Short-Term Psychological Intervention:  
A Study of Long-Term-Injured Competitive Athletes

Urban Johnson

Objective: To explore the effectiveness of psychological interventions for a sample of competitive athletes with long-term injuries.

Design: Modified 2-group, pretreatment and posttreatment (repeated measure).

Patients: 58 patients, 14 in the experimental group and 44 in the control group.

Interventions: Three intervention strategies: stress management and cognitive control, goal-setting skills, and relaxation/guided imagery.

Main Outcome Measure: Mood level was used as the outcome variable.

Results: The experimental group had a higher overall mood level at the midpoint and end of rehabilitation and were also feeling more ready for competition than the control group was, both as rated by themselves and by the treating physiotherapist. The only strategy to show statistical differences was relaxation/guided imagery.

Conclusions: The results of this study support the idea that a short-term intervention has the potential to elevate mood levels in competitive athletes with long-term injuries.

Key Words: behavior, long-term injury, mood level

Competing in sports at a high level places extreme demands on physical vigor. Most athletes at a competitive or elite level practice almost daily and compete regularly during the season in order to be optimally prepared physically, mentally, and technically. Even though most athletes at this level are in excellent physical condition in terms of muscle and bone structure, and thus are capable of handling high physical demands, the chance of suffering an injury during a regular season is fairly high. Conservative estimates indicate that at least half of the participants in amateur athletics each year suffer an injury that precludes participation. In high-level sport, the risk of injury is even greater. For example, in competitive women’s gymnastics, injury rates as high as 70% to 80% per year are reported. In elite-level soccer in Sweden (for men and women alike), approximately 75% of participants are injured at some time during a season.

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For most athletes, an injury during the regular season, although disappointing, is nevertheless something to be accepted. Such injuries do not generally lead to major emotional crises. However, research suggests that surprisingly many athletes face problematic and, in some cases, prolonged rehabilitation because of psychosocial factors such as maladaptive coping strategies and lack of specific goal-setting skills during rehabilitation.4

A number of short- and long-term psychological interventions (eg, goal setting, imagery, knowledge/education, positive self-talk, relaxation, social support, stress management) have been recommended to enhance the psychological well-being and facilitate the physical rehabilitation of injured athletes.5-8 Although these interventions have often been recommended in the literature, there is limited empirical support for their use with injured athletes. Controlled outcome studies are needed to determine the effectiveness of these interventions in the context of sport injury rehabilitation.9

In recognition of the role that psychological factors play in mediating adjustment to and recovery from athletic injury, the inclusion of psychological approaches in treatment has become a focus of clinical interest.10,11 Recommended treatment methods for injured athletes are typically based on cognitive-appraisal theories of stress and coping.12,13 Consequently, cognitive-behavioral methods are considered to hold significant promise for intervention with injured athletes, given their demonstrated efficacy in managing stress and its associated distress and in enhancing goal-setting skills.5,14,15

Working as a coach or leader in competitive sports normally demands high ability to organize and structure progressive training sessions and to establish and maintain a clear focus on fast and high-level results. Working with injured competitive athletes likewise puts high demands on the sports medicine team to help the athletes be able to compete again as soon as possible. As a consequence, some sport psychologists consulting with injured athletes are experimenting with shorter and more condensed versions of psychological intervention in order to speed up rehabilitation and ready the athlete for competition again.11,16

A review of the literature suggests that there is a need for controlled outcome studies in order to determine the effectiveness of interventions in the context of sport injury rehabilitation. The review also identifies some specific cognitive-behavioral intervention techniques that injured athletes have assessed favorably during rehabilitation. These include stress management/cognitive control, goal setting, and relaxation/guided imagery.6 The aim of this study was to use a modified two-group, pretreatment and posttreatment (repeated-measure) design to test the effectiveness of short-term intervention using 3 cognitive and somatic strategies (namely, stress management and cognitive control, goal setting, and relaxation/guided imagery) with a group of long-term-injured competitive athletes showing no signs of psychosocial risk behavior at the start of the rehabilitation. If the interventions were effective, the experimental group would be expected
to have positive scores in regard to the work with the intervention strategies, and the group’s overall mood level at the end of rehabilitation should be higher than that of a matched control group.

