



AUSTRALASIAN COLLEGE OF
SPORT AND EXERCISE PHYSICIANS

ACSEP CURRICULUM

2017

PROMOTING EXCELLENCE

IN SPORT & EXERCISE MEDICINE

| VERSION | DATE | COMMENTS |
|---------|-----------|---|
| 2017 ? | ? 2017 | <ul style="list-style-type: none"> Curriculum – missing 1.3.5 Renal Medicine |
| 2017 v6 | 23 Feb 17 | <ul style="list-style-type: none"> Curriculum – including 1.3.5 Renal Medicine |
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| | | |

Associated Documents:

ACSEP Specialist Training Manual
Registrar Learning Portfolio

Acknowledgements:

Learning outcomes in Section 2 - Clinical Decision Making and Section 4 - Fundamental Competencies are adapted from the CanMEDS framework produced by the Royal College of Physicians and Surgeons of Canada.

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BROAD LEARNING OUTCOMES

The overall goal of the College is to produce Sport and Exercise Medicine Physicians who, upon completion of the College's training program will be able to:

- Develop and maintain clinical knowledge relevant to the practice of sport and exercise medicine.
- Apply knowledge when consulting with individual patients, sporting groups or teams, taking into consideration the specific needs of particular populations such as female athletes, children, older people and para-athletes in a variety of environments.
- Assess and manage acute, chronic or traumatic injuries, and medical problems arising from, or affecting physical activity, in a broad range of patients from the recreational exerciser to the elite athlete.
- Prescribe exercise programs for patients to:
 - Prevent injury and illness;
 - Reduce risk factors of chronic disease; and
 - Support the management of medical problems, including chronic disease.
- Provide patient-centred care, demonstrating effective communication skills, professionalism and cultural awareness.
- Take a leadership role in the education of patients, the public, sporting groups and teams, on the benefits of sport and exercise and other sport and exercise related issues.
- Manage the care of sporting groups and teams at all levels from community through to elite and professional.
- Manage issues relevant to sport and exercise medicine for professional sporting clubs, national sporting organisations and events.
- Provide advice and representation to all relevant stakeholders on all issues regarding doping in sport.
- Support travelling athletes and teams prior to departure and while interstate or overseas, and provide follow up care after arriving home.
- Participate in professional development activities and contribute to the expanding body of sport and exercise medicine knowledge by participating in research projects relevant to the specialty.

SECTIONS OF THE SPORT AND EXERCISE MEDICINE CURRICULUM

The sport and exercise medicine curriculum defines the overall scope of the specialty for Sport and Exercise Medicine (SEM) Physicians working in Australia and New Zealand. The curriculum details the knowledge and skills Registrars need to acquire during the training program, plus the attitudes essential to becoming a competent SEM Physician.

The curriculum has four sections.

1. SPORT AND EXERCISE MEDICINE FOUNDATIONS

Establish and maintain clinical knowledge, relevant to the practice of sport and exercise medicine.
Refer to knowledge based learning outcomes within the following domains and subject areas:

1.1 Injury and Illness Prevention

- 1.1.1 Pain and the Pathophysiology of Injury
- 1.1.2 Principles of Injury Prevention
- 1.1.3 Pre-Participation Examination and Screening
- 1.1.4 Biomechanics
- 1.1.5 Supportive Techniques and Protective Equipment

1.2 Injury Assessment, Management and Rehabilitation

- 1.1.6 Trauma
- 1.1.7 Assessment and Management of Sport and Exercise Related Injuries
- 1.1.8 Diagnostic Techniques and Interpretations
- 1.1.9 Applied Physiotherapy and Other Therapies
- 1.1.10 Sports Related Orthopaedic Surgery
- 1.1.11 Exercise Prescription for Rehabilitation

1.3 Internal Medicine as it relates to Physical Activity

- 1.1.12 Cardiovascular Medicine
- 1.1.13 Respiratory Medicine
- 1.1.14 Rheumatology
- 1.1.15 Gastrointestinal Medicine
- 1.1.16 Renal Medicine
- 1.1.17 Endocrinology
- 1.1.18 Neurology
- 1.1.19 Haematology
- 1.1.20 Immunology and Allergic Disease
- 1.1.21 Dermatology
- 1.1.22 Eye, Ear Nose, Throat and Dental Problems
- 1.1.23 Mental Health
- 1.1.24 Exercise Prescription for Health
- 1.1.25 Sports Pharmacology
- 1.1.26 Nutrition for Exercise and Sport
- 1.1.27 Environment Related Injury and Illness

1.4 Physical Activity in Specific Populations

1.1.28 Female Athletes

1.1.29 Children

1.1.30 Older People

1.1.31 Para-athletes

Section 1 - Sport and Exercise Medicine Foundations contains four domains of knowledge learning outcomes, divided into subject areas. These outcomes are primarily assessed in the written Part 2 Examination and indirectly during workplace based assessments. During a workplace based assessment knowledge underpins the skills a registrar performs and an assessor may question the registrar on specific knowledge directly relevant to the procedure or case. Some learning outcomes are labelled with a #. This indicates that the Part 1 Examination assesses the learning outcome. Such outcomes are included in the curriculum to highlight prerequisite knowledge for the subject area.

2. CLINICAL DECISION MAKING

Apply clinical knowledge, relevant to the practice of sport and exercise medicine, to:

2.1 Perform an appropriate assessment, including history and patient examination.

2.2 Select and interpret appropriate investigations for various pathologies.

2.3 Use preventive and therapeutic interventions effectively.

2.1 Demonstrate proficient and appropriate use of procedural skills, both diagnostic and therapeutic.

Clinical Decision Making is divided four subject areas: Patient Assessment; Investigations; Preventive and Therapeutic Interventions; and Procedural Skills. Learning outcomes within this section will be assessed by workplace based assessment and clinical elements of the Part 2 Examination.

| Clinical Decision Making Subject Area | Workplace Based Assessment |
|--|---|
| Patient Assessment | Mini Clinical Evaluation Exercise (Mini-CEX) |
| Investigations | Mini Clinical Evaluation Exercise (Mini-CEX) Case Based Discussion (CbD) |
| Preventive and Therapeutic Interventions | Case based Discussion (CbD) |
| Procedural Skills | Direct Observation of Procedural Skills (DOPS) |

Specific subject areas from Section 1 of the curriculum have been identified as the focus of workplace based assessments.

For example, Registrars are required to complete a Mini-CEX on a patient who presents with an injury of the shoulder. In order to elicit a relevant history, perform an appropriate examination, organise appropriate investigations and consider management plan options, Registrars should be familiar with the knowledge referred to in domains/subject areas from Section 1. For example, these subject areas are 'Principles of Injury Prevention', 'Biomechanics' and 'Assessment and Management of Sports Related Injuries'. Knowledge from the Physical Activity in Specific Populations domain or the Care of Athletes and Teams section may also be relevant, depending on the type of patient. Registrars and Supervisors are reminded that workplace based assessments are formative assessments and as such are assessments for learning. Registrars are encouraged to use workplace based assessments to identify the knowledge, skills and attitudes that need to be improved. Supervisors should prompt Registrars to direct their study and training efforts to attaining the learning outcomes of the curriculum and to use successfully completed workplace based assessments as evidence of these learning achievements.

3. FUNDAMENTAL COMPETENCIES

Function effectively as consultants, integrating knowledge of sport and exercise medicine, clinical decision making skills, and fundamental competencies to provide optimal, ethical and patient-centred medical care.

Refer to learning outcomes in the following domains:

- 3.1 Communication**
- 3.2 Collaboration**
- 3.3 Leadership and Management**
- 3.4 Health Advocacy**
- 3.5 Research, Teaching and Learning**
- 3.6 Professionalism**
- 3.7 Cultural Awareness and Safety**

Fundamental competencies always underlie the work of a Sport and Exercise Physician. The learning outcomes in this section are based on the CanMEDS framework and are presented within six domains.

The following assessment methods will address each domain:

| Fundamental Competencies | Assessment |
|---------------------------------|--|
| Communication | CTS/CTI Reports Mini Clinical Evaluation Exercise (Mini-CEX) Team and Event Coverage Requirements Part 2 Examination - Clinical |
| Collaboration | CTS/CTI Reports Team and Event Coverage Requirements Case based Discussion |

| | |
|---------------------------------|--|
| Leadership and Management | CTS/CTI Reports Team and Event Coverage Requirements |
| Health Advocacy | CTS/CTI Reports Team and Event Coverage Requirements Training Diary |
| Research, Teaching and Learning | CTS/CTI Reports Research Requirements Team and Event Coverage Requirements Training Diary |
| Professionalism | CTS/CTI Reports Team and Event Coverage Requirements Part 2 Examination - Clinical |
| Cultural Awareness and Safety | CTS/CTI Reports Mini Clinical Evaluation Exercise (Mini-CEX) |

4. CARE OF ATHLETES AND TEAMS

Apply clinical knowledge, skills and attitudes, relevant to the practice of sport and exercise medicine, when caring for athletes and teams.

Refer to learning outcomes in the following subject areas:

- 4.1 Emergency and Acute Trauma in Sport and Exercise Medicine**
- 4.2 General Medicine for Care of Athletes**
- 4.3 Care of Sports Teams**
- 4.4 Events**
- 4.5 Travelling Athletes**
- 4.6 Doping and the Athlete**
- 4.7 Sport Psychology**

Section 4 requires Registrars to incorporate the required knowledge articulated in learning outcomes of Section 1 - Sport and Exercise Medicine Foundations, clinical decision making skills detailed within Section 2, and professional attributes which comprise the Fundamental Competencies of Section 3. Learning outcomes also reflect knowledge, skills and behaviour specific to this particular area of applied sport and exercise medicine. The learning outcomes of this section are assessed by the completion of Team and Event Coverage Requirements, and the Part 2 Examination.

HOW THE SECTIONS OF THE CURRICULUM INTERRELATE

The relationship between each section and the overall curriculum is illustrated in Figure 1.

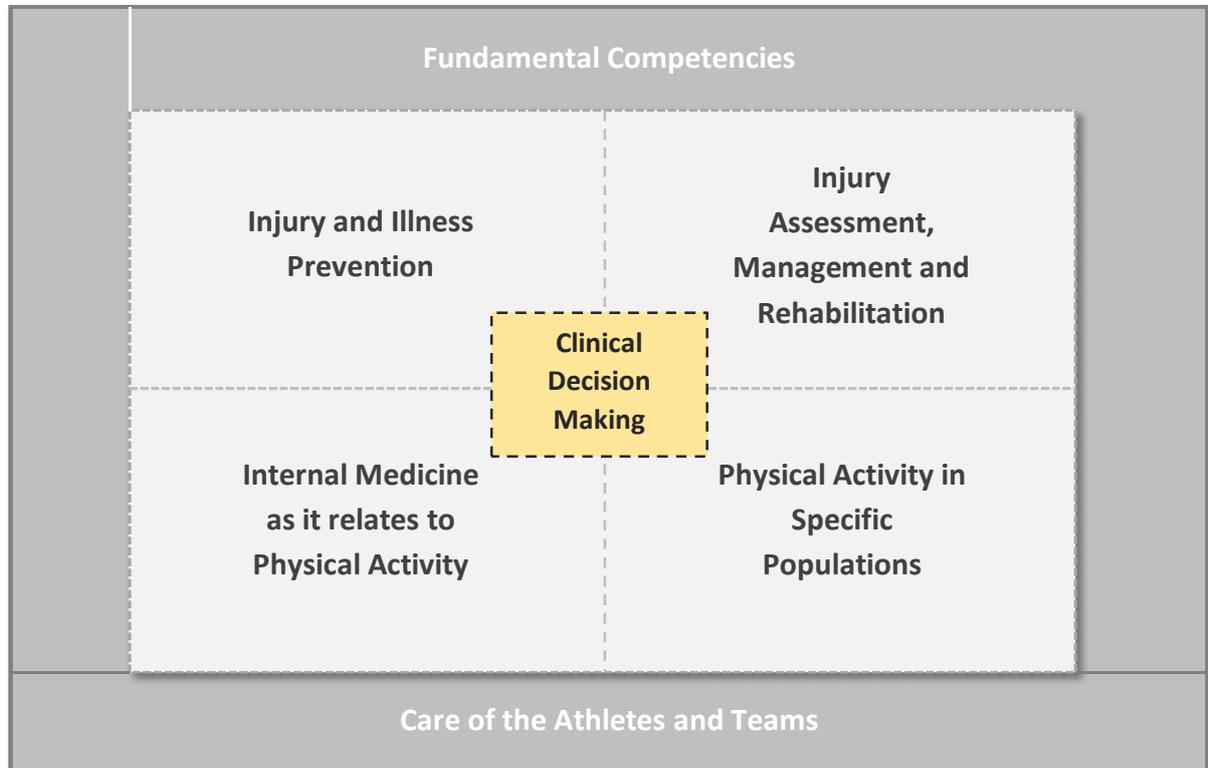


Figure 1: Sport and Exercise Medicine Curriculum Sections

Achieving learning outcomes in Section 1 (Injury and Illness Prevention; Injury Assessment, Management and Rehabilitation; Internal Medicine as it relates to Physical Activity; and Physical Activity in Specific Populations) provides the foundation for effective clinical decision making in sport and exercise medicine. The fundamental competencies (Communication; Collaboration; Leadership and Management; Health Advocacy; Research, Teaching and Learning; Professionalism; and Cultural Awareness and Safety) are inherent in all sport and exercise physician areas of practice. Learning outcomes pertinent to the care of athletes and teams are grouped in together in Section 4, however, the sport and exercise physician draws on knowledge, skills and attitudes detailed in all other sections of the curriculum when consulting with athletes, sporting groups or teams.

