
Enhancing Athletic Injury Rehabilitation Adherence

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Abstract: Contemporary sports medicine literature has begun to address more centrally the idea that treatment adherence is a complex issue. Not only must certified athletic trainers (ATCs) possess knowledge about injuries and subsequent rehabilitation protocols, they also must be able to deliver essential services in a manner that predisposes treatment success. Effective treatment of athletic injuries necessitates consideration of various psychosocial factors shown to enhance rehabilitation adherence. Detailed explanations of several important ATC-athlete interaction patterns and motivational strategies are offered.

Effective rehabilitation is con-founded by the fact that there are more than 200 variables that can affect adherence.¹⁶ Certainly some of these variables are subsumed

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under the heading of certified athletic trainers' (ATCs') competence (eg, anatomical understanding of injuries and selection of appropriate treatments). However, knowledge about injuries and rehabilitation can readily be undermined by poor delivery. Both ATCs¹⁰ and injured athletes⁹ recognize that such psychosocial factors as social support, ATC-athlete rapport, and goal-setting impact the success of any prescribed rehabilitation.

Most athletic training textbooks^{1,2,6,20} contain material devoted to such topics as developing a relationship between an athlete and an ATC, setting attainable goals, and social support. However, coverage of these topics is brief, leaving the developing ATC with limited opportunity to either appreciate or integrate such information. It is necessary, of course, for textbooks to focus on prevention, description, explanation, and rehabilitation of athletic injuries, but the paradox is that ATCs' effectiveness may well reside with their people skills (eg, rapport, communication) as much or more than with their clinical skills.

Adherence to rehabilitation necessitates a partnership approach in which ATCs and athletes collaborate to produce desired end results. ATCs ply their rehabilitation skills on injured athletes who face a number of challenges^{19,22}: *cognitive*—athletes need to understand the nature of the injury, treatment regimen, and prognosis for recovery; *emotional*—athletes need to deal with feelings of uncertainty, anxi-

ety, blame, guilt, anger, hopelessness, and loss of control; and *behavioral*—athletes need to do something about their condition. Considering the above, it should be obvious that ATCs cannot realistically expect their injured athletes simply to comply with prescribed treatments, unless there are supports in place to deal with athletes' questions and concerns.

The purpose of this article is to offer some detailed and practical information on some of the more salient psychosocial factors that have been shown to have an impact on injury rehabilitation adherence.

Education

Educating injured athletes about their particular circumstances is normally a necessary first step in the rehabilitation process (Fig 1). We need, however, to realize that athletes differ in how much information they want.¹⁷ Some will desire specific details, whereas others will want to move immediately to the action phase of "Let's get on with it." And, as important as education is, it does not guarantee that athletes will adhere to their prescribed treatments.^{13,16} Quite simply, increased insight and knowledge do not necessarily lead to an increase in motivated behavior. Failure to offer needed and expected information, however, may cause a loss of motivation.

It seems to us (reinforced by others²³) that the important issues are: what to communicate, how much to communicate, and how to deliver the message. A great deal of relevant information could be discussed with the athlete, including the athlete's previous injury history, his/her particular role on the team, the athlete's motivational level, personal reactions to the injury, effects of the injury (eg, nature, severity, activity limitations, and pain expectations), treatment rationale, comparisons with previously injured and rehabilitated athletes, and prognosis.²¹ Selecting the points that are important to each particular athlete is a challenge for the ATC.

Previous investigations dealing with ATCs'¹⁰ and injured athletes'⁹ attitudes and judgments about injury re-



Fig 1.—Using anatomical model to describe an injury.

habilitation reveal that the educational phase should focus more on rehabilitation methods than on details of the injury. This seems to depict the message as one of hope and recovery rather than despair and deficit. Given the vulnerability of athletes at the onset of their injuries, it is too easy for athletes to adopt the fatalistic perspective that recovery will be incomplete and performance will be permanently hindered. But, we are quick to point out that some explanation of the injured athlete's condition is warranted and caution ATCs not to assume that the athlete understands everything that an orthopedic surgeon, for example, might have said.