Methods and Materials

Subjects and Definitions

Data were collected from a group of 58 competitive-level athletes (ie, Swedish national, as well as international, standard) suffering from traumatic and severe sport injuries, including 52 men and 6 women. The injuries all occurred while the athletes were training or competing. Each athlete either contacted the sports medicine center spontaneously or was referred to it by a physiotherapist specializing in sport injuries. Of the 58 athletes, 82% (n = 49) participated in team sports such as soccer (n = 33), European handball (n = 8), American football (n = 4), floor ball (n = 3), or volleyball (n = 1). The athletes constituting the remaining 18% (n = 9) of the group participated in track and field (n = 2), gymnastics (n = 2), table tennis (n = 2), and other individual sports.

The most common acute injuries were knee injuries (64%), followed by foot/ankle injuries (12%) and shoulder injuries (5%). The criteria for inclusion in the study were as follows: participating at a competitive level, being above 18 years of age, showing no sign of psychosocial risk behavior as measured by the Questionnaire—Psychosocial Risk Factors and Sport Injury (Q-PRSI), and being unable to either train or compete in the sport in question for a minimum of 5 weeks as a result of the injury. The 5-week limit is equivalent to the classification of severe sport injury. The athletes were diagnosed by physiotherapists and were assessed as having injuries of such severity that, on average, 12.4 (SD 8.2) weeks of rehabilitation were necessary before a return to sport was possible. Tests were carried out on 3 different occasions. Between tests 1 and 3, one subject dropped out. The mean age of the sample was 23.7 years (SD = 4.3), that of the men being 24.1 (SD = 5.1) and the women, 21.5 (SD = 3.5).

Every fourth patient in the original sample of 58 patients was assigned to the experimental group. This randomly selected group consisted of 14 men with a mean age of 23.5 (SD = 5.2) who participated in team sports such as soccer (n = 7), European handball (n = 3), floor ball (n = 2), and American football (n = 1) and an individual sport—table tennis (n = 1). On 3 different occasions, along with traditional sports medicine physiotherapy, the group received a formal intervention giving training in the following skills:

Stress Management and Cognitive Control. During the stress management and cognitive control training, the patients learned how to cope effectively with traumas using the problem- and emotion-focused coping strategies of Folkman and Lazarus. More precisely, they learned how to take
responsibility for their actions and actively confront the trauma through a
cognitive reappraisal strategy that included trying to see the injury from a
more positive point of view or as a challenge instead of as a threat (problem-
focused coping). This is as opposed to strategies such as "wishful thinking"
that are oriented more toward relying on others and include behaviors such
as hoping that the problem will solve itself (emotion-focused coping).

**Goal-Setting Skills.** During the goal-setting skills training, the athletes
actively learned how to develop a goal-setting model. After an initial inter-
view, a sport psychologist explained the rationale behind the "target ap-
proach for goal setting" adapted from Smith. Athletes were encouraged
to continually integrate long-, intermediate-, and short-term or daily goals
into their rehabilitation training. The model is bidirectional in the sense
that having a dream provides the inspiration to meet daily goals, but only
by doing the daily exercise will an athlete return to sport and fulfill that
dream.

**Relaxation/Guided Imagery.** During the relaxation/guided imagery ses-
sion, the athletes learned the basic components of relaxation and self-
directed mental training. First, they were taught relaxation and breathing
techniques. Then they learned how to mentally connect their mind with
the injured body part and imagine healing taking place, as well as imagi-
ning their body functioning perfectly and performing their desired activi-
ties well. They were advised to practice this for at least 15 min a day, 4 times
a week, throughout the injury period.

Each athlete met with the same sport psychologist alone, training 1 skill
per session, on average, for three 15- to 25-min sessions. In order to create
an instructive and open dialogue between sport psychologist and patient,
each session was organized as follows: (1) First, a theoretical background
information about each skill was stated. (2) Then, the patient was encour-
aged to get familiar with the skill in question. This was done by letting
the patient practice the psychological skill under supervision of the sport psy-
chologist. (3) Finally, the patient was asked to address questions about how
to practice each skill on his or her own.