USING THE ACSEP CURRICULUM

Each page of the curriculum is structured according to the following format. Please see the explanations below.

| Domain Title | |
|--|---|
| Subject Area Title | |
| <p>Suggested Program Focus:</p> <p>The Registrar is encouraged to achieve the learning outcomes by the end of the year of training listed here.</p> | <p>Assessment</p> <p>All assessments have been aligned to the learning outcomes of the curriculum.</p> |
| <p>Learning Outcomes</p> <p>Learning outcomes (also termed objectives or goals) that Registrars are aiming to achieve during the training program are listed in this area, on the left hand side of the page.</p> <p>Each learning outcome completes the following phrase:</p> <p><i>By the end of training the Registrar will be able to.....</i></p> <p>Learning outcomes articulate the knowledge, skills and behaviour expected of a specialist Sport and Exercise Medicine Physician in Australia and New Zealand.</p> | <p>The assessment methods, which will be used to determine whether the Registrar has achieved the learning outcomes within the domain/subject area, are listed in this right hand column.</p> <p>Full lists of workplace based assessments are found in Section 2 - Clinical Decision Making.</p> |
| <p>Teaching and Learning Methods</p> <p>This row lists teaching and learning methods that may be utilised by the Registrar or supervisor to help the Registrar achieve the learning outcomes within the domain/subject area.</p> <p>Suggestions listed refer to the tutorial program, identifying the tutorial title that will include information relevant to the learning outcomes of the domain/subject area. It is suggested that tutorial program organisers provide the relevant curriculum subject area to the tutorial presenter as a guide for preparing content that will be most beneficial to Registrars. The tutorial program has been revised to reflect the grouping of subject areas in this updated curriculum.</p> <p>Tutorials, Sports Team and Event Coverage and Requirements and Academic Modules must be completed. Other activities listed are <u>NOT</u> compulsory; they are <u>suggestions and possible opportunities</u> that may be pursued to aid learning.</p> | |

SECTION 1: SPORT AND EXERCISE MEDICINE FOUNDATIONS

DOMAIN 1.1: INJURY AND ILLNESS PREVENTION

Subject Areas:

- 1.1.1 Pain and Pathophysiology of Injury
- 1.1.2 Principles of Injury Prevention
- 1.1.3 Pre-Participation Examination and Screening
- 1.1.4 Biomechanics
- 1.1.5 Supportive Techniques and Protective Equipment

1.1.1 Pain and Pathophysiology of Injury

Suggested Program Focus: Year One

Learning Outcomes

Mechanism of Injury - refer to Injury and Illness Prevention - Principles of Injury Prevention

Differentiate between acute and chronic injuries.

Describe the pathophysiology of acute injuries affecting:

- Bone fractures (various types, including avulsion), periosteal contusion, bone oedema
- Articular cartilage - osteochondral injury and fractures, minor chondral injury
- Joint - dislocation, subluxation
- Ligament - sprain (grades 1-3)
- Muscle - delayed onset muscle soreness, strain (grades 1-3), contusion, cramp, acute compartment syndrome
- Tendon - tear (complete or partial)
- Bursa - acute, or traumatic bursitis
- Nerve - neuropraxia, minor nerve injury
- Skin - abrasion, laceration, puncture wound

Describe the pathophysiology of chronic (overuse injuries) affecting:

- Bone - stress fracture, 'bone strain', osteitis/periostitis, apophysitis
- Articular cartilage - chondropathy, osteochondritis dissecans
- Joint - synovitis, osteoarthritis
- Ligament - inflammation
- Muscle - chronic compartment syndrome, delayed onset muscle soreness, focal tissue thickening/fibrosis, myositis ossificans
- Tendon - tendonopathies or tendonoses
- Bursa - bursitis
- Nerve - entrapment, increased neural tension, neuritis
- Skin - blister

Describe the processes by which tissue healing occurs in skin, tendons, ligaments, muscles and bone# and take this into consideration when planning a rehabilitation program for the treatment of injury.

Compare the physiological events associated with the different phases of the healing process. #

Identify those factors that can interfere with the healing process.

Discuss the importance of inquiring about any psychological effects the patient or athlete may be experiencing as a result of an injury.

Be aware that some patients present with conditions that masquerade as a musculo-skeletal condition but have other causes, including: bone and soft tissue tumours; rheumatological conditions; disorders of muscle and connective tissue; endocrine disorders; vascular disorders; genetic disorders;

Assessment

Part 2 Examination
Indirectly Mini CEX

granulomatous diseases and infection; neurological disorders; psychiatric disorders; and provide examples of each.

Pain

Describe the features of somatic and radicular pain.

Describe theory behind referred pain, its features and associated symptoms, and how it is clinically assessed.

Outline common sites of referred pain and the corresponding common sources of pain.

Describe and recognise various types of pain syndromes, including but not limited to: complex regional pain syndrome type 1, myofascial pain syndrome and fibromyalgia.

Outline the treatment modalities that may be used to manage acute pain, including physical, psychological, pharmacological and interventional.

Describe the risk factors for the onset of chronic or persistent pain.

Explain the importance of a multidisciplinary approach to the management of chronic pain.

Teaching and Learning Methods

To achieve the learning outcomes of this module, Registrars must participate in/complete:

- Tutorial program - Assessment of Sports Related Injuries.
- Tutorial program - Pain Management

It is suggested that during the training program, Registrars participate in/experience the following:

- Discussion with supervisor and supervised experience in an accredited training post.
- Self-directed learning - review the resource list for this topic.

1.1.2 Principles of Injury Prevention

Suggested Program Focus: Year One

Learning Outcomes

Outline extrinsic, intrinsic, modifiable and non-modifiable risk factors, which may predispose to sport and exercise related injury.

Explain the importance and benefits of warm up and cool down periods in relation to exercise.

Discuss the importance of postural muscle activation (core stability, along with disengagement of secondary muscle compensators), on injury prevention.

Describe the importance of strength, cardiovascular endurance and flexibility on injury prevention.

Identify specific techniques and protocols for developing muscular strength including isotonic, isometric, isokinetic exercises.

Identify specific techniques for developing cardiovascular endurance - *Refer to Internal Medicine as it relates to Physical Activity - Exercise Prescription for Health.*

Outline the principles of preparing a sport specific strengthening, flexibility, proprioception and side to side symmetry program, as a strategy to prevent injury.

Recognise aspects of the sports environment (e.g. playing surface) that may precipitate injury and recommend changes as appropriate.

Assess environment (e.g. weather, equipment) and surrounds (e.g. proximity of spectators, media etc) and make recommendations on whether it is safe for play. *Refer to Internal Medicine as it relates to Physical Activity – Environment related Injury and Illness.*

Describe and compare the range of methods used to assess injury risk of athletes and teams, from pen and paper well-being questionnaires to more complex software applications.

Explain how inappropriate training methods or schedules can cause or increase the likelihood of injury, and the types of injuries sustained. *Refer to Internal Medicine - Exercise Prescription for Health.*

Recognise the need for adequate recovery from exercise, training or competition to prevent injury and illness.

Discuss methods used to augment the recovery process (including types of activity, therapies, nutrition and psychological strategies) and the scientific evidence to support them.

Assessment

Part 1
Examination

Part 2 Examination
Indirectly Mini CEX

Teaching and Learning Methods

To achieve the learning outcomes of this module, it is suggested that during the training program, registrars participate in/experience the following:

- Develop a list of stretches for various muscle groups and consider how you might teach them to a patient.
- Choose a sport and develop a stretching program to prevent injury.
- Prepare a sport specific strengthening, flexibility and balance program as a strategy to prevent injury for an individual patient.
- Spend time with a high-level team physiotherapist, and strength and conditioning coach, in two very different sports and compare their approaches to injury risk and their injury prevention strategies.
- Case study - review a training diary of a patient to identify inappropriate training methods or schedule.
- Self-directed learning - review the resource list for this topic.

1.1.3 Pre-Participation Exam and Screening

Suggested Program Focus: Year One

Assessment

Part 2 Examination

Learning Outcomes

Pre-Participation Examination (PPE)

Explain the primary objectives and timing of the pre-participation examination.

List the major components of the history and physical examination. *Refer to Care of Athletes and Teams - Travelling Athletes.*

Medical Screening

Explain the aims and benefits of the medical screening for athletes and recreational exercisers.

Discuss the usual protocol(s) for medical and musculo-skeletal screening including important elements of the history and physical examination.

Describe conditions that might preclude an athlete from obtaining 'clearance' for specific sport participation.

Explain the goals, feasibility and limitations of cardiovascular screening. Discuss the varying opinions of what constitutes appropriate cardiovascular screening, including when to refer for more detailed cardiovascular testing.

Confidentiality - *Refer to Care of Athletes and Teams - Care of Teams and Fundamental Competencies - Professionalism.*

Teaching and Learning Methods

To achieve the learning outcomes of this module, Registrars must participate in/complete:

- Tutorial program - Cardiovascular Medicine.

It is suggested that during the training program, Registrars participate in/experience the following:

- ACSEP Short Learning Modules: Internal Medicine (online) - Sports Cardiology 1 & 2
- Conduct pre-participation screening and medical examinations of athletes and sports team personnel.
- Review the literature that describes the differing global views on the use, benefits and cost effectiveness of cardiovascular screening of athletes.
- Self-directed learning - review the resource list for this topic.

1.1.4 Biomechanics

Suggested Program Focus: Year Two

Learning Outcomes

Define the basic terms and principles of human movement analysis:

- Kinematics
- Kinetics
- Centre of mass determinations and segmental kinetics

Describe the biomechanical properties of tendon, ligament and articular cartilage during stress, strain and fatigue.

Understand and demonstrate normal lower limb and upper limb biomechanics including neutral static stance, and the range of motion of joints in neutral position.

Describe upper limb, lower limb, pelvis and spine joint range of motion and what happens when there is a loss of normal range of motion.

Explain the normal biomechanics of locomotion, and biomechanical analysis of gait, including:

- Phases of gait at various speeds
- Common gait pathomechanics
- Techniques used for analysis

Outline how to assess general body posture including presence/absence of postural muscle strength (core stability).

Differentiate between static and functional biomechanical abnormalities.

Describe common structural abnormalities of the foot, subtalar joint, ankle joint, lower leg bones and hip joint and how they contribute to abnormal biomechanics.

Outline possible biomechanical abnormalities of the upper and lower limbs and common injuries they may predispose to.

Identify faulty biomechanics, both structural and mechanical, and suggest how they may be managed, where possible.

