Psychology of Injured Athlete

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Outline

- Unit I: Psychological Aspects on Athletic Injury
- Unit II: Counseling Athletes who are Injured
Unit I: Outline

- Introduction
- Pain in Sport
- Types of Injuries
- Psychological Responses to Injury
- Assessing & Monitoring Injuries
- The Paradox of Injuries
- Personality Correlates to Psychological Processes During Injury Rehab
- The Malingering Athlete
Introduction

- Athletic injuries are increasing despite safer equipment and rule changes.
  - In secondary and collegiate levels in U.S. Athletic Injuries are estimated at:
    - 750,000 per year (Bergandi, 1985)
    - 850,000 or more (Noble, et al, 1982)

- The causes of athletic injury range widely.
  - Accident, Aggressive behavior, overtraining, high-risk sports, et al.
Athletic Injury

- Being sport related
- Results in a player’s inability to participate on day after injury
- Requires medical attention
Severity of Injury

- No universal definition exists
- Based on AMA Standards Nomenclature of Injuries (1968)
  - Depends on the time-loss
  - Depends on functional consequences of participation or not participation
A proactive approach

- Periodic monitoring to assess one’s level of life stress is necessary.
  - Established psychological inventories
  - Interviews

- With athletes who experience distress
  - A need to reduce the stress to facilitate restoration of psychological and physiological states
Introduction

Psychodynamic dimension of sport injuries may explain why:

- Some athlete become injured
- Some athlete do not recover from an injury
- Some athlete rehab is shorter than others.
- Some athlete adhere to their rehab schedule and other do not.
Injury & Psychology

1. Personality traits in the athlete may dispose on to be injury prone.

2. There are psychological reasons why some athlete comply to rehab and others do not.

3. There is a relationship between one’s level of self-concept and predisposition of injury.

4. Total life stress, competitive anxiety, and coping resources are related to occurrence and severity of athletic injury.
Bio-Psychological Aspects of Pain
Outline

- Biological Factors
- Psychological Factors
- Pain Assessment
- Pain Management
Biography of Pain

- Pain is a “sensory and emotional” experience (p.226; Merskey, 1986)
  - Medical community attempts to explain as either mental or physical
  - Medical community view is misleading for the athlete
  - One’s perception of their pain results in many cognitive-emotional experiences
Pain Experience

- Multistage process built on a complex anatomic network and chemical mediators that produce pain
- This multistage process of the nervous system is called Nociception.
Nociception

TRANSDUCTION

TRANSMISSION

MODULATION

PERCEPTION
TRANSDUCTION COMPONENT

- Noxious stimuli (injury) are translated into electrical activity at the sensory endings of the nerves (site of injury)

- Pain triggers two sets of receptors:
  - High threshold mechanoreceptor
  - Polymodal receptors
Transmission Component

- The electrical activity (impulses) are propagated (sent) through out the sensory nervous system
Modulation Component

- Sensory impulses are modified (received, registered, and evaluated on severity and site) neurally involving the central cortical track and peripheral sensory inputs.
Perception Component

Transmission, transduction, and modulation culminates in a cognitive-emotional (perceptual) experience of pain.
The Transduction Component

How pain is triggered?
Sensitization of Pain
Persistent Pain Syndromes
How is pain triggered?

- Two sets of receptors are activated due to a injury
  - Mechanoreceptors
    - High threshold receptors (activated when high noxious signal) which sends signals with relative speed
  - Polymodal receptors
    - Respond to thermal, chemical and mechanical stimuli and are relatively slow in transmission
    - Continue to fire after cessation of painful stimuli
Sensitivity to Pain

- Unfortunately these receptors have a lower threshold of response with repeated exposed similar stimuli.
  - Higher sensitivity to pain-producing stimuli
  - Pain occurs in ordinarily nonpainful stimuli

- “This process is called Sensitization"
Types of Sensitization

- Occurs when there is a repeated exposure to severe pain over days and weeks.