The control group consisted of 44 athletes with a mean age of 23.7
(SD = 4.2), that of the men (n = 38) being 24.1 years and women (n = 6),
21.5, participating in the team and individual sports listed earlier. This group
did not receive any form of psychological intervention. The physiotherapist
was unaware of which patients were in the control and which in the
experimental group.

**Measurements**

Altogether, 7 tests and scales were used on the 3 test occasions to measure
the effect of the intervention program. On the first occasion, at the start of
the rehabilitation, data were collected using the Q-PRSI, the Mood Adject-
ive Checklist (MACL), the Diagnostic Checklist 1 (DCL:1), and the Patient’s
Self-Rating Questionnaire (FSQ). On the second occasion, in the middle of
the rehabilitation training (on average, 6-7 weeks after the first test occasion), only the MACL was used. On the third and final occasion, when the athletes were supposed to be ready to return to sport again according to the physiotherapist, the MACL, Diagnostic Checklist 2 (DCL:2), and PSQ were used.

The Questionnaire—Psychosocial Risk Factors and Sport Injury, designed by Johnson and Bakkioui,17 was used to detect potential psychosocial risk behavior. The test consists of 59 questions focusing on 4 areas: background information; psychosocial risk factors such as social network, goal setting, and the stressfulness of the injury; mood level; and coping strategies (emotion- and problem-focused). Scores equal to or above 5 out of a total of 10 possible points indicate the likelihood of problematic rehabilitation in terms of psychosocial risk behaviour.17,21

The Mood Adjective Checklist (MACL), designed by Svensson22 and Sjöberg et al.,23 measures 6 bipolar mood dimensions: hedonic tone (eg, pleasure, satisfaction vs discomfort, dissatisfaction), activity–passivity (active vs idle), tension–relaxation (tense, nervous vs calm, relaxed), extraversion–introversion (extrovert vs introvert, particularly in social situations), positive vs negative social orientation, and control vs lack of control (self-confident vs insecure). Cronbach’s alpha was calculated at .88. In earlier studies, the MACL was found to be correlated with various coping strategies after major surgery24 and severe sport injuries.25 In this study, MACL sum refers to the average score measuring the 6 dimensions altogether of the first (MACL sum 1), second (MACL sum 2), and third (MACL sum 3) test occasions.

The Diagnostic Checklist 1 (DCL:1) consists of questions put to the physiotherapist concerning the patient’s physical status and prognosis at the beginning of rehabilitation. The Diagnostic Checklist 2 (DCL:2) consists of questions put to the physiotherapist concerning the patient’s physical status at the end of the prescribed period of treatment.

The Patient’s Self-Rating Questionnaire (PSQ) consists of questions put to the athletes concerning whether they consider themselves to be physically and mentally ready for training and competition at maximum effort at the end of the prescribed period of treatment. Three statements were constructed to be used as outcome variables to compare the patients’ self-ratings with their scores on the MACL, namely, “I feel in control of the stress and worry I initially felt because of the injury and I am ready for physical activity again” (stress management and cognitive control), “My goals and visions are fully oriented toward physical activity again” (goal-setting skills), and “My body feels relaxed and I am ready for physical activity again” (relaxation/guided imagery).

Statistical Analysis

One-way analysis of variance (ANOVA) was used to analyze differences between the means on the MACL and Q-PRSI. The chi-square test was
used to analyze frequency distribution differences between the groups in responses to questions from the DCL:1, the DCL:2, and the PSRQ. Finally, ANOVA (repeated measure) was used to analyze the overall results from the MACL sum of test occasions 1 to 3, as well as the 6 different mood variables constituting the MACL.