Understand and analyse the biomechanics and pathomechanics of sporting techniques including but not limited to throwing, fast bowling, overhead sports, swimming, cycling, golf, tennis, running, jumping, weight lifting and rowing.

Discuss common technique faults and understand how they relate to injury, e.g. golf swing and elbow, swim stroke and shoulder, throwing action and shoulder.

Evaluate the characteristics of various sports equipment and surfaces and how this may relate to injury causation.

Recommend appropriate changes and modifications to sports specific equipment to prevent and manage injury e.g. tennis racket grip, bike set up.

Assessment

Part 2 Examination
Indirectly Mini CEX

Describe (and observe) laboratory based biomechanical analysis of normal walking and common sporting techniques.

Understand the techniques used by bio mechanists to analyse movement e.g. digitization, noise filtering, link segment models.

Recognise when to refer an athlete for appropriate biomechanical analysis.

Teaching and Learning Methods

To achieve the learning outcomes of this module, Registrars must participate in/complete:

- Academic Module - Biomechanics.
- Tutorial program - Sport Specific Biomechanics and Podiatry.

It is suggested that during the training program, Registrars participate in/experience the following:

- Complete a biomechanical assessment of a patient.
- Visit a biomechanics laboratory.
- Choose a common sport and describe the different phases of the action, what constitutes the ideal action and what issues may alter the action and predispose the participant to injury (e.g. throwing).
- Self-directed learning - review the resource list for this topic.

1.1.5 Supportive Techniques and Protective Equipment

Suggested Program Focus: Year One

Learning Outcomes

Footwear

Describe the range of foot and ankle malalignments and measure using a goniometer, where relevant.

Explain and demonstrate the biomechanical characteristics of footwear.

Discuss desirable characteristics of athletic footwear based on different types of mechanical profiles and factors to be considered in the selection and fit of athletic shoes.

Describe the different types of sprigs and studs used on athletic footwear, including which types are appropriate for the various surfaces and how they may contribute to injury.

Describe and evaluate the properties of various orthotic materials.

Outline the types of orthoses available to manage foot biomechanical issues, and the fabrication of them.

Describe the features and functions of a custom made orthotic.

Understand the principles and evidence for orthotic therapy.

Protective Equipment

Identify the protective equipment used for various sports and describe the equipment's function(s).

Evaluate different types of protective equipment available for various parts of the body, including:

the head, face, neck, eyes, torso, upper and lower body.

Appraise the current evidence regarding the use of helmets in various sports (different football codes, skiing, cycling etc)

Recognise when protective equipment needs adjustment and discuss potential problems that may arise when it is not fitted properly.

Compare the advantages and disadvantages of customized versus commercial protective devices (mouth guards, eyewear).

Preventive and Therapeutic Braces

Explain the advantages and disadvantages of various types of preventive braces including knee and ankle stabilization braces.

Recognise when to prescribe and apply a preventive brace for a patient (anterior cruciate ligament, medial collateral ligament, ankle, wrist, thumb).

Compare and contrast the benefits of customized versus commercial preventive braces.

Assessment

Part 2 Examination

*Indirectly Mini CEX
and Case based
Discussion*

Discuss evidence regarding the efficacy of knee and ankle braces in reducing injuries.

Identify when a patient may need to use a therapeutic brace e.g. subtalar stabilizing brace, modified boston brace, sacro-iliac/lumbar spine support brace.

Understand the range of therapeutic splints and braces available and the scientific evidence for their use, e.g. for pars interarticularis stress fractures, subtalar osteoarthritis, and medical compartment knee osteoarthritis devices.

Taping

Outline the various reasons why taping can be useful.

Generally discuss the different types of adhesive tape and their indications for use.

Outline the advantages and disadvantages of using taping methods versus bracing for prevention of injury, including ankles and knees.

Describe the application of common taping techniques for a variety of musculoskeletal problems – including ankle, wrist, finger, thumb, knee, elbow and foot.

Explain the need for, and demonstrate sling techniques - cervical arm sling, shoulder arm sling, figure of eight.

Teaching and Learning Methods

To achieve the learning outcomes of this module, Registrars must participate in/complete:

- Tutorial program - Podiatry.

It is suggested that during the training program, Registrars participate in/experience the following:

- Observe podiatrist assessing a patient and manufacturing a custom orthotic.
- Observe and make a heat mouldable orthotic insert.
- Work with a team physiotherapist and team strappers.
- Tape up ankle, wrist, finger, thumb, knee and elbow for the prevention and/or treatment of common injuries.
- Apply slings.
- Prescribe and apply a protective brace.
- Self-directed learning - review the resource list for this topic.

SECTION 1: SPORT AND EXERCISE MEDICINE FOUNDATIONS

DOMAIN 1.2: INJURY ASSESSMENT, MANAGEMENT AND REHABILITATION

Subject Areas:

- 1.2.1 Trauma
- 1.2.2 Assessment and Management of Sport and Exercise Related Injury
- 1.2.3 Diagnostic Techniques and Interpretations
- 1.2.4 Applied Physiotherapy and Other Therapies
- 1.2.5 Sport Related Orthopaedic Surgery
- 1.2.6 Exercise Prescription for Rehabilitation

1.2.1 Trauma

Suggested Program Focus: Year Two

Learning Outcomes

For the following list of traumas:

1. Discuss the various types of trauma/injury that may occur in the sporting environment
 2. Outline the signs and symptoms
 3. Recognise conditions that are life threatening and/or require urgent care or conditions that are likely to deteriorate.
 4. Explain the principles of, and perform, an assessment of the patient
 5. Describe the initial care of the patient, including performing first aid, immobilization techniques and/or required procedures, as appropriate
 6. Understand the guidelines/protocols for transferring care of the patient.
- Orthopaedic Trauma e.g. fractures, dislocations, sprains and other musculoskeletal injuries.
 - Head Trauma e.g. fractured skull, concussion and intracranial haemorrhage.
 - Spine and Spinal Cord Trauma
 - Thoracic Trauma e.g. acute rib and sternal fractures, vertebral crush fractures, pneumothorax.
 - Airway Trauma e.g. Laryngeal fracture.
 - Abdominal Trauma e.g. spleen, hepatic, renal trauma.
 - Genitourinary Trauma e.g. testicular trauma.
 - Extremity Trauma
 - Facial, Ear and Nasal Trauma.
 - Ocular Trauma e.g. foreign bodies, trauma to orbit, blowout fractures, hyphaema.
 - Maxillofacial trauma - mandibular fracture, zygomatic fracture, Le Fort fractures.
 - Dental Trauma e.g. fracture, subluxation, avulsion.

Suturing and wound management - *Refer to Care of Athletes and Teams - Emergency and Acute Trauma in Sport and Exercise Medicine*

Also refer to Physical Activity in Specific Populations - Female Athletes and Children

Assessment

Part 2 Examination

Management of Sporting Trauma (MOST) Course

Indirectly Case based Discussion

Teaching and Learning Methods

To achieve the learning outcomes of this module, Registrars must participate in/complete:

- Management of Sporting Trauma (MOST) Course or similar approved program.
- Tutorial program - Assessment of Sports Related Injuries (head injury and concussion) and Trauma in Sports Medicine.
- Completion of Team Coverage Requirements.

It is suggested that during the training program, Registrars participate in/experience the following:

- MOST Course refresher.
- ACSEP Short Learning Modules: Internal Medicine (online) - ENT and Dental Trauma.
- Case scenario provided by supervisor - athlete receives an elbow or ball in throat; athlete suffers a head trauma and has progressive onset headache, double vision and vomiting.
- Self-directed learning - review resource list for this topic.

1.2.2 Assessment and Management of Sport and Exercise Related Injuries

Suggested Program Focus: Year Two

Learning Outcomes

For each of the injuries listed in this module:

1. Discuss the epidemiology of the injury
2. Describe the predisposing factors, mechanism of the injury and/or possible technique faults
3. Outline the relevant anatomy and pathophysiology of the injury
4. Differentiate the key features of the history and clinical examination for the specific injury
5. Identify the types of sports, and specific positions within the sport where relevant, that the injury most commonly occurs
6. Identify and select appropriate and cost-effective investigations (including special views) that can be used to refine a diagnosis
Refer to Diagnostic Techniques and Interpretations
7. Explain and evaluate the options for management of the injury, including possible complications or long term sequelae.
Rehabilitation - refer to Exercise Prescription for Rehabilitation.

Shoulder

- Gleno-humeral dislocation
- Gleno-humeral instability
- Gleno-humeral laxity
- Acromioclavicular joint sprain/dislocation
- Rotator cuff tendonopathy/impingement
- Rotator cuff tear
- Labral tears including SLAP lesions
- Clavicular fracture
- Suprascapular nerve entrapment
- Brachial plexus lesions
- Glenohumeral /acromioclavicular joint degenerative disease
- Adhesive capsulitis
- Internal impingement
- Thoracic outlet syndrome
- Pectoralis major tears
- Acute calcific tendinitis
- Tear long head of biceps
- Osteolysis of the distal clavicle
- Axillary vein thrombosis
- Quadriateral space syndrome
- Other fractures – proximal humerus, coracoid, etc
- Stress reaction/bone oedema of proximal humerus

Elbow and Upper Arm

- Fracture head and neck of radius
- Elbow dislocation
- Medial tension overload
- Posterior impingement

Assessment

Part 2 Examination

*Indirectly Mini-CEX
and Case based
Discussion*

- Ulnar nerve lesions
- Posterior interosseous nerve lesions
- Tendonopathy of common extensor origin and common flexor origin
- Olecranon bursitis
- Distal biceps tendon rupture and tendonopathy
- Distal triceps tendon injury/tendonopathy
- Osteochondritis dissecans radio-capitellar joint

Wrist and Hand

- Intersection syndrome
- De Quervain's disease
- Wrist fractures
- Distal radio-ulnar joint injury
- Scaphoid fracture
- Scapho-lunate and luno-triquetral instability/ligament injury
- Triangular fibrocartilage tear (TFCC)
- Ganglia of the wrist
- Avascular necrosis lunate (Kienbock's Disease)/capitate
- Carpal tunnel syndrome
- Ulnar nerve entrapment/compression (Guyon's canal)
- Wrist impingement syndromes/ positive ulna variance
- Scaphoid Nonunion Advance Collapse (SNAC) and Scapho-lunate Advance Collapse (SLAC) wrist
- Extensor carpi ulnaris (ECU) tendonopathy/subluxation
- Fracture hook of hamate
- Fractures at the base of the thumb (Bennett's fracture.)
- Fractures of the metacarpals and phalanges
- Dislocations Metacarpophalangeal (MCP) Joint/Proximal Interphalangeal (PIP) Joint/Distal Interphalangeal (DIP) Joint
- Avulsion/tear of the long flexor tendons
- Finger pulley injuries
- Thumb ulnar collateral ligament (UCL) injuries
- Volar plate injuries
- Trigger finger
- Mallet finger
- Swan neck deformity
- Boutonnière deformity

Thoracic Region

- Rib injury - stress fracture
- Sternoclavicular joint injury
- Costochondritis
- Rib tip syndrome

Spinal Conditions

Cervical Spine

- Brachial plexus lesions (burners/stingers, etc)
- Radiculopathy
- Disc disease
- Facet joint disease

- Acute wry neck
- Acceleration/deceleration injury
- Cervicogenic headache
- Cervical canal stenosis
- Acute traumatic neck injury/fracture
- Brachial neuritis

Thoracic Spine

- Disc disease
- Facet joint disease
- Costovertebral and costotransverse joint pathology
- Scheuermann's disease/thoracic kyphosis

Lumbar Spine

- Disc disease
- Facet joint disease
- Radiculopathy
- Spondylolysis/Pars Interarticularis (PI) injury
- Spondylolisthesis
- Spinal canal stenosis
- Lumbar Scheuermann's Disease
- Fractures - transverse process, spinous process

Sacrum and Sacroiliac Joint (SIJ)

- Mechanical disorders e.g. SIJ incompetence
- Stress fracture of the sacrum
- Coccydynia

Other

- Postural dysfunction
- Scoliosis
- Congenital variations
- Red flag disorders - ankylosing spondylitis, sacroilitis, discitis, bony metastatic disease etc.