In addition to the usual rehabilitation treatment details all ATCs discuss with their injured athletes (eg, type, frequency, intensity, and duration), we suggest that ATCs consider some preliminary relapse-prevention training.^{4,15} It is highly unlikely that injured athletes will be maximally motivated and committed to all aspects of the rehabilitation all of the time. Although there is no intent to give athletes a license to be irresponsible, the reality of adherence lapses needs to be recognized and at least

mentioned. Treatment adherence needs to be seen as continuous and ongoing, not dichotomous (ie, all-or-none). There are optimal periods for recovery when conditions are right, but the essential feature of most rehabilitation is that recovery takes place; even if it is delayed by brief lapses in motivation. The real concern here is that athletes recognize that rehabilitation is a sequential and developmental process, not obliterated by the odd day off. Failure to grasp the reality of the inevitable may lead the athlete to totally discontinue the rehabilitation because the treatment plan was interrupted. (We remind you about the parallels with fitness program motivation and dropout and the vicissitudes associated with diet control plans.)

There is a certain infallibility of youth and denial of reality that often needs to be addressed. Injured athletes' microviewpoints lead them to emit such a claim as, "I'm 80% and that's good enough to play." After all, that is what highly visible athletes proclaim in their televised interviews. Sometimes when athletes are asked to think of rehabilitation in the long term, their thoughts might go forward to the beginning of the playoffs or maybe even to the end of the season. However, from your perspective you might have been suggesting a return to normal functioning for daily living, irrespective of sport participation. Injured athletes need to understand factors as the body's normal responses to injury, concomitant reductions in functional capacity, and objective criteria that must be met prior to release from rehabilitation.

The dilemma faced is the huge amount of potentially valuable information that could be shared with athletes. How much should be explained? Perhaps a good starting point might be to ask: "Do you want to know what's happened and what's to follow?" We would be surprised if that question failed to generate some questions from the athlete. Our suggestion is to key off athletes' questions or quizzical demeanor, meeting them at the point of their needing to know.

Certain questions do not permit discrete and definitive replies. For exam-

ple, when the athlete queries: "How long am I going to be out?," a most appropriate response might be: "How hard are you prepared to work at your rehab?" Two important messages are inherent in this answer. First, it lets the athlete know that this is indeed a partnership arrangement, one in which he or she is expected to play a major role. ATCs work with and support injured athletes' rehabilitation efforts; they do not do the work for injured athletes. We feel it is very important that athletes understand their place in the partnership and accept maximum responsibility for the outcome. Second, it is evident from what we know about the complexities of treatment adherence that a discrete and categorical response is often not possible. The success of the rehabilitation depends not only on the character of the athlete undergoing the treatment but also on the quality of the personal healing environment that is created by the interactions of the ATC and the athlete. But, if the issue of length of treatment is pressed by the athlete, then perhaps the best response is to offer a time range, with minimums and maximums derived from your personal experiences.

Substantial evidence indicates that there are gaps in people's comprehensions of medically related information.¹⁶ A couple of humorous anecdotes might cause us to conclude that the following individuals needed to receive more information about their rehabilitation. One athlete was told that he would have to achieve more than 90% on the upcoming Cybex test in order to return to action. He responded: "How do I study?" The explanation of the criterion of functional capacity apparently did not register here. A patient with a back problem was told to stretch every 2 hours. When he returned the next day, he looked terrible. He indicated, with some appreciation, that his back was substantially better, but his awaking every 2 hours certainly played havoc with his sleep. The rehabilitation assignment worked but not quite like the physical therapist had intended. Some excellent suggestions and guidelines for prescribing

treatment regimens and giving information are offered in Meichenbaum and Turk's¹⁶ illuminating book on facilitating treatment adherence.

Communication

Although what and how much information to disseminate is important, how it is communicated may determine the degree to which the information is received and processed. ATCs seem to recognize clearly the significance of a positive and sincere communication style.^{22,23} This necessitates a degree of honesty and realism (eg, severity of an injury, effort needed, and pain and difficulties to be encountered), interspersed with healthy doses of optimism (eg, others have done it before you). More specifically, the following guidelines are germane to injury rehabilitation adherence.

