



RISK, RESPONSE AND RECOVERY PSYCHOLOGY OF SPORTS INJURY

BY DALE FORSDYKE MSC, MSMA,
MSST

INTRODUCTION

The overall incidence of sports injury is rising leading to the common belief within sport that there are two types of athlete – those that have suffered a serious injury and those that have not suffered one yet (1). One former England Rugby Union player summed up his experience as, “Players are only one training session away from a career ending injury”. This raises the issue of implementing effective injury prevention strategies and the need to manage sports injuries using best practice. Due to the various demands on practitioners it is very easy to ignore the holistic nature of sports injury prevention and rehabilitation. According to Kolt (2) sport injury rehabilitation has developed into being a multifaceted process, and means that practitioners working with injured athletes should endeavour to appreciate both the physical and psychological to be truly effective. To put this into context there is a natural assumption that physical and psychological recovery from sports injury takes place within the same time frames when they frequently do not (3). This means that athletes may well be returning to sport competition when they are physically, but not

The idea of a holistic approach to sports injury prevention and recovery is nothing new. This article provides a review of the psychology of sports injury risk, response and recovery. It is hoped this will provoke thought and raise awareness about the psychology of sports injury leading to more effective preventative strategies being adopted and more successful rehabilitation outcomes from sports injury.

psychologically, ready to return and may this contribute to an overall risk of re-injury.

RISK OF SPORTS INJURY

What if an athlete's risk of sports injury could be predicted by their personality type? It's very much a philosophical argument about how much the physical versus psychological factors contribute to sports injury. However, both theoretically and empirically there does seem to be key psychological determinants that increase an athlete's risk of sports injury. The established Williams and Anderson Model (4) suggests a number of key psychological factors contribute to an athlete's risk of injury. It is thought that an athlete's history of stressors, personality and coping resources all come together to affect their cognitive appraisal of a particular incident leading to adverse stress response (eg. narrowed attention focus, greater distractibility, and higher levels of muscle tension) and subsequently a sports injury (see Fig. 1). History



of stressors includes those that are sport specific, injury history and importantly the 'away from sport' life stressors, eg. significant change such as relationship breakdown and moving home. At-risk personality variables include poor self-esteem, high anxiety levels, neuroticism, risk taking and hardiness. Coping resources include having appropriate social support, sleep, coping type, diet, education/awareness, and relaxation skills. An example to illustrate the model could be a Rugby League player who has just become a first time parent and has high levels of performance anxiety. In the 75th minute of an important game when required to tackle the opponent's

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best player, the player's psychological attributes would combine to potentially affect his skills execution and decision making leading to a poor tackling technique contributing to potential head injury.

There is consistent empirical evidence that would suggest support for this model and the premise that high levels of life stress and anxiety contribute to sport injury. Maddison and Prapavessis (5) conducted a study of 470 rugby players in New Zealand and found significant relationships between low levels of social support, high level of anxiety, ineffective coping strategies and both injury rate and severity. In a study using 48 Swedish soccer players, Ivarsson and Johnson (6) found that over 3 months the players injured during this period reported high baseline measures of life stress, anxiety and ineffective coping strategies compared with the non-injured players. According to the evidence base, understanding the personogenic make-up of the athletes you work with and being aware of the external stressors they are facing on a day-to-day basis may prove beneficial in reducing rate and impact of sports injury (Box 1)(7).

RESPONSE TO SPORTS INJURY

As practitioners we are constantly challenged to manage the psychological fall-out from sustaining sports injury. According to both theory and empirical evidence we should assume that, to an athlete, getting injured is a significant life event and that this affects the athlete's interlinking emotions, cognitions, and behaviours (8). Emotional responses are about what we *feel*, cognitive about how we *think*, and behaviour about what we *do*. These responses can be adaptive, and facilitate recovery, or maladaptive, ultimately hindering recovery. For example it is common for an injured athlete to question their competency (*I can't do it anymore*) suffer with high levels of re-injury anxiety (*I won't do this exercise as it will only make it worse*) and question their identity (*if I can't train and compete what am I supposed to do now?*) which can lead to maladaptive behaviour such as

malinger or poor adherence (9). These behaviours can, therefore, delay physical healing such as an athlete not following advice and icing the injury or maintaining optimal loading. Conversely an over motivated and frustrated athlete (*if I do more it means I will recover faster*) may delay physical healing by doing too much contributing to further damaging tissue in a fragile healing area.