The Pelvis

- Trochanteric/ischial bursitis
- Hamstring origin avulsion
- Hamstring origin tendonopathy
- Gluteal tendonopathy/enthesopathy
- Referred pain from the lumbar spine and SIJ
- Piriformis syndrome
- Tensor fascia latae enthesopathy
- Sciatic nerve compression/irritation in the buttock

Hip

- Avulsion fractures/traction apophysitis
- Slipped Upper Femoral Epiphysis (SUFE) and Perthe's disease (covered in paediatric section)
- Osteoarthritis

- Osteonecrosis
- Labral pathology
- Femoro-acetabular impingement
- Acetabular malformations/hip dysplasia
- Anterior impingement
- Transient osteoporosis

Groin

- Adductor strain
- Iliopsoas strain
- Conjoint tendon injury
- Adductor tendonopathy
- Sportsman's hernia/posterior inguinal wall weakness
- Inguinal and femoral hernias
- Osteitis pubis
- Stress fracture – neck of femur/ pubic ramii
- Obturator/ilio-inguinal nerve entrapment
- Pudendal nerve entrapment
- Snapping hip
- Referred pain - Lumbar spine, SIJ

Thigh

- Hamstring strain
- Quadriceps tear
- Quadriceps contusion
- Femoral stress fracture
- Myositis ossificans
- Meralgia paraesthetica
- External iliac artery endofibrosis
- Referred pain – Lumbar spine, SIJ

Knee

- Anterior Cruciate Ligament (ACL)/Posterior Cruciate Ligament (PCL) injury
- Medial Collateral Ligament (MCL)/Lateral Collateral Ligament (LCL) injury
- Meniscal injury
- Patellar subluxation
- Patellar dislocation
- Chondral injury
- Chondral lesions/Osteochondritis Dissecans (OCD)
- Tibial plateau/patella fracture
- Superior tibio-fibular joint sprain
- Postero-lateral corner injury
- Patellofemoral Pain
- Bipartite patella
- Fat pad impingement
- Medial plica
- Patellar and quadriceps tendonopathy
- Ilio-tibial band friction syndrome

- Pes anserine “bursitis”
- Prepatellar/infrapatellar/ Suprapatellar bursitis
- Baker’s cyst
- Popliteus strain/tendonosis
- Osteoarthritis

Lower Leg

- Medial tibial stress syndrome
- Chronic exertional compartment syndrome
- Tibial and fibular stress fracture
- Gastrocnemius/soleus strain
- Popliteal artery entrapment
- Sural, saphenous and peroneal nerve entrapments.
- Accessory Muscles
- Deep Vein Thrombosis - *refer to Internal Medicine - Cardiovascular Medicine*

Ankle

- Lateral and medial ankle ligament sprain
- Post traumatic synovitis
- Talar dome fracture
- Fracture anterior process of calcaneus
- Fracture lateral process of talus
- Tibial plafond osteochondral injury
- Syndesmosis injury
- Anterior and posterior impingement
- Achilles tendon rupture
- Achilles tendonopathy (midportion and insertional)
- Calcaneal bursitis (retrocalcaneal and superficial)
- Tibialis posterior tendonopathy/rupture
- Flexor hallucis longus tendonopathy
- Chronic ankle instability
- Meniscoid lesions
- Peroneal tendon injuries
- Stress fracture – calcaneal, distal fibular, medial malleolar, talar
- Sinus tarsi syndrome
- Posteromedial impingement of the ankle
- Tarsal tunnel syndrome
- Sural nerve entrapment
- Snapping peroneal tendon
- Tarsal coalition (covered in paediatrics)
- Sever’s disease (covered in paediatrics)

Foot

- Stress fracture of the navicular
- Accessory navicular
- Plantar fasciitis
- Cuboid syndrome
- Lisfranc injury
- Stress fracture cuboid/cuneiform

- Calcaneal nerve entrapment
- Nerve compressions in the foot
- Metatarsal stress fracture
- Fractures around the base of the fifth metatarsal
- Jones fracture
- Dancer's fracture
- Midfoot dislocation and fractures
- Metatarsalgia
- Morton's neuroma/foot
- Turf toe
- Sesamoid stress fracture
- Sesamoiditis
- Hallux valgus/rigidus
- Haglund's syndrome
- Claw toe/hammer toe

Teaching and Learning Methods

To achieve the learning outcomes of this module, Registrars must participate in/complete:

- Tutorial program - Assessment of Sports Related Injuries, Applied Physiotherapy and Other Therapies and Orthopaedic Surgery.

It is suggested that during the training program, Registrars participate in/experience the following:

- Examination Videos (online).
- Observation of Fellows assessing and managing injuries - clinical experience within accredited training post.
- Case scenarios provided by supervisor.
- Discussing cases with CTS and CTIs.
- Self-directed learning - review the resource list for this topic.

1.2.3 Diagnostic Techniques and Interpretations

Suggested Program Focus: Year Two

Learning Outcomes

For the diagnostic modalities including, but not limited to:

Diagnostic Modalities

- Plain x-ray
- Radio Isotopic Bone Scan / SPECT
- Computed tomography (CT)
- Magnetic resonance imaging (MRI)
- Ultrasound

Interventional Radiological Techniques

- Ultrasound guided injection
 - CT guided injection
 - Fluoroscopic guided injections
1. Generally describe the physics and process
 2. Explain how the test is administered
 3. Outline the indications for use
 4. Evaluate the advantages and disadvantages of using the technique as opposed to other modalities in various circumstances.
 5. Identify relative and absolute contraindications associated with the use of the technique, if any, including the radiation risk and how this risk varies with age group and the site of investigations.
 6. Discuss the cost-effectiveness of the technique, considering the patient's contribution.

Know which investigation (including special or specific views) is appropriate for various pathologies.

Understand the estimate of sensitivity and specificity for common investigations.

Describe common imaging artefacts and normal variants.

Assessment

Part 2 Examination

*Indirectly Mini CEX
and Case based
Discussion*

Teaching and Learning Methods

To achieve the learning outcomes of this module, Registrars must participate in/complete:

- Tutorial program - Diagnostic Techniques and Interpretations.

It is suggested that during the training program, Registrars participate in/experience the following:

- Tutorials conducted by radiologists, nuclear physicians or sonographers.
- Observe interventional radiology techniques.
- Ultrasound guided injection course.
- Self-directed learning - review the resources list for this topic.

1.2.4 Applied Physiotherapy and Other Therapies

Suggested Program Focus: Year Two

Assessment

Part 2 Examination

Learning Outcomes

Understand the scientific basis for physiotherapy and critically evaluate the evidence base for this mode of therapy.

Thermal Energy Modalities

Differentiate between the physiologic effects of therapeutic heat and cold.

Describe cryotherapy techniques and thermotherapy techniques and the indications and contraindications for both.

Modalities

Recognise, broadly describe the indications and contraindications and evaluate the scientific evidence for the use of the following modalities:

- Therapeutic Ultrasound
- Interferential Stimulation (IFS)
- Laser
- Biofeedback
- Electromyography (EMG)
- Transcutaneous Electrical Nerve Stimulation (TENS)
- Muscle energy techniques
- Dry needling and trigger point therapy

Manual Therapies

Evaluate the scientific evidence for, and outline the indications and contraindications for the use of the following manual therapies:

- Joint mobilization and traction
- Soft tissue therapy

Describe the principles underpinning mechanotherapy and how load may be used therapeutically to stimulate tissue repair and remodeling in tendon, muscle, cartilage and bone.

Surgery - refer to Sport Related Orthopaedic Surgery

Other Therapies

Describe the principles of, and scientific evidence and efficacy, for the following therapies:

- Acupuncture
- Pilates
- Alexander technique
- Feldenkrais therapy
- Use of hyperbaric oxygen in healing of acute and chronic injuries

Describe the principles of, and scientific evidence and efficacy, for the following novel therapies:

- Autologous tenocyte and chondrocyte implantation
- Platelet rich plasma
- Cellular therapies, i.e. stem cell treatment
- Prolotherapy

Discuss the principles of, and scientific basis, for chiropractic and osteopathic treatment.

Understand the diagnostic systems used in osteopathy, particularly thoracic, lumbopelvic and sacroiliac mechanics.

Discuss the principles of and scientific literature relating to the alternative medical theories such as Naturopathy, Homeopathy, Reiki, Bowen therapy, Kinesiology.

Advise patients on interactions between 'natural' medicines and medications frequently prescribed by Sports Physicians.

Teaching and Learning Methods

It is suggested that during the training program, Registrars participate in/experience the following:

- Tutorial program - Applied Physiotherapy and Other Therapies.
- Observe a physiotherapist working with individuals and teams.
- Self-directed learning - review the resource list for this topic.

1.2.5 Sport Related Orthopaedic Surgery

Suggested Program Focus: Year Two

Learning Outcomes

Generally describe the principles of the following procedures and their use as a management option for appropriate conditions:

1. Operative treatment of fractures e.g. open and closed
2. Joint arthroscopy
3. Releases, tenodesis and debridements
4. Acute ligament and tendon repair
5. Ligament reconstructions
6. Later stage procedures – osteotomy and replacement arthroplasty

For each of the common orthopaedic procedures listed below:

1. Outline the indications for the procedure as a component of an overall management plan
2. Explain the basic operative technique(s)
3. Identify common post-operative complications
4. Explain the principles of the rehabilitation plan
5. Discuss the usual recovery time and return to specific activity
6. Observe or assist with the procedure.

Knee

- Arthroscopic lateral and medial meniscectomies/chondroplasty/osteoplasty
- Meniscal suturing
- ACL reconstruction – understand different options for tendon graft
- PCL reconstruction
- Patellofemoral reconstruction
- Joint arthroplasty (partial and total)

Lower Leg

- Compartment decompression - fasciectomy

Ankle

- Arthroscopy/chondroplasty/debridement
- Lateral ligament repair or reconstruction
- Achilles tendon repair
- Excision of os trigonum, posterior talar process
- Management of diastasis injury
- Ankle arthroplasty/fusion
- Sinus tarsi surgery/arthroscopy
- Other peri-ankle fusions
- Lisfranc fracture-dislocation in ankle

Foot

- Excision of Morton's neuroma
- Hallux Valgus/Rigidus surgery

Shoulder

- Arthroscopy
- Subacromial decompression/acromioplasty

Assessment

Part 2 Examination

Training

Diary/Logbook

- Shoulder reconstruction - arthroscopic/open
- Rotator cuff repair - arthroscopic/open
- Management of SLAP lesions
- AC joint excision/reconstruction

Elbow

- Arthroscopy
- Medial Stabilisation
- Epicondylitis surgery/reconstruction repair
- Nerve neurolysis/decompression/transfer (e.g. ulnar nerve, cubital tunnel, posterior interosseous nerve)

Wrist

- Arthroscopy
- Scaphoid - internal fixation
- Carpal tunnel release
- Carpal reconstruction
- Carpal abutment-instability surgeries/TFCC tears/avascular necrosis/extensor carpi ulnaris stabilization/repair

Hand

- UCL repair/reconstruction of thumb
- Bennetts fracture - fixation
- Volar plate repair

Spine

- Laminectomy
- Discectomy - open/percutaneous
- Fusion surgery

Hip

- Arthroscopy
- Labral debridement/repair
- Gluteal tendon repair/reconstruction
- Femoral neck or acetabular ostectomy for impingement conditions
- Acetabular osteotomy for dysplasia
- Arthroplasty surgery
- Total replacement/resurfacing

Teaching and Learning Methods

To achieve the learning outcomes of this module, Registrars must participate in/complete:

- Tutorial program - Orthopaedic Surgery.

To achieve the learning outcomes of this module, it is suggested that during the training program, registrars participate in/experience the following:

- Observe and assist orthopaedic surgeons.
- Evaluate the different treatment options for an ACL tendon graft and scientific evidence of the advantages and disadvantages of autologous, synthetic or donor tendons.
- Self-directed learning - review the resource list for this topic.