1. "Establish a trusting supportive relationship and demonstrate interest in the patient (athlete). Use a warm and empathic manner, conveying competence, confidence, and knowledge concerning treatment regimen, and a sense of optimism."¹⁶
2. "Be specific, clear, detailed, concrete, and simple in communicating and giving instructions... Use down-to-earth, non-technical language without medical jargon."¹⁶
3. "Repeat important information when possible. Reinforce essential points."¹⁶
4. "Use oral and written material together.... Supplement when appropriate with... anatomical models.... take-home booklets, newspaper or magazine articles."¹⁶
5. "When providing patients (athletes) with a course of action to be adhered to, stress how important it is."¹⁶
6. "Promote active reworking of material (eg, ask the patient (athlete) to restate the information given)."¹⁶

The above suggestions highlight how important it is for athletes to listen to what ATCs tell them. In fact, it has been reported elsewhere that a willingness to listen to ATCs' directions and suggestions is the most important char-

acteristic for athletes in coping with their injuries.²³ But, the essence of effective communication is that both parties listen to what the other has to say (ie, two-way communication). What appears paradoxical is that ATCs do not rate their own capacity to listen as that significant.²³ Because communication is so crucial, we implore our colleagues to become better listeners.

Perhaps our best estimate of the degree of rehabilitation adherence we can expect from an injured athlete comes from the response to the following question: "Do you sense that you'll be able to handle the rehab?"¹⁶ To the degree that the athlete does not hesitate, affirms your realistic and optimistic viewpoint, and indicates that she or he is ready to begin, you have received the response most likely to predispose adherence.

It is important that coaches reinforce the information athletes receive from ATCs. Consistency about matters such as the date of return to practice and competition, the likely role upon return, and performance expectations is essential to rapport. Contradictory messages tend to confuse athletes, leading them to assume that someone is not telling the truth. You can imagine what that might do to trust and mutual respect.

ATC-Athlete Rapport

Getting injured athletes started on their rehabilitation with the attitude that they can carry out the prescribed treatment is an important first step. Long-term motivation or adherence, however, will depend in large part on the rapport that develops between the ATC and athlete. Rapport is perhaps best characterized as a sympathetic or empathic relationship between the two parties. When this relationship is born out of mutual respect, a true partnership forms, wherein each party takes responsibility for the rehabilitation outcome.

ATCs can demonstrate their interest in athletes by having enough working knowledge to discuss things as: the position the athlete plays, the athlete's role on the team, and dates of upcoming games. For the partnership to

work, ATCs must listen to athletes and address some of the agenda items that athletes perceive are important. In a recent investigation,⁹ it was reported that previously injured and rehabilitated athletes expect the following from ATCs: caring attitude, firm treatment, assistance in dealing with their pain, assessment of needed effort, consideration of their other commitments, treatment efficacy expectations, supervision, monitored progress, and honest feedback. It seems very clear that athletes enter the rehabilitation arena not only with specific expectations they hope will be fulfilled but also with the anticipation that there will be some ground rules on which their rehabilitation regimens will be based. For example, being firm and demanding with athletes does not hinder rapport; athletes want structure.

Another essential feature of rapport is trust, more so on the part of the athlete. ATCs need to demonstrate their competence, especially if their reputation is not well established in their present setting. We are not suggesting that you create highlight films of your successful rehabilitations or publish endorsements from previously rehabilitated athletes. But, there is a need to reassure the injured athlete that you have the knowledge and experience to deal with his or her particular condition. A confident demeanor, punctuated with relevant comparisons to other injured athletes with whom you have dealt, will certainly make the injured athlete feel more comfortable with you.

Social Support and Encouragement

The weight of the available evidence reveals a positive relationship between social support and medically related adherence.^{3,8} The essence of social support is caring, listening, and encouraging. In order for ATCs to be classed as "significant others," they need to encourage athletes to have positive self-thoughts, understand the individual nature of motivation, and enhance athletes' self-confidence.²³

ATCs are in the position to orchestrate a very powerful system of social

support from injured athletes' coaches and teammates.⁷ Coaches can be notified of the date and time of rehabilitation sessions, and they can be encouraged to show up at a session personally. Teammates can also be requested to drop in on injured colleagues to help them maintain a degree of contact with their sport. Interestingly, findings indicate that teammates are not seen as important sources of social support for injured athletes.⁹ However, that is only because athletes have seldom been intentionally placed into the support system by coaches. If that oversight is remedied, then we predict that teammates will indeed be a powerful supportive force on injured athletes' rehabilitation adherence.

