

Sports Rehabilitation: Critical Thinking and Dynamic Practice

Course Outline and Learning Outcomes

Introduction

Sporting injuries are commonplace and present the health professional with unique challenges in terms of their aetiology, population and potential for recurrence. Critical thinking and reasoned management at the point of acute injury play a significant role in positive injury response. Health professionals working in sport strive to minimise time lost due to injury and effective management often requires the synthesis of a range of interventions to ensure speedy return to competition. Successful assessment of injuries in conjunction with a detailed understanding of the demands of the athlete's sport is essential in order to develop effective treatment plans.

Rehabilitation of the injured athlete further requires a wide range of skills and depends on the integration and progression of various interventions from the five subcategories of: sensorimotor training, motor control stability training, strength training, range of motion enhancement and endurance training.

Progression of rehabilitation should be guided by the rate of healing of the injured tissues and the ability of the athlete to safely and effectively perform specific skills. The aim of this postgraduate certificate is to provide those who work in Sport and Exercise Medicine (e.g. doctors, physiotherapists, podiatrists) and related areas of practice, with advanced training in the prevention, treatment and rehabilitation of sports related injuries and associated conditions.

This highly practical and interactive course provides the necessary depth and breadth required by the physiotherapist to effectively manage athletes from a range of sports.

Course Aims:

- To provide participants with the practical skills necessary to provide optimal care to the injured athlete
- To enable the participant to assess sporting injuries and their relationship to specific sporting activities
- To provide enhanced understanding of innovative management strategies of common sporting injuries
- To enable the health professional to critically evaluate the response of the sports person to injury and promote appropriate rehabilitation strategies
- To underpin sports injury management with evidence based treatment and rehabilitation techniques relevant to the proposed future activity of the sports person
- To enable the health professional to assess the sports person's readiness for return to the previous or proposed level of activity

On successful completion of the course the students will be able to:

Knowledge And Understanding Of Subject

- Apply a systematic understanding of sports injury management and rehabilitation strategy to practice
- Inform their professional role and actions drawing on a deep understanding of relevant clinical and performance-related assessment techniques and protocols, knowledge of pre and co-existing pathologies and physiological status

Teaching and Learning Methods: lectures, case studies, reading, practical scenarios, group work, videos, problem based cases

Assessment Methods: Describing a rehabilitation programme with the underpinning knowledge base integrated into the design;

Intellectual

- Critically evaluate and apply the evidence base for range of rehabilitation and sports injury assessment and management strategies
- Analyse and synthesise clinical data and theoretical knowledge to seek solutions to complex problems
- Develop effective clinical reasoning skills within a sport and exercise framework.

Teaching and Learning Methods: lectures, case studies, reading, practical scenarios, group work, videos, problem based cases

Assessment Methods: case presentation

Professional/Practical Skills

- Act autonomously in planning, implementing and critically evaluating his/her own professional activity in sports and exercise medicine
- Demonstrate a reflective approach to continuing professional development of practice, and a commitment to lifelong learning
- Critically reflect on the work of self and others in order to develop and improve practice and service delivery

Teaching and Learning Methods: Discussion, practical exercises, workshops, demonstrations, analysis of clinical data; problem-based cases

Assessment Methods: development and critique of rehabilitation programme

Transferable Skills

- Demonstrate a commitment to working effectively with diversity and promoting inclusivity
- Engage effectively in academic and professional communication
- Work effectively both independently and collaboratively
- Make appropriate use of information technology to support and disseminate effective professional practice

- Identify opportunities for professional development through work-based learning
- Demonstrate a capacity for change management
- Adopt personal and professional strategies appropriate to an entrepreneurial environment

Teaching and Learning Methods: lectures, case studies, reading, practical scenarios, group work, videos, problem based cases

Assessment Methods: case study

Course Specifications

Venue Requirements

- Seated teaching area with seats for participants
- Preferably with additional area to move around for brainstorming/group work (approximately size of small gymnasium / 2 badminton courts). This is frequently a multi-purpose room or physiotherapy school practical room with some beds
- A-V equipment: data projector + screen/wall
- Flip chart/white board + pens
- Weights room (preferably with mirrors): Range of weights machine and free weights with benches, squat racks etc.
- Olympic platforms (not necessarily in same room as machine weights as covered in different session)
- Dumbbells, poles.
- Functional rehab equipment – selection of equipment from the following: wobble boards, sit-fits, Swiss balls, medicine balls, range of sports balls (football / basketball etc.) poles, theraband, tubing, markers/cones, steps. *Please note this is not an exhaustive list rather examples of the type of equipment that will be useful.*