1.2.6 Exercise Prescription for Rehabilitation

Suggested Program Focus: Year Two

Learning Outcomes

Discuss the components that should be included in a well-designed, graduated rehabilitation program and the focus of each phase of the program.

Establish a short and long term realistic rehabilitation timeline based on the findings of an injury evaluation and educate the patient on these expectations.

Controlling Inflammation

Explain the importance of controlling the acute inflammatory reaction during initial injury management and discuss the evidence for this.

Employ techniques to control inflammation e.g. RICE and advise patient on how to manage their injury at this stage.

Discuss the use of various analgesics and anti-inflammatories in the management of pain and facilitating the healing process during a rehabilitation program.

Flexibility and Range of Motion

Identify specific techniques for improving flexibility (including static, ballistic and PNF stretching), when it may be appropriate to use them and demonstrate examples of each. #

Explain the neurophysiology behind the stretching techniques above and why they are effective. #

Outline the basic principles of stretching and demonstrate effective stretching techniques for different muscle groups.

Compare and contrast various manual therapy techniques that can be used to improve mobility and range of motion.

Discuss how strength deficiencies and poor motor patterns have a significant influence on range and quality of movement.

Muscular Strength and Endurance

Define muscular strength, endurance and power and discuss their importance in a program of rehabilitation after injury/surgery.

Discuss the physiology of strength development and how this is applied during the development of a rehabilitation program.

Explain the concept of a graduated rehabilitation program to regain muscle strength, power and endurance for a variety of injuries and chronic illness for recreational through to professional athletes.

Discuss differences in males and females in terms of strength development and distribution.

Assessment

Part 2 Examination

Training
Diary/Logbook

*Indirectly Case
based Discussion*

Proprioception and Balance

Explain why neuromuscular control is essential in the rehabilitation process. Define proprioception and balance.

Identify the various techniques for re-establishing proprioception and balance in both the upper and lower extremities.

Differentiate between static and dynamic balance assessment and demonstrate static, semi-dynamic and dynamic balance-training exercises.

Evaluate the effect that an injury has on balance and postural equilibrium. Assess the proprioceptive capacity of a patient and demonstrate appropriate exercises to improve it.

Understand the roles of the sensory modalities involved in maintaining balance and how this relates to centre of gravity.

Posture and Alignment

Describe the concept of postural muscles and discuss the muscular components that contribute to good postural alignment and support.

Discuss the scientific evidence relating to core stability.

Explain how the trunk functions to maintain postural alignment and dynamic postural equilibrium during functional activities.

Identify appropriate exercises for postural muscle re-training and their progressions.

Discuss the advantages of disadvantages of the various programs for postural muscle re-training.

Understand compensatory mechanisms that occur when postural muscle activation is sub optimal.

Maintenance of Aerobic Capacity and Endurance During Rehabilitation

Explain how a patient may maintain cardiovascular fitness while rehabilitating from an injury, including the appropriate type of activity, duration and intensity.

Functional Training and Return to Sport

Introduce specific functional training to the program, to enable the patient to progressively meet the physiological (cardiovascular, muscle strength/endurance, balance etc) and skill demands of their chosen activity.

Guide the patient towards return to full training prior to involvement in competition, where relevant.

Determine the criteria for when an individual can return to full participation in sport.

Identify whether a patient requires additional protective bracing, padding or taping to enable them to return safely to the activity or sport and advise on appropriate measures, as indicated. *Refer to Injury and Illness prevention - Supportive Techniques and Protective Equipment.*

Re-evaluate the patient to determine if activity/sport can continue or the therapeutic exercise program be resumed.

Recognise that a therapeutic exercise program must also address the emotional and psychological needs of the patient, not only the physical needs. *Refer to Care of Athletes and Teams - Sport Psychology.*

Recognise and/or advise a patient when they may need to consider sporting career termination due to their injury or illness and refer as appropriate.

Outline a comprehensive rehabilitation program for a patient suffering from any of the injuries listed in the Assessment and Management of Sport and Exercise Related Injuries.

Understand and assist with the development of a rehabilitation program for a patient post-orthopaedic surgery for procedures listed in the *Sport Related Orthopaedic Surgery module.*

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Applied Physiotherapy and Other Therapies.
- Team Coverage Requirements

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Internal Modules (online) - Exercise Medicine
- Observe physiotherapist and exercise physiologist consultations and be aware of the evidence base for treatments observed.
- Case scenarios provided by supervisor.
- Working with an Orthopaedic Surgeon.
- Consider the analgesic pathway/hierarchy and the evidence or otherwise for the use of anti-inflammatories in treatment and recovery from injury, is there a difference at the professional level?

SECTION 1: SPORT AND EXERCISE MEDICINE FOUNDATIONS

DOMAIN 1.3: INTERNAL MEDICINE AS IT RELATES TO PHYSICAL ACTIVITY

Subject Areas:

- 1.3.1 Cardiovascular Medicine
- 1.3.2 Respiratory Medicine
- 1.3.3 Rheumatology
- 1.3.4 Gastrointestinal Medicine
- 1.3.5 Renal Medicine
- 1.3.6 Endocrinology
- 1.3.7 Neurology
- 1.3.8 Haematology
- 1.3.9 Infections and Allergic Disease
- 1.3.10 Dermatology
- 1.3.11 Eye, Ear, Nose, Throat and Dental Problems
- 1.3.12 Mental Health
- 1.3.13 Exercise Prescription for Health
- 1.3.14 Sports Pharmacology
- 1.3.15 Nutrition for Exercise and Sport
- 1.3.16 Environment related Injury and Illness

1.3.1 Cardiovascular Medicine

Suggested Program Focus: Year Two to Four

Learning Outcomes

Describe the morphological, functional and electrophysiological alterations that characterize the athletic heart syndrome, including typical electrocardiogram and echocardiogram findings.

Discriminate athletic heart syndrome from structural heart disease (including but not limited to HCM).

Describe factors that may impact on cardiac changes in athletes, including the type and duration of training, age, gender, race etc.

Sudden Cardiac Death

Discuss the demographics and prevalence of sudden cardiac death in sport.

Describe the possible causes of sudden cardiac death associated with exercise, including but not limited to, hypertrophic cardiomyopathy (HCM), arterial abnormalities, infection, valvular disease and other structural and arrhythmogenic causes.

Outline the key features of the history and clinical examination to identify an athlete (recreational or elite) with the potential for sudden cardiac death, and when to refer to a cardiologist for further assessment.

Discuss the morphology and diagnosis of HCM.

Determine when it should be recommended that an athlete should not participate in their chosen sport due to the risk of sudden death. *Refer to Injury and Illness Prevention - Pre-Participation Examination and Screening.*

Apply the recommendations of the ACSEP's position statement - *Pre-Participation Cardiac Evaluation in Young Athletes.*

Outline symptoms and signs that may suggest an arrhythmia.

Explain the various cardiac rhythm and conduction disturbances that may occur in athletes and the implications for involvement in sport and exercise.

Outline acute management of haemodynamically significant arrhythmias.

Discuss the principles for evaluation, and if appropriate clearance, of an athlete/patient with cardiac symptoms and/or cardiac signs including arrhythmia.

Keep apprised of the scientific evidence regarding right ventricular dysfunction and associated arrhythmia in endurance athletes.

Identify the predisposing factors and clinical presentations of vascular fragility.

With regard to Marfan Syndrome:

- Discuss the epidemiology, pathophysiology and clinical features.
- Outline the diagnostic criteria and natural history.

Assessment

Part 2 Examination

Indirectly Case based Discussion

- Explain the management and special considerations for an athlete (elite or recreational) with Marfan syndrome in relation to involvement in sport or exercise.

For the following list of conditions:

- Congenital/valvular disease - structural, arrhythmogenic and infective
- Ischaemic heart disease
- Hypertension
- Lipid disorders
- Viral myocarditis
- Pericarditis

1. Discuss the prevalence of the condition.
2. Describe the risk factors and causes.
3. Explain the pathophysiology of the condition.
4. Describe how exercise may affect the condition, where relevant.
5. Differentiate key features of the history and clinical examination for the specific condition.
6. Identify appropriate and cost effective investigations, where relevant.
7. Evaluate the preventive and management options from a sport's physician's perspective, including the role of exercise as a preventive or therapeutic measure, where relevant.
8. Explain the limitations the condition may place upon a patient's ability to exercise and/or play sport.

For the following list of vascular conditions:

- External iliac artery endofibrosis
- Popliteal artery entrapment
- Popliteal vein entrapment
- Peripheral vascular disease
- Subclavian vein/artery thrombosis/occlusion
- Deep venous thrombosis

1. Discuss the prevalence of the condition.
2. Describe the predisposing factors, risk factors and causes, including specific athletic populations affected.
3. Explain the pathophysiology of the condition.
4. Describe how exercise may cause or affect the condition, where relevant.
5. Differentiate key features of the history and clinical examination for the specific condition.
6. Identify appropriate and cost effective investigations, where relevant.
7. Evaluate the preventive and management options from a sport's physician's perspective, including the role of exercise as a preventive or therapeutic measure.
8. Explain the limitations the condition may place upon a patient's ability to exercise and/or play sport.

Normal cardiovascular responses to exercise # - *refer to Internal Medicine - Exercise Prescription for Health.*

Exercise in the primary prevention of cardiovascular disease - *refer to Internal Medicine - Exercise Prescription for Health.*

Screening for cardiac disease - *refer to Injury and Illness Prevention - Pre-participation Examination and Screening*

Exercise in cardiac rehabilitation - *refer to Internal Medicine - Exercise Prescription for Health.*

Investigations

Interpretation of the electrocardiogram, echocardiogram, relevant blood tests and x-rays - *refer to Injury Assessment, Management and Rehabilitation - Diagnostic Techniques and Interpretations*

Exercise Testing - *refer to Internal Medicine - Exercise Prescription for Health.*

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Internal Medicine - Cardiovascular Medicine and Diagnostic techniques and Interpretation.

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Internal Medicine (online) - Sports Cardiology 1 & 2
- Observe a cardiologist's consultation including performing an echocardiogram on a regular exerciser or athlete.
- Visit a cardiac rehabilitation centre and observe an exercise physiologist working with a client.
- Witness stress testing.
- Case scenario provided by supervisor - How you would approach the management of an athlete who has collapsed during exercise?
- Review the ECGs of a patient with HCM, WPW Syndrome and athletic heart syndrome.
- Prepare a flow chart on how to investigate an athlete with an abnormal ECG.
- Self-directed learning - review the resource list for this topic.

1.3.2 Respiratory Medicine

Suggested Program Focus: Year Two to Four

Learning Outcomes

Outline the characteristics, pathophysiology and prevalence of asthma and exercise induced bronchospasm (EIB).

Discuss conditions that may mimic EIB, including but not limited to, vocal cord dysfunction and exercised induced hyperventilation.

Evaluate diagnostic and screening tests used to confirm a diagnosis of asthma.

Describe preventive strategies and acute treatment of asthma patients based on the severity of their illness.

Describe both the physical and pharmacological strategies which are likely to prevent the onset of EIB.

Discuss monitoring strategies for asthma and the importance of patient responsibility.

Describe the causes, pathophysiology, general key features and benefits of exercise in the management and treatment of chronic obstructive pulmonary disease (chronic bronchitis and emphysema) and restrictive lung disease.

Describe the prevalence, pathophysiology and natural history of cystic fibrosis and the role of exercise in its management and treatment.

For the following list of conditions:

- Upper Respiratory Tract Infections
 - Bronchitis
 - Pneumonia
 - Sinusitis
 - Pharyngitis
 - Tonsillitis
1. Discuss the prevalence of the condition.
 2. Describe the predisposing factors, risk factors and causes.
 3. Explain the pathophysiology of the condition.
 4. Describe how exercise may cause or affect the condition, where relevant.
 5. Differentiate key features of the history and clinical examination for the specific condition.
 6. Identify appropriate and cost effective investigations, where relevant.
 7. Evaluate the preventive and management options from a sport's physician's perspective.
 8. Explain the limitations the condition may place upon a patient's ability to exercise and/or play sport and return to sport guidelines.

Assessment

Part 2 Examination

*Indirectly Mini CEX
and Case based
Discussion*

Identify and manage a spontaneous pneumothorax.