Anything that can minimize the psychosocial distance between the injured athlete and the sport environment would likely enhance adherence.^{10,23} Transporting a bicycle ergometer or resistive equipment to the practice field or gym for injured athletes' on-site rehabilitation will tend to keep athletes involved with their teams, a significant factor in treatment adherence (Fig 2).

Earlier we addressed the partnership concept relative to rapport, and we believe this concept can be extended to social support. Where there are athletes undergoing similar rehabilitation (eg, bicycle riding and resistance



Fig 2.—Injured athlete using bicycle ergometer on the practice field.

training), they can be matched. This will tend to offer each of them a more realistic comparison of the quantity and quality of work done, rather than placing them in a situation where their physical deficiencies are amplified.

Based upon athletes' comments, Weiss and Troxel²¹ suggested that ATCs consider two supportive strategies—peer modeling and injury support groups. The former involves putting a currently injured athlete in touch with a previously injured and rehabilitated athlete, possibly with a similar injury. Empathy, honest realism, and optimism are the anticipated outcomes of this supportive interaction. For those injured athletes who seem to have less coping capacities, it might be useful for them to have a circle of peers with whom they interact about various aspects of their injuries and rehabilitation. The injury support group might provide the motivation for the injured athlete to deal with all that recovery from injury entails.

Although it might seem that parents would be a logical support source for injured athletes, previous findings indicate that parent support is not seen as essential.²³ Also, it may well be a breach of confidence to involve parents in the rehabilitation process without the athlete's permission. These points notwithstanding, we still think it is a good idea to ask the question: "Have you talked with your folks about your injury?" Our basic stance is to attempt to invoke social support from all potential avenues, because it is so crucial to treatment adherence.³

Personalize Treatment

To be effective, ATCs must match the rehabilitation regimen (ie, type, intensity, frequency, and duration) with their perceived assessment of injured athletes' characteristics.¹¹ For example, it would not seem wise to expect a lesser motivated athlete to perform all exercises to the same extent as a highly self-motivated athlete. Although there may well be ideal rehabilitation schedules that can be used as models, the key to rehabilitation effectiveness is that the work indeed gets done. It might be preferred from ATCs' and

coaches' perspectives that athletes complete their rehabilitation in the shortest time possible, but it seems clear that athletes are best served if they complete the rehabilitation, no matter the length of time. Essentially, the rehabilitation prescription is characterized more by its manageability than by its efficiency.

This, then, leads us to the concept of tailoring. Because athletes' injury treatment progress is as individually different as the type and severity of their injuries, it seems only reasonable to conclude that treatment be criterion-based. If specific functional progressions are used as criteria to return to sport participation, then ATCs will be more able to deal with athletes' and coaches' typical queries: "Can I play this Saturday?"; "Will she be ready for the playoffs?"; "How much can he do?" Depending on the general and specific tasks that can be performed, ATCs will be able to assess whether a particular athlete is a day ahead or three days behind the anticipated schedule. The inescapable conclusion is that ATCs need to focus more on actual people progression than on expected textbook progression (Fig 3).

In addition to individualizing treatment, ATCs might consider an individualized behavioral approach, such as goal setting,^{5,7,12} to assist their injured athletes along the path of treatment adherence. More pointedly, it has been argued in the athletic training literature that behavioral facilitation is severely

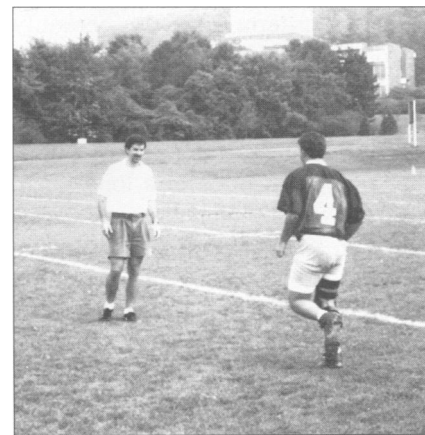


Fig 3.—Using functional progressions to measure rehabilitation progress.

underestimated and underused in the field of injury rehabilitation.⁵

Goal Setting

Even though we recognize that an injured athlete's rehabilitation protocol is sometimes clearly delineated by healing restraints and/or a physician's prescription, there are many other occasions when ATCs might find it beneficial to help injured athletes set particular rehabilitation goals and strive to attain them.