There is a clear continuum of psychological response to sustaining a sports injury ranging from mild to severe with some authors reporting frequent clinically meaningful psychological distress, eating disorders, use of banned ergogenic aids and even suicidal tendencies amongst injured athletes (9,10). When working with injured athletes there is a necessity for the practitioner to be able to distinguish between the 'normal' psychosocial responses to sports injury (eg. yellow flags) and 'severe' responses (eg. orange flags) which would require referral to another healthcare professional such as a G.P. There are many robust questionnaires that can be used as outcome

“WE SHOULD ASSUME THAT, TO AN ATHLETE, GETTING INJURED IS A SIGNIFICANT LIFE EVENT”

measures of psychological response to injury that may prove beneficial when working with injured athletes (eg. Re-injury Anxiety Inventory, Sport Injury Anxiety Scale, and Sports Injury Rehabilitation Adherence Scale).

Stage-based approaches such as the Grief Response Model (11) have been applied to describe the emotional transition through sports injury recovery. This model originates from individuals coming to terms with a diagnosis of terminal illness and suggests the stages of denial, anger, bargaining, depression are ultimately progressed through until acceptance of the injury and a readiness to embrace rehabilitative support. Table 1 highlights how this model can be applied to sports injury recovery with associated thoughts and behaviours. There has been criticism of this model when applied to injured athletic

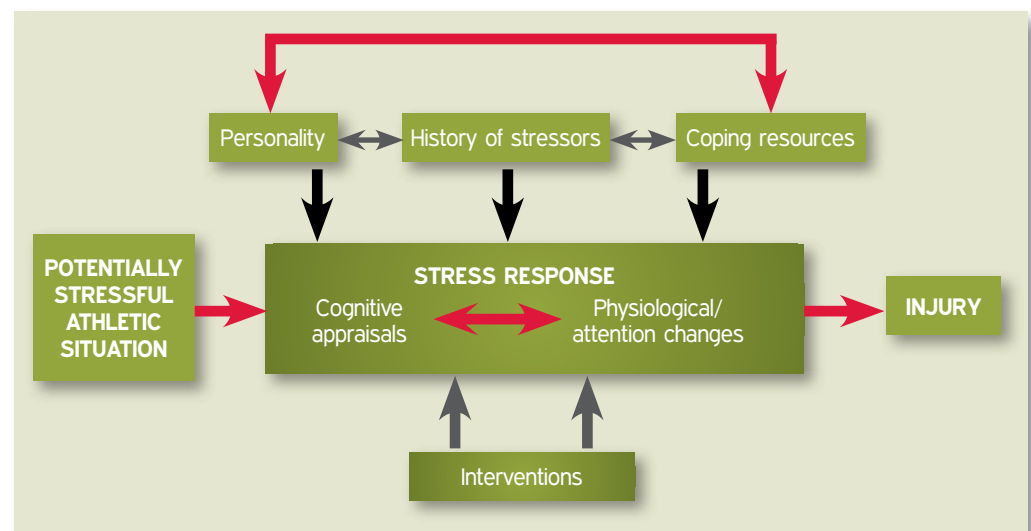


Figure 1: Adapted stress and injury model [Adapted from Williams and Anderson, 1998 (4)]

BOX 1. PRACTITIONER TIPS FOR PREVENTING INJURY

1. Maintain open and continuous communication about sport and life stresses
2. Ask athletes to keep stress logs/diaries
3. Be aware of particularly stressful points in the season and those that do not seem themselves during this period
4. Raise awareness of the link between high level of stress/anxiety and injury risk
5. Screen athletes for anxiety based personality traits and intervene with stress management techniques.

populations but a sense of loss and grief with emotions of frustration, anger and depression is commonly reported in the research, though not a predictive order (12). In a study by Carson and Polman (13) a contrasting sequential movement through the emotions of shock, depression, relief, encouragement, and confidence building was found from interviewing a professional Rugby Union player throughout anterior cruciate ligament rehabilitation requiring surgical intervention.