Pneumothorax - *refer to Injury Assessment, Management and Rehabilitation - Trauma.*

Upper airway obstruction - *refer to Injury Assessment, Management and Rehabilitation - Trauma.*

Effects of air pollution on performance - refer to Internal Medicine - Environment related Injury and Illness.

Effects of altitude on respiratory performance and high altitude pulmonary oedema - *refer to Internal Medicine - Environment related Injury and Illness.*

Explain the role of exercise as a preventive or therapeutic measure in the management of respiratory disease - *refer to Internal Medicine - Exercise Prescription for Health.*

Investigations

Interpretation of chest xrays spirometry/bronchoprovocation tests - *refer to Injury Assessment, Management and Rehabilitation - Diagnostic Techniques and Interpretations*

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Internal Medicine - Respiratory Medicine.

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Internal Medicine (online) - Respiratory.
- Visit a laboratory, which conducts respiratory testing and bronchoprovocation tests for exercise induced asthma.
- Case scenarios provided by supervisor - treatment of a severe asthma attack in an elite athlete during a competition phase; the management of vocal cord dysfunction.
- Compare and contrast the features of EIB, vocal cord dysfunction and exercise induced hyperventilation.
- Give a lecture to general practitioners regarding EIB.
- Self-directed learning - review the resource list for this topic.

1.3.3 Rheumatology

Suggested Program Focus: Year Two to Four

Learning Outcomes

Discuss the rheumatological aspects of common endocrinological, gastrointestinal and haematological disorders, and drug-induced conditions.

Be aware of medications that may mimic joint arthralgia.

For the following list of conditions:

- Osteoporosis
 - Degenerative Joint Disease (osteoarthritis)
 - Rheumatoid Arthritis, including Juvenile Rheumatoid Arthritis
 - Seronegative Spondyloarthropathies, including but not limited to Ankylosing Spondylitis, Psoriatic Arthritis, Reactive Arthritis and Reiter's Disease.
 - Crystal Arthropathies
 - Other Connective Tissue Disease e.g. SLE, polymyositis/dermatomyositis, polymyalgia rheumatica, vasculopathies
 - Myofascial pain syndrome e.g. fibrositis, fibromyalgia
 - Infective Arthropathies e.g. septic arthritis
 - Metabolic Arthropathies
 - Pigmented Villonodular Synovitis (PVNS)
1. Discuss the prevalence of the condition.
 2. Describe the predisposing factors, risk factors and causes.
 3. Explain the pathophysiology of the condition.
 4. Describe how exercise may cause or affect the condition, where relevant.
 5. Differentiate key features of the history and clinical examination for the specific condition.
 6. Recognise manifestations of the disease on other organ systems, where relevant.
 7. Identify appropriate and cost effective investigations, where relevant.
 8. Evaluate the preventive and management options from a sport's physician's perspective, including the role of exercise as a preventive or therapeutic measure.
 9. Explain any limitations the condition may place upon a patient's ability to exercise and/or play sport.

Generally describe the signs and symptoms, investigations and management of collagen disorders, osteomalacia and diffuse idiopathic skeletal hyperostosis.

Complex regional pain syndrome - *refer to Injury and Illness Prevention - Pain and Pathophysiology of Injury.*

Discuss the current treatments for rheumatological diseases, including the role of physical therapy and types and levels of medication, where relevant.

Assessment

Part 2 Examination

Indirectly Mini CEX and Case based Discussion

Bone Density/Osteoporosis

Discuss bone metabolism, cancellous and cortical bone turnover, and the natural history of osteoporosis.

Discuss the role of oestrogen, calcium and Vitamin D in bone metabolism.

Define peak bone mass and explain the development of peak bone mass, when it occurs and how bone mass changes across the lifespan.

Outline the factors contributing to optimal peak bone mass and reduced bone mass.

Appraise the investigations used to measure bone mineral density, including the advantages and disadvantages for each and scientific evidence regarding their efficacy.

Explain the role of exercise (both aerobic and resistance training) in the prevention and management of osteoporosis and how it affects the rate bone loss across the lifespan.

Take into account the severity of the bone mineral density loss in the prescription of exercise and strength training for an osteoporotic individual.

Be aware of exercises which pose a risk to the osteoporotic individual and therefore should be avoided.

Investigations

Blood tests, x-rays and other appropriate imaging techniques - *refer to Injury Assessment, Management and Rehabilitation - Diagnostic Techniques and Interpretations*

Synovial fluid tests - *refer to Injury Assessment, Management and Rehabilitation - Diagnostic Techniques and Interpretations*

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Internal Medicine - Rheumatology.

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Internal Medicine (online) - Rheumatology 1 & 2
- Observe a rheumatologist's consultation.
- Compare and contrast radiographic images of Osteoarthroses, Rheumatoid Arthritis and Seronegative Arthropathies and Crystal Arthropathies.
- Case scenario provided by supervisor - elite athlete with seronegative arthropathy.
- Discuss the blood profile of patients with a variety of arthritic conditions.
- Collection of synovial fluid samples in appropriate pathology containers for various tests.
- Compare and contrast the synovial fluid profile of patients with a variety of arthritic conditions.
- Discuss a variety of bone mineral density scan results with your supervisor.
- Self-directed learning - review the resource list for this topic.

1.3.4 Gastrointestinal Medicine

Suggested Program Focus: Year Two to Three

Learning Outcomes

For the following list of conditions:

- Gastro-Oesophageal Reflux Disease
- Gastritis and Peptic Ulcer Disease
- Irritable Bowel Syndrome
- Inflammatory Bowel Disease
- Runner's diarrhoea
- Gastrointestinal bleeding associated with exercise

1. Discuss the prevalence of the condition.
2. Describe the predisposing factors, risk factors and causes.
3. Explain the pathophysiology of the condition.
4. Describe how exercise may cause or affect the condition, where relevant.
5. Differentiate key features of the history and clinical examination for the specific condition.
6. Recognise musculoskeletal manifestations, where relevant.
7. Identify appropriate and cost effective investigations, where relevant.
8. Evaluate the preventive and management options from a sport's physician's perspective.
9. Explain any limitations the condition may place upon a patient's ability to exercise and/or play sport.

Acute Gastrointestinal tract trauma - *refer to Injury Assessment, Management and Rehabilitation - Trauma.*

Effects of NSAIDs on the gastrointestinal system - *refer to Internal Medicine - Sports Pharmacology*

Assessment

Part 2 Examination

Indirectly Case based Discussion

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Internal Medicine - Gastrointestinal Medicine (with Immunology, Infections and Allergic Disease session).

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Internal Medicine (online) - Gastroenterology.
- Case scenarios provided by supervisor - epigastric pain and runner's diarrhoea.
- Prepare an information sheet on the causes of gastrointestinal bleeding in an athlete; and one on the prevention of gastrointestinal complaints during an endurance event.
- Prepare a flow chart regarding gastrointestinal bleeding, which takes into account the various types of bleeding, symptoms, and how you would manage each outcome.
- Self-directed learning - review the resource list for this topic.

1.3.5 Renal Medicine

Suggested Program Focus: Year Two to Four

Assessment

Part 2 Examination

Learning Outcomes

Explain the effects of exercise on renal physiology.#

Describe the effects of dehydration on renal function.

Generally describe the causes and effects of blood electrolyte abnormalities, e.g. potassium, calcium, sodium.

Discuss the causes, mechanisms, evaluation, and management of the following:

- haematuria
- proteinuria
- myoglobinuria

Discuss the theories of the causes, mechanisms, signs and symptoms, treatment and outcomes of hyponatraemia during endurance activity.

Outline strategies that may be implemented to reduce the incidence of hyponatremia. *Refer to Care of Athletes and Teams - Events.*

Describe the recommendations within the current consensus statement on exercise-associated hyponatremia.

Discuss participation in sport for participants with only one (of paired) organ.

Describe the signs and symptoms, investigations and management for a urinary tract infection, and management of a patient who has had multiple infections.

Explain acute renal failure associated with exercise, including predisposing factors, causes, pathophysiology, investigations and management. *Refer to Internal Medicine - Environment related Injury and Illness.*

Renal trauma - *refer to Injury Assessment, Management and Rehabilitation – Trauma.*

Testicular trauma - *refer to Injury Assessment, Management and Rehabilitation - Trauma.*

Incontinence - *refer to Physical Activity in Specific Populations - Older People.*

Effects of NSAIDs on renal function - *refer to Internal Medicine - Sports Pharmacology*

Indirectly Case based Discussion

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Management of Sporting Trauma (MOST) Course
- Tutorial program - Environment Related Injury and Illness and the Collapsed Athlete.
- Major Event Coverage - large scale endurance event.

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Internal Medicine (online) – Renal, Electrolytes and Hyponatraemia.
- ACSEP Short Learning Modules: Environmental Injury and Illness (online) - Exercise in the Heat
- Case scenario provided by supervisor - patient presenting with haematuria; and a patient presenting with muscle and flank pain after a race in the heat.
- Plan a strategy to avoid hyperthermia and other renal complications in an endurance event.
- Case scenario provided by supervisor - manage a patient who has incurred a trauma to the testicles or kidney.
- Consider the differential diagnosis of a testicular mass.
- Structured experience - talking to a patient who has lost a kidney or testicle from a sport related activity regarding their options and what would happen if they lose another.
- Self directed learning - review the resource list for this topic.

1.3.6 Endocrinology

Suggested Program Focus: Year Two to Four

Learning Outcomes

Discuss the spectrum of pre-diabetic conditions from insulin resistance to impaired glucose tolerance.

Describe and differentiate the two types of diabetes mellitus (type 1 and type 2).

Describe the major metabolic abnormalities that occur with diabetes mellitus.

Discuss musculoskeletal conditions, which are more prevalent in diabetic patients.

Describe the relationship between exercise and diabetes for both insulin dependent and non-insulin dependent types, including:

- adjustments an athlete with diabetes needs to make when participating in exercise or sport
- short and long term risks and benefits of exercise.

Advise patients on the control of blood glucose by the adjustment of carbohydrate intake, exercise levels, insulin dosage and/or medication.

Provide counseling to diabetic patients regarding an appropriate dietary and training regime including the importance of monitoring blood sugar levels, and fluid intake and carbohydrate before, during and after exercise.

Describe the complications of exercise that may occur when an athlete's diabetes is poorly controlled; including hypoglycemia and diabetic ketoacidosis.

Explain the complications of diabetes, which may be worsened by poor glucose control; including neuropathy, retinopathy, nephropathy, issues with the feet; and the implications of these for exercise.

Discuss the overall management plan of a diabetic patient, including how insulin and medications interact with exercise.

Explain the effects of exercise on the reproductive function of males.

For the following list of conditions:

- Metabolic syndrome
- Insulin resistance
- Vitamin D deficiency
- Thyroid dysfunction - hypothyroidism and hyperthyroidism
- Pituitary disorders including acromegaly/gigantism
- Adrenal gland disorders - Cushing's Syndrome and Addison's Disease

1. Define the condition and discuss its prevalence.
2. Describe the predisposing factors, risk factors and causes.
3. Explain the pathophysiology of the condition.

Assessment

Part 2 Examination

*Indirectly Mini CEX
and Case based
Discussion*

4. Describe how exercise may cause or affect the condition, where relevant.
5. Differentiate key features of the history and clinical examination for the specific condition.
6. Recognise musculoskeletal manifestations, where relevant.
7. Identify appropriate and cost effective investigations, where relevant.
8. Evaluate the preventive and management options from a sport's physician's perspective, including the role of exercise as a preventive or therapeutic measure.
9. Explain any limitations the condition may place upon the patient's ability to exercise and/or play sport.

Describe the role of parathyroid hormone (PTH) on blood calcium levels and the effect of a deficiency or over-production of PTH.

Steroid biochemistry (steroid ring) - *refer to Care of Athletes and Teams - Doping and the Athlete*

Bone/calcium metabolism and Osteoporosis - *refer to Physical Activity in Specific Populations - Older People.*

Identify the appropriate investigations for a variety of endocrine conditions.