Timetable and Room Breakdown

Block 1

Day 1	Session	Room type
Session1	Introduction to principles of exercise and rehabilitation (including components of rehabilitation)	Seated teaching area/multi-purpose space
Session 2	Pathology of tissue injury and repair and Principles for Acute Management	Seated teaching area/multi-purpose space
Session 3	Assessing Form and Function – requirements of sporting actions	Seated teaching area Seated teaching area/multi-purpose space
Session 4	Strength as a component of rehabilitation/training + Olympic lifts practical	Seated teaching area/multi-purpose space Weights room - Gym
Day 2	Session	Room type
Session 1	Strength as a component of rehabilitation/training + Olympic lifts practical (Continued)	Seated teaching area/multi-purpose space Weights room - Gym
Session 2	Exercise Physiology: Energy systems and their utilisation during various sporting events, fitness testing, VO2 max and lactate testing Endurance: Limits to endurance (central, peripheral...), strategies for training endurance	Seated teaching area Seated teaching area/multi-purpose space
Session 3	Motor learning/motor control principles: Neuromuscular Control (NMC) theories, how NMC is affected by injury, dynamic systems theory, novice vs. expert behaviours, strategies to retrain NMC	Seated teaching area/multi-purpose space
Session 4	Putting it all together	Seated teaching area/multi-purpose space

Block 2

Day 3	Session	Room type
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Session 1	Introduction and review of previous block. Feedback from individual tasks completed between blocks.	Seated teaching area/multi-purpose space
Session 2	Flexibility: Determinants of flexibility, strategies to improve flexibility, when and how to implement flexibility programmes as part of rehabilitation	Seated teaching area/multi-purpose space
Session3	Stability and Control in Function: Movement control and muscular system imbalances, concepts of movement control, principles for retraining stability	Seated teaching area/multi-purpose space
Session 4	Principles of progression and needs analysis – including practical. Functional demands of the sport, sporting culture, psychosocial aspects of rehabilitation	Seated teaching area/multi-purpose space (NB functional rehab equipment needed here)
Day 4	Session	Room Type
Session 1	Rehabilitation programme development: Periodisation and planning – periodisation models, micro, meso and macro-cycles. Planning rehabilitation phases	Seated teaching area/multi-purpose space (NB functional rehab equipment needed here)
Session 2	Progressing and regressing programmes Strategies for progressing and regressing exercises, signs of non-coping. Building comprehensive programmes	Seated teaching area/multi-purpose space (NB functional rehab equipment needed here)
Session 3	Programme Planning: Promoting adherence	Seated teaching area/multi-purpose space
Session 4	Facilitating return to play: End-stage rehabilitation, mimicking stresses and demands of sport during rehabilitation – Highly practical session	Seated teaching area/multi-purpose space (NB functional rehab equipment needed here)

Learning Outcomes Mapped to IFSPPT Competencies

The following learning outcomes have been mapped against the IFSPPT competency document.

LEARNING OUTCOMES

At the end of the course the physiotherapist should be able to:

EXERCISE

1. analyse the effects of sport-specific exercise and training on human anatomy, exercise physiology, biomechanics, and movement science in *different sporting contexts* [IFSP competency 1A.1]
2. analyse the specific sports skills and sequences required by an athlete and develop appropriate field tests to estimate the athlete's response in *different sporting contexts* [IFSP competency 1B.1]
3. develop and perform sport-specific functional tests to assess the athlete's potential risk of injury in *different sporting contexts* [IFSP competency 1C.4]
4. use advanced knowledge of normal movement patterns and typical injury mechanisms to interpret the additional demands placed on the body in *different sporting contexts* [IFSP competency 1D.1]
5. make individual and sport-specific professional judgments regarding injury risks in different sporting contexts – integrating the following information: • physical and psychological performance capacity¹, • the difference between load and 'loadability'¹, • the influence of other factors such as pain and injury history, age, pre-existing or co-existing conditions, and functional limitations, • requirements of the specific sport or exercise, including the potential for overtraining injuries, • potential impacts of environments and equipment, and • ethical issues and awareness of a duty of care to the athlete [IFSP competency 1D.2]
6. develop appropriate intervention strategies to reduce the athlete's risk of injury in *different sporting contexts*, such as: • physical conditioning, strengthening and endurance training, • factors affecting muscle control, • appropriate muscle stretching, • training to facilitate the development of greater efficiency in movement [IFSP competency 1E.2]
7. provide effective training and education in injury-prevention strategies during training for sport and exercise participants of all levels and abilities. [IFSP competency 1E.3]
8. design and implement evidence-based conditioning, strengthening and stretching exercise programmes, specifically related to an individual, an injury, and a sporting role [IFSP competency 3E.2]
9. design and implement individualised and evidence-based programmes to increase neuromuscular control, incorporating skill acquisition principles (for example, static, dynamic, reactive or preparatory techniques). [IFSP competency 3E.3]
10. collect relevant subjective and physical data to assess the individual's ability to participate in physical activity and exercise, identifying potential risks [IFSP

competency 5C.1]

11. estimate safe and optimal progression of participation in different types of activity, integrating knowledge about the individual with consideration of exercise training principle [IFSP competency 5D.2]
12. monitor an individual's participation, obtain feedback on motivation and adherence, and modify advice if required [IFSP competency 5F.1]

REHABILITATION

1. identify the potential impacts of various factors on recovery, including: • co-existing and pre-existing conditions, • the experience of acute or chronic pain, • the effects of other medical interventions on different body systems, and • the impact of complications on recovery • psychological, social and cultural influences [IFSP competency 3A.3]
2. identify clinical and performance-related assessment techniques and protocols that are most appropriate *in different sporting contexts* [IFSP competency 3A.5]
3. identify current intervention strategies used to promote early safe return to activity and progression to optimal function, including risks associated with their use [IFSP competency 3A.7]
4. observe and analyse specific sporting movements required by the athlete on return to participation *in different sporting contexts*, including
 - activities associated with the original injury,
 - movements specific to a team role or position
 - movement/energy demands of a specific sporting activity
5. discuss issues relating to compliance with advice and intervention strategies, including factors affecting motivation and adherence, and different coping strategies [IFSP competency 1A.11]
6. select and apply the most appropriate clinical and performance-related tests to the individual, the injury, and the sport, *in different sporting contexts* (for example, tests of strength, functional performance, range of motion and flexibility) [IFSP competency 3C.5]
7. analyse the results of clinical and performance-related tests relative to sport-specific expectations [IFSP competency 3D.1]
8. integrate rehabilitation goals with foundational knowledge to devise an individual, research-based, sport-specific programme of intervention strategies [IFSP competency 3D.4]
9. make professional judgements regarding the appropriate times for progression of participation following illness or injury *in different sporting contexts* [IFSP competency 3D.6]
10. modify the use of clinical and performance-related testing to provide the most appropriate information at different stages in the rehabilitation process (for example,

progressing from tests of functional movements to complex field testing that relates directly to the sporting demands) [\[IFSP competency 3F.1\]](#)

11. incorporate awareness of the principles of measurement reliability and validity into judgements relating to the interpretation of assessment data [\[IFSP competency 3F.2\]](#)
12. make appropriate use of intervention outcomes: • as biofeedback for the athlete and other professionals • to encourage compliance • to inform advice regarding participation and progression of training, and • to influence team decisions [\[IFSP competency 3F.3\]](#)
13. sensitively communicate with the athlete to promote compliance with advice and rehabilitation, incorporating exercise psychology principles such as goal-setting, pacing and feedback [\[IFSP competency 3E.7\]](#)
14. sensitively advise the athlete and other professionals regarding progress and appropriate timing of return to sporting and exercise activities [\[IFSP competency 3E.10\]](#)
15. sensitively educate the athlete and other individuals regarding principles of post-injury rehabilitation and prevention of re-injury to the athlete and other individuals [\[IFSP competency 3E.11\]](#)