- Persistent pain syndromes
  - Myofascial and
  - Sympathetical
Persistent Pain Syndromes

- **Myofascial pain syndrome**
  - Musculoskeletal dysfunction
  - Indicated by points of tenderness when activated triggers pain (Fine & Petty, 1986)

- **Sympathetical pain syndrome**
  - Pain that occurs in the arms and legs
  - Characterized by hypersensitivity of the skin and burning pain (Roberts, 1986)
Transmission Component

- Pain is transmitted via peripheral nerves to the spinal cord
- Spinal cord acts as neurosensory switching station
- Information from periphery is received centrally (spinal cord) and from the brain via the descending track
- All this information converges using similar and common neurosensory pathways.
Gate Control Theory of Pain
(Melzack and Wall, 1965)

The processing center in the spinal cord may either decrease or increase the intensity of pain as a neuroelectrical phenomenon and so result in the perception of relatively lesser or greater pain than initially signed.
Importance of Gate Theory

- Explains why various therapeutic modalities ranging from cryotherapy to ultrasound to acupuncture to massage to control the efficacy of pain.
Modulation

- The pain signal in spinal cord ascends to the higher cortical centers of brain which evoke a emotional-reaction.

One’s Perception of Pain
Perception of Pain

- Based upon summation of inputs
- Awareness of seriousness of injury
- Meaning of the injury
- Present state of mind

Once registered as perception, pain sets off a cascade of electromechanical events via feedback loop within the nociceptive system that influences pain transmission and psychological status.
Reaction to Pain is Mystery?

One reaction to pain can produce a wide ranging of psychological moods.

Sock ................ Enhanced Mood

May be due to the role of:

- endorphins (pain inhibitor),
- serotonin (pain intermediary),
- sensitization and,
- pathways that transmit pain & mediators
Psychological Factors

- Goal of pain is to give it meaning (perception).

- Pain is interpreted due to:
  - Prior experience
  - Current context
Most Important Element

- Is the pain benign or a sign of injury.

  - No problem! This a routine pain.

  - Oh no! I’m really hurt!
Understanding Pain & Injury

Triggers:

- Psychological coping,
- Awareness of functional limits on athletic ability,
- Memory of similar painful events,
- Self-assessment of injury and,
- Social psychological reaction by teammates, coaches, etc.
Pain Assessment

- More complex and distressing the injury more comprehensive the approach.
Proven Techniques in Assessing Pain

1. Have the athlete rate on a scale 0-10 the intensity of pain.
2. Have the athlete indicate the quality of pain (burning, stabbing, aching, etc)
3. Daily self-report “pain at its worst” and “pain at its least”
4. Identify specific situations that increase or decrease pain (specific movements or exercises)
### Exhibit 11-1 Ratings of Perceived Discomfort Scale

**Directions:** Using the scale below, rate the amount of pain that you are currently experiencing.

<table>
<thead>
<tr>
<th>Level of Discomfort</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Just noticeable discomfort</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>40</td>
</tr>
<tr>
<td>Moderate discomfort</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>90</td>
</tr>
<tr>
<td>Excruciating discomfort</td>
<td>100</td>
</tr>
</tbody>
</table>

Pain Management

- Common pain management treatments are:
  - Ice
  - Untrasound
  - Transcutaneous Electrical Neural Stimulation (TENs)
    - Stimulates the nerves (sympathetic) & produces endorphins production
  - Diathermy (deep heat in shortwave, microwave, or therapeutic ultrasound to simulate neural pathways)
  - Electrical Muscular Stimulation (EMS)
  - Acupressure,
  - Massage, and

- Psychological Pain management techniques.
Psychological Pain Management Strategies

- Deep breathing (relaxation breathing)
- Muscle relaxation (progressive relaxation)
- Meditation-(Autogenic relaxation)
- Therapeutic massage
- Associative & Dissociative Focus
Pain Focusing

- Dissociative strategy
  - Directing your attention from the pain
  - Patients are not paying attention to their pain; they will perceive less pain.

- Association strategy
  - Directing the attention on the pain
  - Is recommended during physical therapy
Pain Focusing

- Dissociative strategy are most frequently used.
- Appear to be more effective than associative
- But in a rehab setting dissociative strategies while rehabing which requires effort shifting one focus away increases the likelihood of poor form and less complete effort.
Rehabilitation Assessment

- Identify moderating variables that relate to athletic injury
- Compare injured athletes to non-injured athletes
- Rehabilitation profiling
Rehabilitation Profiling

Assess personal and physical factors that impact the quality and duration of rehab.