## Results

### Comparison Between Control and Experimental Groups

As expected, few differences emerged between the control and experimental groups in regard to the Q-PRSI on the ANOVA analyses. The mean age was higher for the experimental group (mean = 24.85, SD = 5.4 vs mean = 22.15, SD = 3.2; $t_{56} = 5.62, P = .025$). Results for subsequent ANOVA analyses are shown in Table 1. As can be seen, although no differences emerged on the first test occasion, the experimental group got higher overall scores on the MACL sum on the second and third test occasions, that is, MACL sum 2 ($P = .004$) and MACL sum 3 ($P = .010$). Examining the different mood

Table 1  Descriptive Statistics for Control (n = 44) and Experimental (n = 14) Groups on the MACL and Q-PRSI and ANOVAs (One-Way) on Significant Variables*

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Variable</th>
<th>Control Mean</th>
<th>Control SD</th>
<th>Experiment Mean</th>
<th>Experiment SD</th>
<th>F Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACL</td>
<td>MACL sum 2</td>
<td>2.98</td>
<td>0.20</td>
<td>3.17</td>
<td>0.18</td>
<td>9.00†</td>
</tr>
<tr>
<td>MACL</td>
<td>MACL sum 3</td>
<td>3.06</td>
<td>0.30</td>
<td>3.29</td>
<td>0.23</td>
<td>7.12†</td>
</tr>
<tr>
<td></td>
<td>Hedonic tone 2</td>
<td>2.47</td>
<td>0.27</td>
<td>3.32</td>
<td>0.26</td>
<td>17.69‡</td>
</tr>
<tr>
<td></td>
<td>Hedonic tone 3</td>
<td>3.08</td>
<td>0.43</td>
<td>3.49</td>
<td>0.32</td>
<td>10.34‡</td>
</tr>
<tr>
<td></td>
<td>Tension 2</td>
<td>2.71</td>
<td>0.29</td>
<td>2.95</td>
<td>0.25</td>
<td>7.33‡</td>
</tr>
<tr>
<td></td>
<td>Extroversion 3</td>
<td>3.02</td>
<td>0.33</td>
<td>3.25</td>
<td>0.26</td>
<td>5.26§</td>
</tr>
<tr>
<td></td>
<td>Social orientation 2</td>
<td>3.18</td>
<td>0.33</td>
<td>3.38</td>
<td>0.24</td>
<td>4.68§</td>
</tr>
<tr>
<td></td>
<td>Social orientation 3</td>
<td>3.02</td>
<td>0.31</td>
<td>3.27</td>
<td>0.28</td>
<td>6.09†</td>
</tr>
<tr>
<td></td>
<td>Security 2</td>
<td>2.95</td>
<td>0.17</td>
<td>3.14</td>
<td>0.28</td>
<td>12.60‡</td>
</tr>
<tr>
<td></td>
<td>Security 3</td>
<td>3.02</td>
<td>0.31</td>
<td>3.27</td>
<td>0.29</td>
<td>7.06‡</td>
</tr>
<tr>
<td>Q-PRSI</td>
<td>Wishful thinking</td>
<td>3.00</td>
<td>0.41</td>
<td>2.41</td>
<td>0.37</td>
<td>22.64‡</td>
</tr>
</tbody>
</table>

*MACL indicates Mood Adjective Checklist; Q-PRSI, Questionnaire—Psychosocial Risk Factors and Sport Injury; ANOVA, analysis of variance.
†$P < .01$.
‡$P < .001$.
§$P < .05$. 
variables on the second and third test occasions, the experimental group received higher scores on hedonic tone 2 and 3 ($P = .001$, $P = .002$), tension 2 ($P = .009$), extroversion 3 ($P = .026$), social orientation 2 and 3 ($P = .035$, $P = .017$), and security 2 and 3 ($P = .001$, $P = .010$). Moreover, the experimental group scored lower on the coping strategy “wishful thinking” ($P = .001$) than the control group did.

Results from the chi-square test on the DCL:1 showed no differences between the control and experimental groups on the question “Do you feel that your patient has a generally positive or negative attitude toward rehabilitation?” in relation to the physiotherapist’s prognosis. A comparable question at the end of the prescribed treatment period (see Table 2, question 2), however, revealed a difference ($P = .029$). Moreover, the physiotherapist stated that the rehabilitation had worked well for the patients in the experimental group (Table 2, question 3). Results from the PSQ reveal that the patients considered themselves to be fully restored physically after the injury and to be somatically relaxed and ready for competition (Table 2, questions 4 and 7), but no differences were found on the questions concerning the patients’ mental readiness in terms of the controllability of the stress and worry after the injury and of goals and visions for upcoming training/competition (Table 2, questions 5 and 6).