It is our experience that as many as 90% of the injuries we see are short-term (ie, not more than 1 week in duration). Remediation in these cases is by necessity criterion-based, emphasizing the attainment of daily goals. Once the athlete can perform the general and then the specific task demands of her or his sport and position, that athlete can return to participation.

Elsewhere it has been argued that striving for and attaining goals may separate previously injured athletes who will return to competition within the prescribed time frame from those who do not,⁵ may serve to motivate athletes through effort and persistence,²¹ and may provide a sense of accomplishment that is motivating and a real confidence builder.^{10,21,22} Goal attainment is rewarding, so much so that rehabilitation adherence is doubled for those individuals who achieve their goals.¹⁴

To maximize the effectiveness of goal setting in your rehabilitation endeavors, specific suggestions are offered. Long-term goals are certainly important but they do not provide the needed motivation for daily workouts.^{9,10} Short-term goal attainment (eg, 5° increase in knee flexion by the end of the week) imbedded in a long-range plan allows the injured athlete to see much needed immediate improvement, thereby creating optimism that enhances rehabilitation adherence.^{5,12}

"Do your best" goals do not work as well as goals that are explicit, specific, and numerical.¹² DePalma and DePalma⁵ offer a good example of the latter: "After determining the athlete's (ACL injury) aerobic capacity, the Tuesday and Thursday workout might

be presented as 30 minutes of cycling at 2 kp, 50 rpm, followed by 3 minutes of step-ups on a 6-inch step, all performed pain free."

Goal setting works to change or reinforce behavior, but what kind of goals will injured athletes strive for? Goals need to be set high enough to offer a real challenge and yet be realistic enough to be attainable.¹² For example, at a certain point in ankle, knee, and/or hip injury rehabilitation, an ATC might set the goal of balancing on the BAPS Board for 30 seconds.

Once goals are set, they are often viewed as permanent and unchangeable, even if their attainment is problematic. Goals need to be viewed as flexible, much like plans for doing anything else. Inflexible goals will tend to frustrate injured athletes and may even demotivate them and hamper their progress—just the opposite of the intended outcome. If a return-to-competition goal appears too ambitious, then both the athlete and ATC need to reassess that goal. Even though the athlete may be frustrated and disappointed, striving for an unrealistic goal may create even additional problems (eg, aggravated injury and negative attitude).

It has been suggested that target dates and subsequent strategies for goal attainment ought to be identified.¹² Following knee surgery, certain milestones might be outlined: stitches out in 10 days, 90° knee flexion by 3 weeks, and off crutches by 5 weeks. Unfortunately, the discomfort associated with rehabilitation (eg, soreness, fatigue, and pain) can deter injured athletes from pursuing their rehabilitation goals. It might be useful, therefore, to lessen the sensory impact by using distraction techniques.⁷ Teaching injured athletes to focus on their breathing, to concentrate on playing again, or to "do 10 more" offers them strategies that will assist them in working through their inevitable discomfort.

It is important that goal attainment be recorded, either daily or weekly. Consider the "expect, record, and inspect" strategy. As an athlete completes the *expected* rehabilitation goal

(eg, three sets of 10 reps using 25 pounds of resistance), he or she *records* that on the rehabilitation report. Periodically, the ATC in charge of that athlete's rehabilitation *inspects* the progress. The athlete recognizes the achieved goal, and the ATC verifies and validates that satisfactory progress is being made. Feedback is absolutely necessary for continued goal striving,¹² and data from the rehabilitation report offer the substance to address.

The following cautions are offered to avoid pitfalls in goal setting:¹²

- Setting too many goals too soon.
- Setting goals that are too general.
- Failing to recognize individual differences.
- Failing to modify unrealistic goals.
- Failing to create a supportive atmosphere in which goals can be attained.