As a result of some of limitations in stage-based approaches in explaining psychological responses to sports injury, cognitive appraisal approaches have developed a reputation for being more credible. Cognitive appraisals are processes through which potentially stressful situations (eg. sustaining an injury) are assessed as being

TABLE 1. GRIEF RESPONSE MODEL CONTEXTUALISED TO SPORTS INJURY RESPONSE [Adapted from Kübler-Ross, 1969 (11)]

Grief response stage	Associated thoughts	Associated behaviours
Denial	I refuse to accept I'm injured I can play my way through this, it won't stop me	Continue to take part despite pain and loss of function
Anger	I blame the opposition they were targeting me It's the fault of the coach for his tactics	Aggressive behaviour Storming away
Bargaining	If I do more I will recover faster Coach, I can play. The therapist doesn't understand when he says I can't	Failure to follow advice Danger of over motivation
Depression	This injury isn't getting better at all Why should I even bother doing these exercises?	Withdrawal from the team General lethargy
Acceptance	I need to take all advice on board and act I know I am injured but can come back fitter and better than before	Compliance with rehabilitation plan

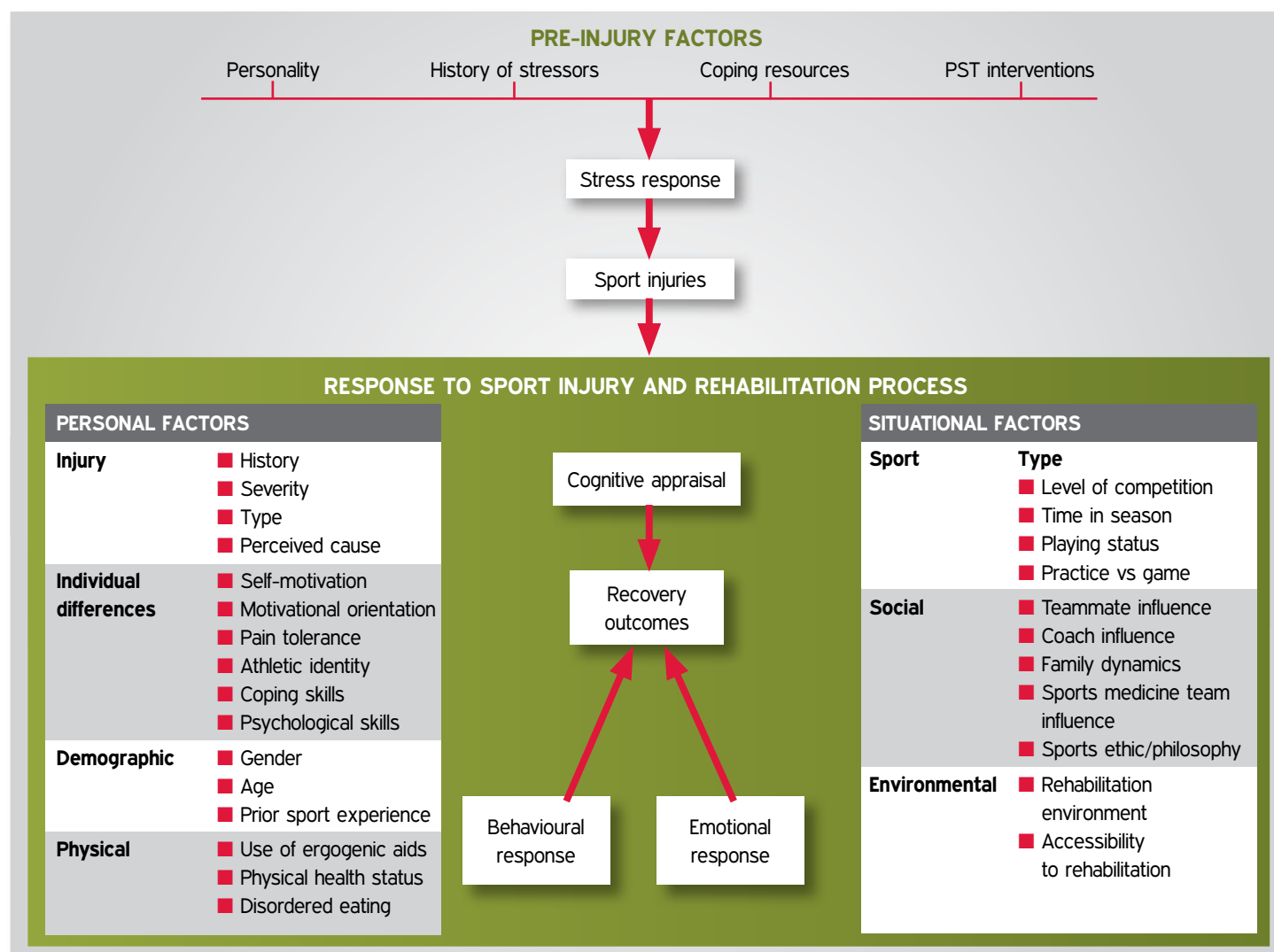


Figure 2: Integrated model of response to sports injury and rehabilitation [Adapted from Wiese-Bjornstal et al. 1998 (8)]

“ATHLETES WHO BEGIN COMPETING AFTER A SERIOUS INJURY CAN EXPERIENCE HEIGHTENED COMPETITIVE ANXIETY, FOCUS UNNECESSARILY ON THE INJURED AREA, AND STRUGGLE TO REGAIN THEIR TECHNICAL SKILLS AND ABILITIES”

BOX 2. SIGNS OF POOR ADJUSTMENT TO SPORT INJURY [Adapted from Petitpas and Danish, 1995 (9)]

1. Excessive emotional outbursts and mood swings
2. Feelings of inappropriate guilt
3. Withdrawal from significant others
4. Obsession about return to play
5. Dwelling on minor complaints
6. Missing scheduled sessions/meetings