**Mood Changes During Rehabilitation**

In order to test the assumption that a brief intervention causes higher overall mood state and satisfaction, an ANOVA (repeated measure) for MACL sum for occasions 1–3 was carried out. The results indicate a between-groups main effect, $F_{1,56} = 10.87$, $P = .002$. Moreover, a significant overall change was found between occasions 1 and 3, $F_{2,112} = 4.99$, $P = .008$. The control and experimental groups initially showed a comparably low overall mood level. At the midpoint (occasion 2) and at the end of rehabilitation (occasion 3), the experimental group had a higher overall mood state than the control group did. As can be seen in Figure 1, the groups were fairly well matched in terms of the overall scores on MACL sum 1, at the start of rehabilitation. By the second and third test occasions, however, clear differences had emerged.

Analysis of the different mood variables constituting the MACL sum for the control and experimental groups further confirmed the high scores for the experimental group. The results indicate a between-groups main effect on all variables except extroversion (hedonic tone 1–3, $F_{1,56} = 17.76$, $P < .001$; activity 1–3, $F_{1,56} = 4.95$, $P = .030$; tension 1–3, $F_{1,56} = 4.63$, $P = .036$; social orientation 1–3, $F_{1,56} = 5.36$, $P = .024$; security 1–3, $F_{1,56} = 9.43$, $P = .003$). Moreover, an overall change was found on 3 variables, namely, hedonic tone 1–3, $F_{2,112} = 5.15$, $P = .007$; social orientation, $F_{2,112} = 3.75$, $P = .027$; and security, $F_{2,112} = 5.70$, $P = .004$, $df = 2$. There were no interaction effects between groups and occasions.
Table 2  Comparison of the Control (n = 44) and Experimental (n = 14) Groups on chi-Square Test at Beginning (DCL:1) and End of Rehabilitation (DCL:2 and PSQ)*

<table>
<thead>
<tr>
<th>Questionnaire/Question</th>
<th>Answer Category</th>
<th>Control</th>
<th>Experiment</th>
<th>Comparison (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DCL:1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Do you feel that your patient has a generally positive or a negative attitude toward rehabilitation?</td>
<td>Positive/very positive</td>
<td>22</td>
<td>7</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>Negative/very negative</td>
<td>22</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td><strong>DCL:2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Do you feel that your patient has a generally positive or negative attitude now that the rehabilitation is drawing to a close?</td>
<td>Positive/very positive</td>
<td>23</td>
<td>12</td>
<td>.029</td>
</tr>
<tr>
<td></td>
<td>Negative/very negative</td>
<td>21</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3. How do you feel that the physical rehabilitation has worked out for your patient?</td>
<td>Better/over expectations</td>
<td>16</td>
<td>6</td>
<td>.049</td>
</tr>
<tr>
<td></td>
<td>Worse/under expectations</td>
<td>28</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td><strong>PSQ</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Do you consider yourself to be fully restored physically after the injury and ready for competition?</td>
<td>Yes</td>
<td>14†</td>
<td>8†</td>
<td>.045</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>23</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>5. I feel in control of the stress and worry I initially felt because of the injury and I am ready for physical activity again.</td>
<td>Yes</td>
<td>33‡</td>
<td>12</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>9</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>6. My goals and visions are fully oriented toward physical activity again.</td>
<td>Yes</td>
<td>29‡</td>
<td>12‡</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>13</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7. My body feels relaxed and I am ready for physical activity again.</td>
<td>Yes</td>
<td>29‡</td>
<td>13</td>
<td>.020</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>11</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

*DCL:1 indicates Diagnostic Checklist 1; DCL:2, Diagnostic Checklist 2; PSQ, Patient’s Self-Evaluation Questionnaire.
†Other answer: The same.
‡Other answer: As usual.
Discussion