Monitor Progress

Injured athletes must come to accept what ATCs already know—rehabilitation gains come in relatively small increments. Just as the person on a diet expects rapid weight loss, many athletes expect a miraculous speedy recovery. At the onset of rehabilitation counseling, prior to the initiation of the workout regimen, we suggest that it would be useful to guide athletes' expectations of progress. There are several potentially valuable constructs that could be used to explain the reality of how the rehabilitation will likely progress.

All the healing that takes place is not necessarily evident in enhanced ROM because there need to be periods of neural consolidation and integration. These periods are often referred to as plateaus, a flattening out of the progress curve. However, without these so-called plateaus, there will be no incremental gains. As long as the injured athlete is positively stressing the injured area, there is bound to be some advancement, whether apparent or not. This is a basic theme of growth and development (Principle of Spiral Reincorporation), and it applies as well to rehabilitation as it does to learning.

At an advanced point in the rehabilitation process, gains will be realized in smaller and smaller increments. This again parallels what athletes probably already recognize about how they acquired their sport skills. A few bouts of practice to a highly skilled athlete cannot be expected to lead to major increases in skill. Athletes, therefore, need to come to grips with this Law of Diminishing Returns and not expect the same rate of progress toward the end of the rehabilitation period that they experienced in the beginning. Athletes are likely to face unnecessary frustration unless they recognize this ceiling effect.

The practical application of this information for ATCs is not to overdo progress assessments. For example, repeated girth measurements on the quadriceps are not going to be very enlightening or pleasing unless adequate elapsed time between assessments is allowed. Rehabilitation exercises require time to produce effects. To draw a parallel: Nothing is more depressing to a person on a restricted diet and an exercise program than weighing in *every* day and seeing little initial weight loss; sometimes weight is even increased from day to day. Give the program a chance to show its inevitable subsequent benefits.

Return to competition results when the rehabilitation is completed to the satisfaction of the sportsmedicine staff. ATCs can depersonalize the monitoring of progress by turning responsibility over to the system. This tends to reduce friction between athletes and ATCs. Sometimes, an ATC might decide to accentuate or strengthen the physician's suggestions. Rather than stating, "You can return to play only when your rehabilitation is complete," the assertion is made that "The doctor indicated that you cannot play until you've been cleared."

Alternatively, the return to competition can be based on some specific criteria. For example, the printed results of isokinetic testing are very tangible and visible to athletes (Fig 4). They can be informed that they will be able to return to play once the contralateral quadriceps deficiency falls

below 10%, based on Biodex peak torque, total work, and maximum work readings.

Additionally, because ATCs see injured athletes on a daily basis, they have the advantage of using functional progressions to monitor rehabilitation progress (Fig 3). Athletes are making progress when they can successfully meet the general task demands of their sport (eg, walk without a limp, jog, jog around corners, and jog on uneven surfaces). They are ready to return to play when they can meet the salient specific task demands (eg, throw 50 pitches without shoulder pain, throw 80 mph, and twist 180° and make a throw). Functional progressions afford both ATCs and athletes the opportunity to measure the progress of their joint rehabilitative efforts against some very concrete and meaningful criteria. Once athletes recognize and accept the established criteria, the groundwork for return to competition is laid.

Oldridge and Jones,¹⁸ using a cognitive behavioral approach, describe a self-monitoring strategy that could be readily adapted to the rehabilitation arena. Athletes can record relevant information in a small notebook or on diary sheets (eg, time of day, intensity of workout, duration of workout, and subsequent feelings about such accomplishments). Progress across reasonable time frames (ie, weekly)

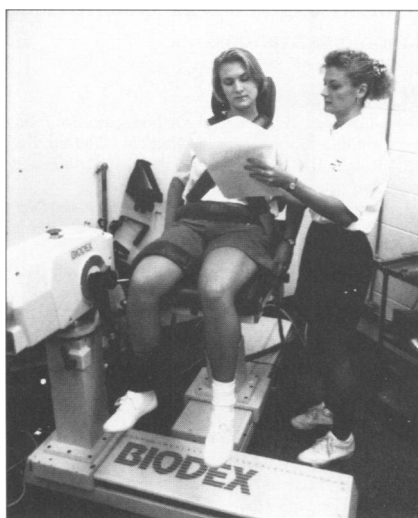


Fig 4.—Sharing isokinetic testing results with athlete.

might be plotted on graph sheets. The more involved injured athletes get with their rehabilitation and its successes, the more likely they are to commit themselves to the prescribed program's completion.