Investigations

Blood tests - e.g. full blood count; glucose tolerance test with insulin levels; lipid profile; cortisol level; pituitary, thyroid and adrenal hormone levels - *refer to Injury Assessment, Management and Rehabilitation - Diagnostic Techniques and Interpretations*

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Internal Medicine - Endocrinology.

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Internal Medicine (online) - Endocrinology
- ACSEP Short Learning Modules: Care of Athletes and Teams (online) - The Tired Athlete.
- Case scenario provided by supervisor - management of insulin and food intake of a Type 1 diabetic athlete participating in an all-day event with multiple games e.g. gala day, sailing regatta.
- Case scenario provide by supervisor - overweight recreational exerciser with a family history of Type 2 diabetes who can't lose weight despite exercise and sensible eating habits.
- Prepare a patient information sheet for the exercising Type 2 diabetic.
- Review the blood profiles of patients with thyroid disorders.
- List the musculoskeletal complications of acromegaly and how it may affect sporting participation.
- Attendance at a diabetic outpatient clinic.
- Self-directed learning - review the resource list for this topic.

1.3.7 Neurology

Suggested Program Focus: Year Two to Four

Learning Outcomes

Recognise the different types of intracranial haemorrhages.

Identify signs and symptoms of non-concussive brain injuries and determine when to investigate further.

Define a concussive head injury and describe the common features, signs, symptoms and natural history.

Describe the predisposing factors, mechanism of injury and pathophysiology of a concussive head injury.

Explain the physical and cognitive tests that may be used to diagnose and/or assess the severity of sports-related concussion, including the Standardised Concussion Assessment Tool (SCAT), Maddocks questions and the Digital Symbol Substitution Tests (DSST).

Explain the sequelae of single and repeated concussions.

Appraise the scientific evidence for second impact syndrome.

Describe symptoms and signs of post-concussive syndrome.

Evaluate the scientific evidence regarding different devices that may or may not help prevent concussion (e.g. helmets).

Be familiar with the guidelines within the current consensus statement on concussion in sport.

Differentiate the varieties of sport-related headache, including the causes, signs and symptoms, and the standard treatment for each:

- Benign exertional headache
- Altitude headache
- Diver's headache

Compare and contrast the common types of headache including migraine, tension headache, cervical spine headache, vascular headache and cluster headache, and the associated principles of management.

Identify the several varieties of posttraumatic headache, including but not limited to, intracranial haemorrhage.

Suggest activities that a person with structural traumatic brain injury may participate in.

Define transient quadriplegia in sport and describe the manifestations and investigations that should be conducted, and recommendations regarding sport participation.

Select imaging and interpret the results to assess functional cervical spine capacity and make recommendations regarding sport participation.

Assessment

Part 2 Examination

Indirectly Case based Discussion

Spinal cord injury - *refer to Injury Assessment, Management and Rehabilitation - Trauma*

For epilepsy:

1. Discuss the prevalence and key clinical features of the various types.
2. Describe the possible triggers for an epileptic seizure.
3. Explain the pathophysiology of the condition.
4. Evaluate the preventive and management options from a sport's physician's perspective, including advice regarding what sport activities are contraindicated and which are safe to participate in.

Describe the causes of a non-epileptic seizure.

Generally describe the main characteristics, aetiology, pathology and clinical features of multiple sclerosis.

Differentiate the three main types of peripheral nerve injuries.

Generally recognise peripheral neuropathies, their causes and manifestation, and differentiate them from local nerve entrapments and other neurological conditions.

Generally describe the aetiology and clinical features of the following neuropathies:

- Guillaine Barre syndrome
- Charcot Marie-Tooth Syndrome
- Porphyria

Generally describe the common muscular dystrophies and understand their genetic inheritance.

Generally recognise such conditions as myasthenia gravis, mitochondrial myopathy, spinal muscular atrophy and glycogen storage diseases.

Discuss endocrine, toxic, metabolic, autoimmune and drug-induced causes of acquired myopathies.

For the following conditions, *refer to Injury Assessment, Management and Rehabilitation - Assessment and Management of Sport Related Injuries*:

- Nerve entrapments
- Brachial plexus lesions
- Brachial neuritis
- Radiculopathy/Spinal stenosis

Chronic regional pain syndrome – *refer to Injury and Illness Prevention – Pain and Pathophysiology of Injury*.

Investigations

Nerve conduction studies, electromyography and cerebral imaging - *refer to Injury Assessment, Management and Rehabilitation - Diagnostic Techniques and Interpretations*

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Internal Medicine - Neurology and Assessment of Sports Related Injuries (head injury and concussion).

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Internal Medicine (online) - Neurology (nerve entrapments) and Concussion
- Team Coverage Requirements - including neuropsychological testing and coverage of a contact sport team.
- Conduct baseline tests and screening of a team.
- Observe the administration of EMG and nerve conduction studies.
- Review scientific evidence regarding the use of protective head gear for a range of different sports.
- Case scenario provided by supervisor - patient with epilepsy - what sport can they play safely? A cyclist with perineal pain and impotence.
- Case discussion with supervisor - a 14 year old boy presents with one episode of transient quadriplegia. How would you investigate and what would you advise the patient and his parents?
- Compare and contrast the various types of headaches common in athletes.
- Self-directed learning - review the resource list for this topic.

1.3.8 Haematology

Suggested Program Focus: Year Two to Four

Learning Outcomes

Normal haematological changes with exercise #.

Explain the causes of anaemia including inadequate red blood cell production, inadequate haemoglobin formation, excessive destruction of red blood cells and blood loss.

Differentiate between the three major categories of anaemia i.e. microcytic, macrocytic and normocytic.

Describe the causes of blood loss that may occur in an otherwise healthy endurance athlete.

Outline the possible explanations for sports anaemia (dilutional pseudoanaemia) and the appropriate management for an athlete diagnosed with sports anaemia.

In athletes, outline the proposed causes, clinical relevance, investigations and treatment of iron deficiency in athletes.

Generally describe factors which may affect a patient's clotting and platelet profile and advise an individual on the appropriateness of activity, e.g. contact sports.

Discuss the musculoskeletal manifestations of electrolyte disturbances e.g. calcium and potassium.

For the following conditions:

- Iron deficiency anaemia
- Macrocytic anaemia
- Haemolytic anaemia
- Haemophilia
- Von Willebrand's disease

1. Discuss the prevalence of the condition.
2. Describe the predisposing factors, risk factors and causes.
3. Explain the pathophysiology of the condition.
4. Describe how exercise may cause or affect the condition, where relevant.
5. Differentiate key features of the history and clinical examination for the specific condition.
6. Recognise musculoskeletal manifestations, where relevant.
7. Identify appropriate and cost effective investigations, where relevant.
8. Evaluate the preventive and management options from a sport's physician's perspective.
9. Explain any limitations the condition may place upon the patient's ability to exercise and/or play sport.

Effect of drugs on bleeding time and clotting - *refer to Internal Medicine - Sports Pharmacology.*

Assessment

Part 1
Examination

Part 2 Examination

*Indirectly Mini CEX
and Case based
Discussion*

Deep Vein Thrombosis - *refer to Internal Medicine - Cardiovascular Medicine.*

Physiology of erythropoietin - *refer to Care of Athletes and Teams - Doping and the Athlete.*

Erythropoietin and synthetic erythropoietin-like drugs - *Care of Athletes and Teams - Doping and the Athlete.*

Investigations

Full blood count and differential clotting screen, and other relevant investigations - *refer to Diagnostic Techniques and Interpretations*

Doppler ultrasound - *refer to Diagnostic Techniques and Interpretations*

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Internal Medicine - Haematology

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Internal Medicine (online) - Haematology.
- ACSEP Short Learning Modules: Care of Athletes and Teams (online) - The Tired Athlete.
- Review the full blood count and iron studies for various types of anaemia.
- Review the scientific evidence linking tiredness with low iron levels.
- Compare and contrast the management of a rugby player with haematuria and a marathon runner with haematuria.
- Self-directed learning - review the resource list for this topic.

1.3.9 Immunology, Infections and Allergic Diseases

Suggested Program Focus: Year Two to Four

Assessment

Part 2 Examination

Learning Outcomes

Describe the organisation of the immune system and the variables that may affect immune function.

Indirectly Case based Discussion

Discuss the effect of exercise on the immune system, including but not limited to:

- training induced immunosuppression
- the distribution of immune cells
- measures of immune function
- concentration of key soluble immune components

Explain how these changes to the immune system may affect exercise performance.

Generally describe primary immunodeficiency conditions.

Infections

For the following list of infectious diseases:

- HIV
- Hepatitis A,B and C
- Infectious mononucleosis/CMV/toxoplasmosis
- Sexually Transmitted Diseases including but not limited to Chlamydia, HPV, HSV
- Malaria
- Dengue fever
- Influenza - common, swine/bird flu
- Returned traveller with fever
- Rickettsial Infections - ticks, Ross River fever

1. Discuss the prevalence of the condition.
2. Describe the predisposing factors, risk factors and causes.
3. Explain the pathophysiology of the condition.
4. Describe how exercise may affect the condition, where relevant.
5. Differentiate key features of the history and clinical examination for the specific condition.
6. Recognise musculoskeletal manifestations, where relevant.
7. Identify appropriate and cost effective investigations, where relevant.
8. Evaluate the preventive and management options from a sport's physician's perspective.
9. Explain any limitations the condition may place upon the patient's ability to exercise and/or play sport.

Allergic Disease

For the following list of allergic diseases:

- Anaphylaxis
- Urticaria
- Allergic rhinitis
- Exercise induced anaphylaxis/angioedema

- Exercise induced urticaria
 - Cholinergic urticaria
1. Describe the predisposing factors, risk factors and causes.
 2. Explain the pathophysiology of the condition.
 3. Describe how exercise may cause or affect the condition, where relevant.
 4. Differentiate key features of the history and clinical examination for the specific condition.
 5. Identify appropriate and cost effective investigations, where relevant.
 6. Evaluate the preventive and management options from a sport's physician's perspective.

Investigations

Full blood count, immunological profile and skin prick testing - *refer to Diagnostic Techniques and Interpretations*

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Internal Medicine - Immunology, Infections and Allergic Disease.

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Internal Medicine (online) - Immunology and Infectious Disease and Sports Dermatology.
- ACSEP Short Learning Modules: Care of Athletes and Teams (online) - The Tired Athlete.
- Case scenario provided by supervisor - causes, investigation and management of a tired endurance athlete; returned traveller with fever.
- Prepare a sport team information sheet on prevention of infectious disease when travelling.
- Discuss with your supervisor the things you would take into consideration before returning a football player back to training and play after Epstein Barr Virus.
- Management of a pyrexia of unknown origin.
- Draw up a list of useful screening tests for suspected immunological deficits
- Self-directed learning - review the resource list for this topic.

1.3.10 Dermatology

Suggested Program Focus: Year Two to Four

Assessment

Part 2 Examination

Learning Outcomes

For the following list of dermatological conditions:

- Eczema/dermatitis
 - Psoriasis
 - Tinea
 - Folliculitis
 - Cellulitis
 - Paronychia
 - Pitted keratolysis
 - Calluses/blisters
 - Ingrown toenail
 - Acne
 - Skin cancer - squamous cell carcinoma, basal cell carcinoma, melanoma, solar keratosis
 - Herpes gladiatorum (HSV 1)
1. Discuss the prevalence of the condition.
 2. Describe the predisposing factors, risk factors and causes.
 3. Explain the pathophysiology of the condition.
 4. Describe how exercise may cause or affect the condition, where relevant.
 5. Differentiate key features of the history and clinical examination for the specific condition.
 6. Identify appropriate and cost effective investigations, where relevant.
 7. Evaluate the preventive and management options from a sport's physician's perspective.

Describe the musculoskeletal side effects of oral isotretinoin used for severe acne.

Describe the treatment of mild, moderate and severe sunburn.

Explain the factors that contribute to the development of pressure sores in the disabled athlete, and how they may be prevented.

General wound care - *refer to Care of Athletes and Teams - Emergency and Acute Trauma in Sport and Exercise Medicine.*

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Internal Medicine - Dermatology and Ear, Nose, Throat and Dental Problems.