A number of short- and long-term psychological interventions (e.g., goal setting, imagery, knowledge/education, positive self-talk, social support) have been recommended to enhance the psychological well-being of injured athletes and to facilitate their physical rehabilitation. However, there is limited empirical support for the use of these interventions with injured athletes. Controlled outcome studies are needed to determine their effectiveness in the context of sport injury rehabilitation. The present study was undertaken to test the assumption that a selection of well-documented and cognitive-behavioral-based short-term psychological intervention techniques, organized in a controlled design, has the potential to produce an elevation of mood state in a homogeneous sample of long-term-injured competitive athletes showing no signs of psychosocial risk factors when coming into rehabilitation. The results indicate that a short-term psychological intervention, in terms of a combination of stress management, goal-setting skills, and relaxation/guided imagery, seems to have a significantly elevating effect on the injured patients' overall mood during and at the end of the prescribed rehabilitation period.

On examining each individual intervention technique, however, in relation to the patients' responses on the PSQ at the end of rehabilitation, relaxation/guided imagery was the only one that showed statistical differences between the control and experimental groups. The health benefits accrued from engaging in relaxation and guided imagery on a regular basis have been well documented. It might be that the training in this technique
suits injured athletes because the organization of the training sessions (moving from somatic activity to discipline and self-control) to some extent parallels the physical training to which athletes are accustomed when they are injury free. In contrast, training in goal-setting skills and stress management is more cognitively complex.

A potential explanation of the high overall mood level (especially hedonic tone) in the experimental group on the second and third test occasions is that being chosen and paid particular attention to contributes to a general sense of satisfaction and recognition. It is also possible that the high hedonic tone affects the way the patient is treated by the physiotherapist, and thus the physiotherapist’s positive assessment of the attitude of patients in the experimental group at the end of rehabilitation. It can also be argued that a high overall mood level influences the experimental group’s higher self-reported positive ratings of being fully restored physically after the injury and ready for competition as compared with the control group.

The significantly lower scores ($P = .001$) on the emotion-focused coping strategy “wishful thinking” for the experimental group are interesting. A tentative explanation is that the experimental group, even though randomly selected, did not include any women. On the basis of the well-known fact that women tend to activate emotion-focused coping strategies such as venting emotion and wishful thinking to a greater extent than men do when faced with difficulties, the high scores for the control group might partly reflect the uneven distribution of women among the two groups. Research suggests that emotion-focused coping strategies are generally connected with worse adaptational outcomes than are problem-focused strategies. It is possible that the high scores on the emotion-focused coping strategy “wishful thinking” for the control group, combined with their experience of fewer previous injuries (lower mean age), result from a more negative and pessimistic attitude toward future rehabilitation. However, it should not be assumed that the results of this study can be generalized to women, because women were not represented in the experimental group.

It could be argued that short-term intervention has little potential to create significant changes in patients’ behavior during the rehabilitation period, but some research suggests otherwise. In a study by Ross and Berger, the researchers used a similar 3-time intervention focusing primarily on reducing self-reported anxiety and pain during postsurgical rehabilitation of knee injury through stress-inoculation training. Like the present study, the Ross and Berger study demonstrated that training in cognitive-based relaxation strategies (ie, deep breathing and imagery) had a significant positive effect on the overall rehabilitation. Furthermore, research on brief psychotherapy indicates that models in which patients receive 3 contacts have the potential to create changes, particularly when the patients have only mild mood and somatic disorders.

The results of this study support the idea that a short-term, cognitive-behavioral-based treatment approach has the potential to create elevated
mood levels in long-term-injured athletes. In so doing, it promotes an overall adaptive attitude in regard to upcoming training and competition, as rated both by the athletes themselves and by the treating physiotherapist.

Continued research is needed in this emerging field of practice and consultation for sport psychologists. A productive and well-balanced mixture of somatic and cognitive-based intervention approaches should be developed for use during rehabilitation. Ideally, such training should be integrated with physical training and become an integral part of rehabilitation in contemporary sports medicine.

References