Make Athletes Responsible

In an earlier investigation,¹⁰ ATCs suggested that athletes need to feel responsible for their own rehabilitation. Adherence to rehabilitation is more likely if athletes also feel some degree of responsibility to others (eg, teammates and coaches).

Rehabilitation has both passive and active components; modalities are passive and temporary but participation is active and enduring. ATCs can monitor and record progress and reinforce expectations, but athletes' self-responsibility will be enhanced by having them participate in these matters. Even though you set standards for specific workouts (eg, a sequence of Williams' flexion exercises), you might consider setting minimum and maximum standards and then holding athletes accountable for attainment. Sometimes it might be useful to give athletes choices as to which workout they prefer (eg, treadmill, bicycle, or stair climber) (Fig 5). It seems reasonable to believe that athletes will be more responsible if they play a part in the decision making.

Threats and Scare Tactics

Negative reinforcement is considered by some to be motivational, but it appears that there is a certain inherent danger in using large doses of threats and ultimatums. Perhaps the biggest drawback is deciding what to do if the threat does not work. At best it is a lose/win situation. The ATC who threatens the athlete with a "do it or else" ultimatum runs a high risk of harming rapport with that athlete, even if the athlete passes the test. However, it can even end up being a lose/lose situation if the athlete does not adequately complete the stipulated task. Then, the ATC is in the position of having to withdraw services or prevent the athlete from returning to competition.

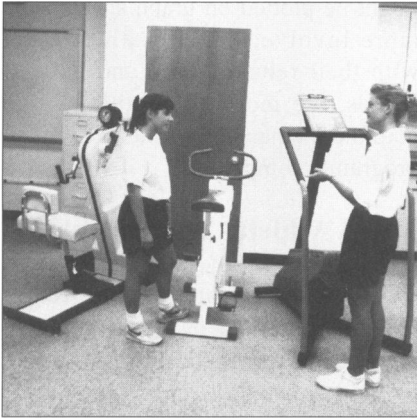


Fig 5.—Giving athlete the choice of exercise apparatus.

ATCs have reported mixed attitudes and judgments about the effectiveness of negative reinforcement.¹⁰ Over three-quarters of those surveyed indicated that threats and scare tactics are the least successful rehabilitation adherence strategy. And, yet, threatening to withdraw sport participation for those athletes who do not satisfactorily comply with rehabilitation dictates was seen by 7% of these ATCs as a successful adherence strategy.

Likewise, over half (58%) the injured athletes surveyed claimed that threats and scare tactics would not work for them.⁹ Moreover, some of them commented that they would lose respect for any ATC who attempted to use such a strategy.

Negative reinforcement appears to be a double-edged sword. It may work to achieve certain rehabilitation goals, but it may just as readily work against the ATC wielding the threat. Our experience tells us that threats work for some people some of the time. And, it is to this point that the following suggestions are made.

Where possible, change the threat into a challenge. Rather than dictating a 90° knee flexion by the end of the week or else, why not consider asking, “Can you get to 90° knee flexion by the end of the week? I believe you can, with a good week of workouts. Let’s do it!”

The emotional component of the threat can be removed by personalizing the demand by involving the athlete in the rehabilitation process or by depersonalizing the demand and mak-

ing it a matter of fact. As we described earlier, using functional progressions (both general and specific) removes the onus of the ultimate decision from the ATC. If there is any “blame” to be allocated following unsuccessful progression testing, it does not fall on the ATC.

Use threats, if you must, as your last resort when all other motivational strategies have failed. At this point, the athlete’s rehabilitation is not progressing, and you have little to lose. If they work and the athlete can see the progress, then maybe the rehabilitation goals will be pursued vigorously enough to complete the prescribed regimen.