Personal profile of 12 psychological, emotional, and social factors that affect recovery.
Factors

Psychological Factors
- Confidence
- Motivation
- Anxiety
- focus
- Expectations
- Worry
- Emotions
- Identity
- Adherence
- Understanding
- Pain tolerance
- Social support

Physical Factors
- ROM
- Strength
- Stability
- Coordination
- Health
- Sleep
- Balance
- Swelling
- Pain
- Function
- Daily activities
- Sport participation
### Exhibit 1–2 Physical Profile

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injury</td>
<td>Week of Rehab</td>
</tr>
</tbody>
</table>

The physical profile chart includes sections for:
- Stability
- Coordination
- Balance
- Ego
- Pain
- Function
- Daily Activities
- Sports Participation
- Health
- Range of Motion
- Strength
- Grip

The chart is a radar graph with concentric circles representing different levels of improvement or progression.
Example

Psychology of Injured: Part 1
Example
Client Profiling

- Increases the client’s awareness and improves understanding of these factors as being beneficial to their rehab.
- Once completed by the client, the profile provides their perceived strengths and areas of improvement.
- The client’s perception about their recovery influences their attitude toward the injury and their approach to rehab.
Effects of Psychological Factors on Injuries

- Area of life stress
  - Dealing with stress may affect the athlete likelihood to become injured.
  - Life stress results from both within and outside the athletic contest
- Level of life stress is associated with the injury
Model Approach

- Stage Model

- Cognitive Appraisal Model
Stage Model

- Based on death and dying literature
- Relates to career ending injuries
- Most important aspects is individuals react differently across the stages.
- Many AT reject the stage model because each injured athlete act differently.
Stage Model & Catastrophic Injury

Denial

Anger

Grief

Depression

Reintegration
Cognitive Appraisal Model

- Identified 5 components relevant to psychological responses to athletic injury
- Based on stress and coping process to athletic injury
- Advantage of this model is it accounts for individual differences in response to athletic injury
Personal Factors

- Injury
  - History
  - Severity
  - Type
  - Perceived causes
  - Recovery status

- Individual Differences
  - Psychological
  - Demographic
  - Physical
Personal Psychological Factors

- Self-esteem
- Neuroticism
- Pessimism
- Anxiety
- Extroversion
- Injury History
- *Sense of self*
Sense of Self

- If someone has only one basis for a sense of self, if that sense of self is threatened (injury), so will the entire person.....Erikson, 1968

- If the athlete’s sense of self is threatened the athlete will view the injury as severe loss which results in anxiety, depression, or hopelessness (Brewer, 1993).

- Sense of self is similar to self-identity!
Self-Identity

- Defined as all of the people, things, and experiences that provide validation and a sense of worth (Brewer, 1993).
  - Social relationships
  - Career
  - School,
  - Sport,
  - Exercise,
  - Cultural activities, and etc..
Athletic Identity

- If self-identity is based on one large and important piece and that piece is removed, people are left with limited avenues for satisfaction, enjoyment, and validation...

- Being athlete could be a major piece.
Athletic Identity

- Athletes who are seriously involved
- Athletes who over invest in sports involvement
- When injured these athletes:
  - Lose sense of self or “If I am not an athlete, then who am I?”
  - Usually experience negative rehab, lack confidence in their abilities to recover, lack motivation, experience high anxiety, and focus on injury.
What can be done?

- Maintain the athlete’s identity by:
  - Keep them involved in some form of sport activity.
  - Maintain their fitness level by redirecting them to another physical area such as weight training, swimming, etc.
  - They need social validation by coaches and teammates
Overestimators

- Athletes in general perceive injury as more serious than it really is when compared to the AT perception (Crossman & Jamieson, 1985)

- A group of athletes are overestimators experience greater pain, more anger, withdrawal, and show slow recover.
Situational Factors

- **Sport**
  - Type
  - Level of Competition
  - Time in the season
  - Scholarship athlete

- **Social**
  - Teammate influence
  - Coach influence
  - Family influence
  - Social support

- **Environmental**
  - *Rehab environment*
  - *Accessibility to rehab*
Situational Factors

- Post injury emotional adjustment is positively related to situational variables and social support.