7. Feelings of helplessness.

stressful and resources to cope with that stress are sought. Common stressors include medical, sport-related, social, and financial demands. The Integrated Model of Response to Sport Injury by Weise-Bjornstal, (8) is one of the most supported of these. This model suggests that both personal (eg. experience of injury) and situational factors (eg. perceptions of social support) relating to being an injured athlete mediate cognitive appraisal. This then subsequently affects emotional responses and behavioural responses influencing recovery outcomes. At the heart of the model (see Fig. 2) is a dynamic core which should be appreciated as a three-dimensional spiral towards full recovery (heading upward in clockwise direction) and away from full recovery (heading downward in counter clockwise direction). Essentially what the research tells us is that an athlete's psychological response to sports injury has to be seen as being dynamic, highly individualised, and changes in

direction and magnitude over time (Box 2)(14).

RECOVERY FROM SPORTS INJURY

Complete holistic recovery from sports injury takes place only when the athlete is healed physically and psychologically. The psychological transition from sport-specific function to return to play is an under-researched one. For example whether an athlete who has had a significant injury ever identifies themselves as being fully recovered, having low injury risk compared to others, and perceive a return to a high level of personal performance is relatively unknown. Anecdotally, athletes may return to play preoccupied with the injury they previously sustained and shy away from important tackles or avoid risky movement patterns. They may see the sustaining of an injury in a more global way and now feel fallible and much more injury prone. It has also been suggested that athletes who begin competing after a serious injury



