and confident. The trainer made it a point to follow up with the athlete on a daily basis to make sure the athlete was sticking to the program, not pushing too hard, too fast (Graph 1), and to make sure the elbow was responding to treatment. The athlete was able to compete successfully in the games.

Figures 3 and 4 show the scores of two world class speed skiers. Both athletes sustained severe knee injuries last season and have been rehabilitating those injuries in preparation for the current season. I am not, and have not been, in a position to know how the rehabilitation process has progressed. I have elected to show the information here because I believe the differences between the two profiles will be instructive, and because they show what appears to be a highly significant discrepancy between the athletes' mental and emotional control and a very high risk sport.

Down hill and giant slalom are high risk sports, especially when competing at the level of the world cup. Both of the skiers shown have won world cup competitions, and both of the skiers indicate that they are somewhat emotionally impulsive and easily distracted, (Graph 5). On the surface, their scores appear to be incompatible with such a high risk sport. In reality, however, these athletes are extremely focused when actually competing. The adrenalin that get's released just prior to a run helps athletes that are easily distracted under less stressful conditions, focus on a run. The same would not be true, however, if the athletes score on the competitive factor (Graph 1) fell outside the shaded area, on the left.

Figure 3

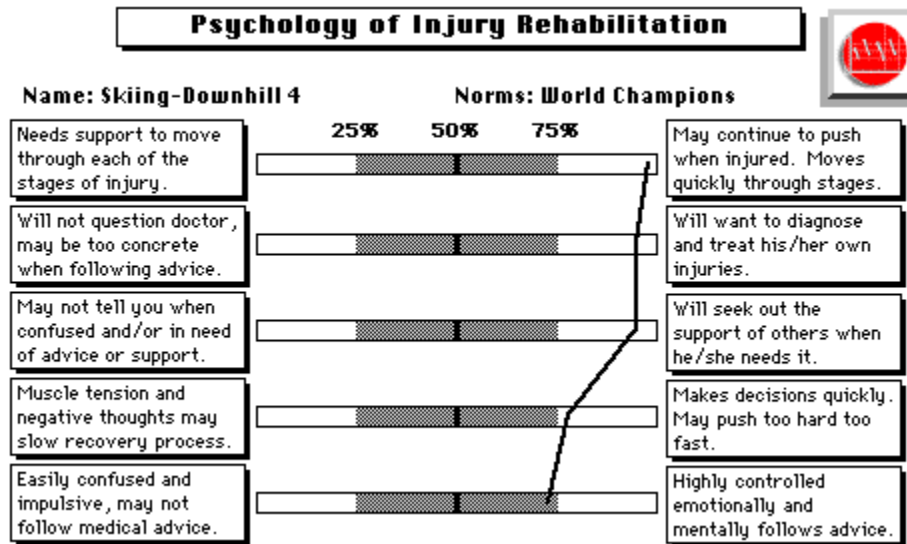
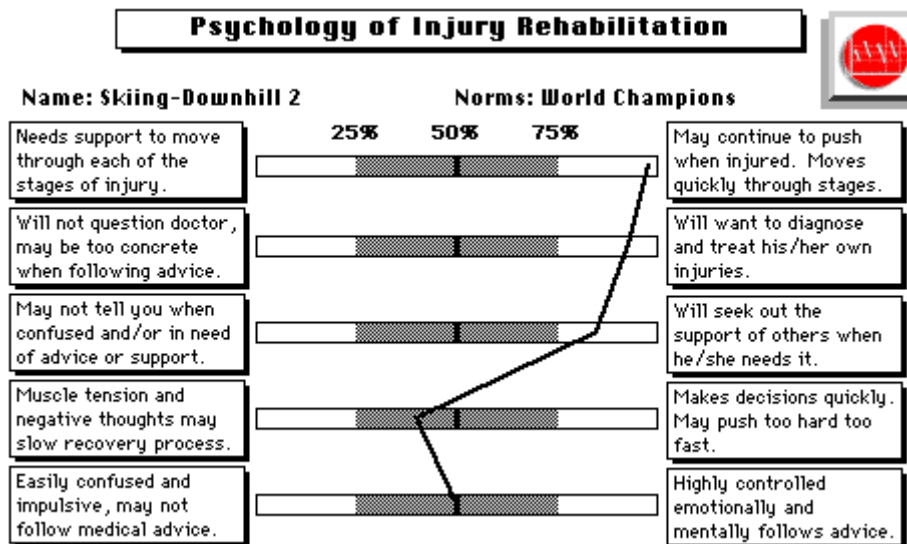


Figure 4



There are some important differences between the two skier's profiles which should be predictive with respect to how quickly they return to their pre-injury form. The female skier appears to be more confident and competitive (Graph 1) and to be less prone to anxiety (Graph 4). These differences suggest she will be attacking the hill from the her first competition on. If she survives her first run, her confidence will be back and the injury will be behind her. The male skier, on the other hand, is more likely to be tentative. It will take considerably more runs before he'll be able to relax and let himself go. It's likely he'll be overly sensitive to normal soreness and muscle strain and that his

sensitivity will provide him with an excuse for holding back. Assuming the injury has indeed healed, this tendency could be minimized if the athlete has confidence in and access to medical personnel that continue to support the fact his knee is fully recovered. In addition the athlete will need to be able to take advantage of psychological strategies he can use to let go of doubts and negative thoughts which are likely to interfere with his runs.

Summary

This paper argues that personality characteristics and cognitive skills have an impact on the speed with which athletes recover from an injury. Because elite athletes are under a great deal of social, emotional, and economic pressure to return to competition and training as soon as possible, it is suggested that physicians and/or other health care professionals use information about injury relevant psychological characteristics to anticipate possible problems before they occur.

It takes the average athlete between 25-30 minutes to respond to the 144 item **TAIS**. It takes another five minutes to score the inventory and then compare the subject's scores on the five factors identified earlier, to the scores obtained by world class performers from a variety of sports. The information that comes from such a small investment of time on both the part of the athlete and the health care professional, can have a profound and very positive effect on the success of the recovery process.

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