Health professional needs to manipulate the situational factors and enhance social support.
Manipulating the Situational Factors

- Flexibility in rehab scheduling
- Communicate with the athlete about the seriousness of the injury
- Provide a rehab center so it accessible, safe, and friendly
- Explain the purpose of each protocol and goals of each rehab session
Response to Injury

Cognitive appraisal

Emotional Response

Behavioral Response

Recovery
Response to Injury

- The athlete *cognitive appraisal* of the injury interacts with the personality of athlete and the situational factors surrounding the injury.
  - Perceived severity
  - History of Injury
  - Ability to Cope
Emotional Response

- After cognitive appraisal by athlete about their injury, an *emotional response* will follow
  - Perceived as threat the athlete will emotional vent, become anger, experience high anxiety, denial, disengagement, and depression
  - If pessimistic engage in negative self-talk, and self-blame.
  - If neurotic engage in loss of self, withdraw, and display changes in their personality.
  - If overestimator become irrational about the severity of injury.
Behavioral Consequences

- After the emotional response the athlete will engage in positive or negative coping responses.
  - Adopt healthy coping responses physically, emotionally or psychologically.
    - Learn new psychological skills and physiological exercise...use injury as personal growth
  - Adopt maladaptive coping responses
    - Career over, learned helplessness, blame others, use other as the excuses, non compliance of rehab
Recovery or Delay in Recovery

- Length and degree of complete recovery in reentry into the sport is dependent upon:
  - Severity and type of injury
  - Athlete’s cognitive appraisal and emotional response to the injury
  - Athlete’s coping resources
  - Interventions both psychologically and physiological
Types of Injuries

- Macrotrauma (acute trauma)
- Microtrauma (breakdown over time)
- Different psychological reaction to the type of injury
Psychology of Injured: Part 1
Macrotrauma

- Rehab proceeds immediately
- Usually results in clean progression of healing
- AT and PT have clear cut rehab protocol
- Athlete most certainly knows the injury could not be prevented and it was caused by a situation usually out of their control.
- Athlete will bring closure to cognitive appraisal and assume rehab as their rectifying the situation.
Psychology of Injured: Part 1
Micotrauma

- Usually results from biomechanical overloading
- Recovery may be much longer with relapses more frequent
- Athlete experiences a great deal of distress (frustration, anxiety, etc), second guessing, and detachment for the sport is gradual.
- Athlete will question the AT or PT skills and protocol.
Athletes with Permanent Injuries
Permanent Injuries Causes

- Loss of sport identity which may or may be troublesome (Ogilvie & Howe, 1986)

- Cessation of reinforcement (Henschen, 1992)

- Loss of recognition and status.
General Reaction to Permanent Injury

- Denial
- Anger
- Grief
- Depression
- Reintegration
Stages of Permanent Injury

- In the pre-operative stage, fear of surgery associated with providing explanations of the surgical experience.

- In the post-operative stage, immediate return of all bodily functions with exception of motor activity.
A MODEL OF HEALTHY ADJUSTMENT FOLLOWING A CAREER-ENDING ATHLETIC INJURY
MATT BROWN & JOHN HOGG
University of Alberta

INJURY

DOWN PERIOD

COPIING RESOURCES

SOCIAL SUPPORT
INTERNAL COPING

FEELINGS
OF
COMPETENCE

AFFILIATION

PHYSICAL
ACTIVITY

REDEFINING
SATISFACTION

NEW PASSION
OR CHALLENGE
“The Down Period”

Period of depression characterized by:

- low energy
- lack of motivation
- inactivity and
- withdrawal.

The implication of the injury can be slowly accepted.

Period where the athlete is involved in “taking stock” in one’s life and all it have to give.
Social Support

Support from friend, relatives, coach, and trainer:

- “whose positive regard of the individual is unchanged by the injury.”