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can experience heightened competitive anxiety, focus unnecessarily on the injured area, and struggle to regain their technical skills and abilities (15). This has been suggested as a contributing factor in explaining poor post-injury performance and the high rates of recurrent injuries found within sport. Common indications that an athlete may be experiencing re-injury anxieties include expressing heightened negative emotions towards the completion of a rehabilitation programme, malingering to deliberately delay rehabilitation progress or hesitation in trying sport-specific drills and tests of which they are physically capable (16). A recent literature review based on the psychology of athletes returning to sport after serious injury found there were common concerns with re-injury, an inability to perform to pre-injury standards, feelings of isolation, loss of athletic and team-based identity, insufficient social support, increased pressure to return before being ready and self-

BOX 3: PRACTITIONER TIPS TO EASE TRANSITION BACK INTO SPORT

1. Be aware that physical and psychological healing may not coincide within the same time frame
2. Mirror how the player got injured originally in rehab to increase confidence this won't necessarily happen again
3. In your 'return to training and play' criteria acknowledge psychological readiness to return
4. Place the player in a different coloured bib when returning to training and set conditions such as no tackling to other players to ensure this is low risk and increases the athlete's confidence.

presentational issues (15). This highlights that the experience of returning to sport post-injury is one littered with stressors and raising the awareness of this may well help the practitioner ease the transition back into full play (Box 3).

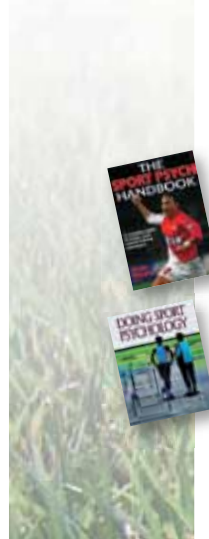
CONCLUSION

As practitioners we are often left frustrated at the lack of commitment to rehabilitation and rate of re-injury when an athlete is deemed 'fit'. From the evidence it is clear that there are important psychosocial factors relating to sports injury risk, an athlete's response to sustaining injury, and

that they are present upon returning to training/play. This highlights the importance of practitioners working using a bio-psychosocial approach (17,18) in preventative strategies and to rehabilitate sports injury to ensure that full holistic recovery takes place.

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FURTHER RESOURCES

1. *Foundations in Sport Therapy* by A. Gledhill, N. Mackay, D. Forsdyke and K. Randerson. **Heinemann 2011**. ISBN 0435046853 (£23.59). Buy from Amazon <http://spxjnl/1dNlw27>

2. *The Psychology of Sport Injury and Rehabilitation*, editors M. Arvinen-Barrow and N. Walker. **Routledge**

2013. ISBN 978-0415695893 (£22.99). Buy from Amazon <http://spxjnl/1DvrM3>
 3. *Psychological Bases of Sport*



Video clip showing Dan Carter (New Zealand Rugby Union) give a press conference about injury and its effects.

(<http://spxjnl/1k5dLo9>). Courtesy of Youtube user nzheraldtv

Injuries, editor D. Pargman. **Fitness Information Technology 2007**. ISBN 978-1885693754 (£47.12). Buy from Amazon <http://spxjnl/1bbSUyw>



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THE AUTHOR

Dale Forsdyke (MSc, MSST, MSMA, FHEA) is a lecturer in sports injury management at York St John University and a practising sports therapist. He has dual professional body status with the SST and SMA, and has completed MSc qualifications in both sports science, and sports therapy. Dale has previously written sports therapy programmes and has co-authored the book *Foundations in Sports Therapy*. He is currently undertaking a PhD looking at the experience and meaning of being an injured athlete. For correspondence please email d.forsdyke@yorks.ac.uk, and follow his Twitter account: @forsdyke_dale.



- To what extent do you think sports injury is caused by psychological as opposed to physiological factors?
- How can you apply the knowledge from this article in your own practice?
- What are the challenges to working using a bio-psychosocial approach?
- What would you classify as being 'normal' psychosocial responses to injury (yellow flags) versus 'severe' responses (orange flags)?

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