Conclusion

All of the strategies explained herein were triggered by previously surveyed ATCs.¹⁰ We expanded on these suggestions in the hopes that ATCs would see the value, as we do, in offering motivational support to their rehabilitating athletes. From the smorgasbord of strategies offered, we would ask you to consider implementing those that seem comfortable for you and/or those that seem like they would enhance your athletes’ rehabilitation adherence. Your goal, like ours, is to return injured athletes to normal function, whether it be in the sports realm or life following sport participation. We believe that you will be even more effective if you integrate some of these suggestions into your rehabilitation prescriptions.

References

1. American Academy of Orthopaedic Surgeons. *Athletic Training Sports Medicine*. 2nd ed. Park Ridge, Ill: American Academy of Orthopaedic Surgeons; 1991:167–188.
2. Arnheim DD, Prentice WE. *Principles of Athletic Training*. 8th ed. St. Louis, Mo: Times Mirror/Mosby; 1993:13–15,134–146.
3. Caplan RD, Robinson EAR, French JRP, Caldwell JR, Shinn M. *Adhering to Medical Regimens: Pilot Experiments in Patient Education and Social Support*. Ann Arbor, Mich: Institute for Social Research, University of Michigan; 1976:44–48,129–137.
4. Chiauzzi EJ. *Preventing Relapse in the Addictions: A Biopsychological Approach*. New York, NY: Pergamon Press; 1991:1–22.
5. DePalma MT, DePalma B. The use of instruction and the behavioral approach to facilitate injury rehabilitation. *Athl Train, JNATA*. 1989;24:217–219.
6. Fahey TD. *Athletic Training: Principles and Practice*. Mountain View, Calif: Mayfield Publishing; 1986:3–12.
7. Fisher AC. Adherence to sports injury rehabilitation programmes. *Sports Med*. 1990;9:151–158.

8. Fisher AC, Domm MA, Wuest DA. Adherence to sports-injury rehabilitation programs. *Phys Sportsmed*. July 1988;16:47–50:52.
9. Fisher AC, Hoisington LL. Injured athletes’ attitudes and judgments toward rehabilitation adherence. *J Athl Train*. 1993;28:48–54.
10. Fisher AC, Mullins SA, Frye PA. Athletic trainers’ attitudes and judgments of injured athletes’ rehabilitation adherence. *J Athl Train*. 1993;28:43–47.
11. Friedman IM, Litt IF. Adolescents’ compliance with therapeutic regimens: psychological social aspects intervention. *J Adolesc Health Care*. 1987;8:52–67.
12. Gould D. Goal setting for peak performance. In: Williams JM, ed. *Applied Sport Psychology*. 2nd ed. Mountain View, Calif: Mayfield Publishing; 1993:158–169.
13. Haynes RB. Compliance with health advice: an overview with special reference to exercise programs. *J Cardiac Rehabil*. 1984;4:120–123.
14. Ice R. Long term compliance. *Phys Ther*. 1985;65:1832–1839.
15. Martin JE, Dubbert PM. Behavioral management strategies for improving health and fitness. *J Cardiac Rehabil*. 1984;4:200–208.
16. Meichenbaum D, Turk DC. *Facilitating Treatment Adherence*. New York, NY: Plenum Publishing; 1987:111–134.
17. Miller SM. Monitoring and blunting: validation of a questionnaire to assess styles of information seeking under threat. *J Pers Soc Psychol*. 1987;52:345–353.
18. Oldridge NB, Jones ML. Improving patient compliance in cardiac rehabilitation: effects of written agreement and self-monitoring. *J Cardiac Rehabil*. 1983;3:257–262.
19. Pedersen P. The grief response and injury: a special challenge for athletes and athletic trainers. *Athl Train, JNATA*. 1986;21:312–314.
20. Prentice WE, ed. *Rehabilitation Techniques in Sports Medicine*. St. Louis, Mo: Times Mirror/Mosby; 1990:107–122.
21. Weiss MR, Troxel RK. Psychology of the injured athlete. *Athl Train, JNATA*. 1986;21:104–109.
22. Wiese DM, Weiss MR. Psychological rehabilitation and physical injury: implications for the sportsmedicine team. *Sport Psychol*. 1987;1:318–330.
23. Wiese DM, Weiss MR, Yukelson DP. Sport psychology in the training room: a survey of athletic trainers. *Sport Psychol*. 1991;5:12–24.