- Those that preserve the sense of belonging while reinforcing feelings of self-worth, *independent of involvement in sport.*
Internal Coping

Religious beliefs
Gaining perspective
Focusing on the present
Focusing on the positive
Refusal to focus on the past and the “what if’s.”
Feelings of Competence

Sport was a primary source of competence.
Loss of sport, individual must develop other aspects of personal competence.
Of primary importance is developing a sense of worth that is not contingent upon performance in sport.
Affiliation

Athlete’s sense of belonging from the relationships with teammates and coaches.

Injured athlete must develop a new sense of belonging
- based on common goals, values, and experiences related to sport but not solely focused on athletic involvement.
Physical Activity

One’s fitness and high level of activity maintained by the athlete become a major component of self-image.

Loss of PA:

Volume of participation

Time & energy

Athlete needs new activities that challenge and fulfill them despite physical restrictions.
Redefining Satisfaction

New activities can match the intensity of their experiences as athletes.

The discrepancy can become problematic for the athlete.

We see a shift in many athletes to:
- non-competitive sport
- becoming a coach, sport announcer, etc.

Learning to deal with the disability and reintegration into society.

- Channel abilities and skills towards successful rehab...counseling is one key!!
New Passion or Challenge

Athlete is driven toward high standards of achievement. Preservation of positive self-image depends on individuals' ability to pursue a personal vision or challenge.

Lack of direction potentially results in stagnation and preoccupation with the sport career that was terminated.

Athletes who are resigned to the fact of retirement will experience a shift in values (Ogilvie & Howe, 1986).

- Redirect their values placed on family and friends
Structure of the Model

Perception of Loss (internal coping)

Social support is catalyst for positive action

Healthy transition include feeling of competence, affiliation, PA, and satisfaction.

Pursuing a passion or challenge was central for adjustment for all injured athletes.
Paradox of Injuries
Paradox of Injuries

“‘The injury made me a lot more mature. I have a better grasp of reality in life……I’m so much stronger emotionally. (Lieber, 1991, p.44)

Are there ways to facilitate these positive consequences with athlete injuries?
Stress & Positive Consequences

- Little research on how athletes come to view their injuries in a positive manner.
- One recently study by Udry et al (1997) did involve 21 elite athletes on US Ski Team
  - 95% of the athletes reported more positive consequences from their injuries
  - 80% reported personal growth, psychological skill enhancement, & physical-technical enhancement from being injured
Adversity & Stress

- General Adaptation Syndrome (GAS) by Selye (1974)
  - Alarm - injured person resists any additional stressors
  - Exhaustion - additional stressors cause injured person to succumb to stress
  - Adaptation phase - injured become stronger and stressor acts as catalysts for higher levels of functioning
Recommendation

- Recognize that deriving positive consequences takes effort
  - Injured athletes must not passively assume positive consequence will occur

- Recognize different problem-solving strategies can be used
  - Use reversal strategies

- Avoid Secondary victimization
  - AT should not trivialize the experiences of the injured athlete
Personality Correlates During Injury Rehabilitation
Personality Correlates During Injury Rehabilitation

- Neuroticism
- Explanatory Style
- Dispositional optimism
- Hardiness
Maladaptive Behavior & Neuroticism

- Selective attention to the negative emotions to injury
  - Anger is exhibited (“I was not a nice person when I was injured”)
- Tendency to rely on inefficient coping strategies
  - Denial, withdrawal, self-blame, emotional venting, disengagement
Explanatory Style

- Pessimistic explanatory style
  - Personality caused: “It’s my own fault”
  - Stable over time: “I’m never going to play”
  - Global: “the rest of my life”

- Health effects
  - Immune system function
  - Poorer health
Dispositional Optimism

- Investigations are consistent
  - Cardiovascular and,
  - Immunological function is associated with optimism (Peterson et al., 1991; Scheiber & Carver, 1987)
- Optimism mitigates the stress-illness relationship
- Link between optimism and recovery
Hardiness

“Constellation of personality characteristics that function as a resistance resource in the encountering of stressful life events” - Kobass, et. al. 1982. P. 169

Components are

- Commitment—strong beliefs in one own value
- Challenge—views difficulties to over come
- Control—sense of personal power
Kobasa (1979) linked hardiness to physical health.

Mechanism underlying hardiness seems to be cognitive appraisal and coping processes (Florian et al., 1995; Gentry & Kobasa, 1984)
Studies with Athletes

Athletes who are high in neuroticism and pessimistic explanatory style display maladaptive behavior which results in longer rehab or incomplete recovery

- Grove, Stewart & Gordon (1990) with athletes with ACL damage
- Grove & Bahnsen (1997) with 72 injured athletes
Formal Assessment Procedures

- Neuroticism
  - Eysenck Personality Questionnaire (EPQ-N)-Eysenck & Eysenck, 1975

- Explanatory Style
  - Attributional Style Questionnaire (ASQ)-Peterson et al., 1982)
Informal Assessment

- One-to-one visit & pay attention to the athlete comments
  - Fear, sadness, embarrassment, guilt & anger, feelings of being over whelmed by the demands of rehab—signs of neuroticism
- Ask the “why” statement....
  - Insight into athlete’s explanatory style
Implications

- Injured Pessimistic Athletes feel helplessness and depressed.
  - These athletes fail to follow recommended treatment programs (especially unsupervised aspects).
  - Demonstrate a lack of persistence in the face of poor or slow progress.
- Health professionals should offer advice on how to cope, prevent athletic isolation, and provide emotional support.
Malingering Athlete
Malingerers

- Athlete who lie about an injury to avoid practice or competition
- Pathological avoidance behavior
  - Cling to their symptoms and disabilities
  - Mimic disorders
  - Show pain and suffering on a moment’s notice
- Need for attention and fear of getting caught
- Is the degree to which the drama is overdone
What is the cause?

- Behavior has been learned, adopted as acceptable, rewarded and is done willfully or habitually (Ogilvie & Tutko, 1966).
  - History (I.e. spoiled at an early age)
  - Learned at an early age that the parent would always intervene or rescue them from trouble.
  - Modeling (I.e. parent, coach, another athlete)
  - Very fearful of being exposed and is always on guard; clings to dishonesty at all cost.
Interventions

- Give strictly defined boundaries of behavior and detail the consequences when stepping outside those boundaries.
  - Three strikes and your out!
- Establish and record specific rehab goals.
  - Agree upon times for treatment
  - Agree on the length of the program
  - Agree on the athlete’s responsibility
- Provide rewards early in rehab then once they comply vary the frequency of giving the reward.
Part 1: Summary & Implications
Implications

“the person that I wanted to talk to the most was the person that was going to help me get better.....We had the best relationship. He/she knew what I was thinking; he/she knew what I was going through.” (Quoted from elite skier, injured athlete)
Implication

- Personality information helps to provide a more complete service
  - Highly neurotic athletes are prone to overreact, denial, disengagement, and emotional venting.
  - Professional (AT, MD, and PTs) need to:
    - model rational behavior
    - have well planned treatments
    - Maintain records of progress
    - Develop psychological skills of cognitive appraisal, coping, and stress management.
Implications

- Injured athlete low in hardiness worry, experienced depressed moods, & overgeneralize negative aspects of their character.

- Health professionals need to communicate clearly with the athlete about the severity of injury, get them actively involved in setting rehab goals, use feedback of progress through charts or graphs, and provide self-monitoring strategies such as logs.
Psychological Perspective of Athletic Injuries Summary

- Stress × Injury relationship needs to assessed.
- Once athlete are identified with high stress levels there is need for proactive Approach.
- Injuries do have positive consequences if the athlete has experienced a successful rehab.
- Athlete’s personality is related to length and degree of recovery.
- Assess the athlete level of neuroticism, explanatory style, optimism, and hardiness.
Summary (continued)

- Athlete’s response to career ending injuries reflect the stage model.
- Cognitive appraisal model provide AT why some athlete behave differently when injured.
- Athlete’s respond differently when they have macro versus microtrauma injuries.
- Malingerer is due to the need of attention and fear of being caught; first identify the behavior through observing the athlete then develop a strategy to change the behavior.