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Internal Medicine (online) - Sports Dermatology
- Working with a sports team

- Case scenarios provided by supervisor - managing 'scrum pox', pressure sores on a disabled athlete, preventing folliculitis in cyclists.
- Prepare an information sheet listing the different types and key features of skin cancers.
- Self-directed learning - review the resource list for this topic.

1.3.11 Eye, Ear, Nose, Throat and Dental Problems

Suggested Program Focus: Year Two to Four

Assessment

Part 2 Examination

Learning Outcomes

Eye

For the following list of ophthalmological conditions:

- Hyphaema
 - Retinal detachment
 - Subconjunctival haemorrhage
 - Foreign bodies
 - Penetrating injuries
 - Conjunctivitis
 - Pterygium
 - Glaucoma
1. Discuss the prevalence of the condition.
 2. Describe the predisposing factors, risk factors and causes.
 3. Explain the pathophysiology of the condition.
 4. Describe how exercise may cause or affect the condition, where relevant.
 5. Differentiate key features of the history and clinical examination for the specific condition.
 6. Identify appropriate and cost effective investigations, where relevant.
 7. Evaluate the preventive and management options from a sport's physician's perspective.

Ear, Nose and Throat

- For the following list of conditions:
 - Eustachian tube dysfunction
 - Nasal Polyps
 - Epistaxis
 - Ruptured tympanic membrane
 - Otitis Media, Otitis Externa
 - Labyrinthitis (dizziness/vertigo)
1. Discuss the prevalence of the condition.
 2. Describe the predisposing factors, risk factors and causes.
 3. Explain the pathophysiology of the condition.
 4. Describe how exercise may cause or affect the condition, where relevant.
 5. Differentiate key features of the history and clinical examination for the specific condition.
 6. Identify appropriate and cost effective investigations, where relevant.
 7. Evaluate the preventive and management options from a sport's physician's perspective.

Dental Problems

Identify the risk factors and causes, describe the signs and symptoms, and explain the management of the following dental issues:

- Tooth avulsion
- Cracked tooth syndrome
- Periapical abscess
- Dry socket
- Oral ulceration
- TMJ Dysfunction

Maxillary and Mandibular fractures - *refer to Injury Assessment, Management and Rehabilitation - Trauma.*

Investigations

Orthopantomogram (OPG) - *refer to Diagnostic Techniques and Interpretations*

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Internal Medicine - Dermatology and Ear, Nose, Throat and Dental Problems and Trauma

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Internal Medicine (online) - ENT and Dental Trauma in sport
- Working with a sports team.
- Case scenarios provided by supervisor - assessment of an athlete who has received a ball in the eye; managing a tooth avulsion on the hockey field.
- Review the different types of mouth guards available.
- Self-directed learning - review the resource list for this topic.

1.3.12 Mental Health

Suggested Program Focus: Year Two to Four

Learning Outcomes

Explain the importance of psychological wellbeing for peak performance and the importance mental health promotion, especially for adolescents and young adults.

Discuss the importance of educating team members, friends and family to monitor the athlete or patient's wellbeing and report concerns to the coach or doctor.

Describe the concept of counteracting risk factors and reinforcing protective factors to minimise the development of mental health disorders.

Discuss the predisposing factors, causes, common symptoms and treatment recommendations for:

- Anxiety
- Depression
- Psychosis
- Bipolar Disorders

Explain how depression and anxiety can affect athletes personally and socially and the potential implications on performance.

Describe the use of common mental health screening tools including but not limited to the K10, DASS and PHQ-9.

Be aware of the importance of early detection and early intervention strategies to improve outcomes of mental illness.

Be aware of the increased risk of suicide associated with mental disorders.

Describe the risk factors for suicide, the protective factors which can be fostered to reduce the risk of suicide.

Determine when it is appropriate to refer patients with mental health issues to a psychiatrist.

Describe the role of the psychologist in the management of:

- Chronic low grade psychosocial stress
- Vocal cord dysfunction
- Exercise related hyperventilation

Eating Disorders

Define the term 'eating disorder' and outline the DSM criteria for the various disorders.

Explain the predisposing factors of eating disorders in sport i.e. psychological, social, environmental.

Describe the prevalence of eating disorders according to gender, life stage, cultural and specific sports.

Outline the signs and symptoms of disordered eating and eating disorders.

Assessment

Part 2 Examination

*Indirectly Mini CEX
and Case based
Discussion*

Describe the performance consequences of disordered eating and eating disorders.

Explain the management of athletes with eating disorders and the importance of a multidisciplinary approach.

Describe the management approach of modifying training loads for athletes with eating disorders, as described by IOC RED-S protocol and the consensus paper on management of the female athlete triad.

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Academic Module - Sports Psychology for Sports Medicine
- Tutorial program - Mental health, Sports Psychology

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Internal Medicine (online) - Mental Health
- Attend an education session on mental health issues conducted by a sport psychologist.
- Download mental health screening tools, review questions and consider how they could be utilised.
- Include psychological and social history when conducting initial consultations.
- Work with a nutritionist to create management plans for patients with eating disorder.
- Work with coaches to manage exercise/training load with athletes with eating disorders.
- Develop an education session for a club or team to talk with athletes and families about risk factors, protective factors, identifying signs of mental health issues and the importance of seeking help.
- Self-directed learning - review the resource list for this topic.

1.3.13 Exercise Prescription for Health

Suggested Program Focus: Year One

Learning Outcomes

Identify and describe the determinants of health (e.g. socioeconomic, cultural etc).

Discuss the burden of disease and injury in Australia, especially morbidity and mortality related to physical inactivity.

Be aware of the National Health Priority Areas (and risk factors) in Australia (NHPAs) and New Zealand and the role of exercise in the prevention and management of these conditions:

- asthma
- cardiovascular disease
- cancer
- diabetes
- injury
- mental health
- arthritis and other musculoskeletal conditions
- obesity
- dementia

Discuss the impact of chronic disease in the indigenous population. *Refer to Foundation Competencies - Cultural Awareness and Safety.*

Appraise current scientific evidence regarding the association between a sedentary lifestyle and disease.

Discuss the negative consequences of overweight and obesity on risk factors for chronic disease.

Physical Fitness Profile

Outline the basic fitness/exercise testing principles including specificity, validity, reliability, and objectivity (e.g. stress testing).

Discuss the various reasons for performing a fitness/exercise test.

Explain and observe various tests for aerobic fitness, anaerobic fitness, strength, power, flexibility and body composition, e.g. beep test and 12 minute run.

Observe clinical exercise testing for VO₂ Max and lactate threshold and describe the following:

- Test procedures
- Equipment required
- General protocols (e.g. Bruce and ramping protocols) and protocols for elite athletes
- Absolute and relative termination criteria
- Potential outcomes e.g. ECG, haemodynamic and subjective responses.
- Level of supervision required
- Prognostic capacity

Assessment

Part 1

Examination

Part 2 Examination

Describe normal composition of the human body. #

Evaluate the efficacy of various body composition assessments including, but not limited to, body mass index and skinfold thickness.

Discuss the characteristics of the three general body type classifications: ectomorphs, endomorphs, and mesomorphs; the health risks associated with each type; and how body type may influence exercise program results.

Exercise Programming

Describe the different components of fitness including

- aerobic and anaerobic fitness,
- muscular strength, power and endurance,
- agility
- flexibility and balance. #

Explain the type of training associated with each component of fitness. #

Outline the basic principles of training including frequency, intensity (high and low), duration and specificity. #

Understand the concepts of periodisation, overload training, recovery and reversibility. #

Describe the physiological effects of an imbalance between overload training and recovery.

Compare and contrast training methods for improving aerobic fitness, anaerobic fitness, muscular strength and power, muscular endurance, flexibility, speed and agility. #

Outline a short and long term exercise program to improve overall health of patients, considering their medical and exercise history and factors that influence exercise adherence.

Liaise with an exercise physiologist and other allied health professionals regarding a safe and effective long term exercise program for an otherwise healthy patient as well as a patient with risk factors. *Refer to Section 2: Clinical Decision Making*

Exercise Prescription in the Management of Chronic Disease

Discuss the physiological consequences of physical inactivity and its contribution to the development of disease.

Discuss the benefits of exercise on preventing chronic disease and role of exercise in the modification of risk factors and the disease process.

Discuss the scientific evidence regarding the use of exercise to assist in the treatment and management of chronic disease, including overweight and obesity.

Explain how and why fitness/exercise testing and prescription may need to be modified for patients with various chronic medical illnesses and obesity.

Describe the physiological and psychological benefits of exercise generally.

Describe the indications, contraindications, and special precautions regarding the prescription of physical activity for the following medical conditions:

- Asthma, exercise induced asthma and other respiratory disorders
- Diabetes (type I and type II) and other endocrine and metabolic disorders
- Epilepsy and neurological conditions
- Hypertension, Congenital Arrhythmia, Acquired Cardiovascular Disease or dysfunction and Peripheral Vascular Disease.
- Haematological conditions and bleeding disorders
- Immune deficiency disorders
- Metabolic syndrome
- Other medical conditions affecting participation in sport and physical activity

In the chronically ill or disabled person, discuss the consequences of physical inactivity.

Outline the principles of a problem-oriented exercise based treatment plan for patients with multiple chronic disease and/or disability.

Educate patients on the importance of a holistic management plan, which includes the adoption of new healthy lifestyle habits, including nutrition and exercise.

Discuss the role of public health, exercise and nutrition prescription for managing chronic disease in the indigenous population.

Refer to Foundation Competencies - Cultural Awareness and Safety and Internal Medicine as it relates to Physical Activity - Nutrition for Exercise and Sport.

Exercise Adherence

Describe the stages of health behaviour change (including pre-contemplation, contemplation, and action) and the supportive factors that also influence successful change.

Outline the determinants of exercise adherence and barriers to exercise participation, including personal, environmental and program factors.

Identify individuals who may be at risk and appreciate the need to consider the elements of behaviour change and exercise adherence determinants when planning an exercise program.

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Academic Module - Sports Psychology for Sports Medicine (specifically Exercise Adherence)
- Tutorial program - Exercise in the Management and Prevention of Disease and within tutorials on specific medical conditions.

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Internal Medicine (online) - Exercise Medicine and Exercise in the Prevention and Management of Chronic Disease

- Exercise Testing - witness exercise testing in a laboratory with exercise physiologist (low risk patient) and cardiologist (high risk patient).
- Become familiar with equipment used to accurately measure fitness.
- Case studies/scenarios provided by supervisor - exercise prescription for patients with various chronic diseases.
- Practical session with exercise physiologists in a laboratory.
- Self-directed learning - review the resource list for this topic.

1.3.14 Sports Pharmacology

Suggested Program Focus: Year Two

Assessment

Part 2 Examination

Learning Outcomes

For the following common groups of drugs, discuss how they may affect physical activity or be affected by physical activity, including in extreme environments, where relevant:

1. Cardiac drugs including anti-hypertensives, beta blockers, diuretics, hypolipadaemic drugs, anti-arrythmics, anti-angina medications
2. Anticoagulants and anti-thrombotics
3. Hypoglycaemic drugs
4. Anti-epileptic drugs
5. Psychotropic and anti-depressant drugs
6. Anxiolytics and muscle relaxants
7. Immune modulating drugs

For the following groups of drugs, comprehensively describe and discuss all aspects of these medications, including but not limited to;

- Formulations
 - Indications and Contraindications;
 - Metabolism;
 - Pharmacokinetics:
 - Excretion;
 - Side effects;
 - Possible restrictions related to the WADA prohibited list;
 - Interactions; and
 - Therapeutic and monitoring guidelines (including pregnancy and breastfeeding categories), where relevant.
1. Non-steroidal COX and COX-2 anti-inflammatory agents
 2. Corticosteroids
 3. Analgesics
 4. Local anaesthetic agents
 5. Pain modulation agents
 6. Topical agents including glyceryl-trinitrate and capsaicin
 7. Bone modulating agents

For the following formulations describe the indications, contraindications, scientific evidence for their use as injectable substances, complications and side effects:

- Corticosteroids (also see above)
- Sclerosing agents e.g. polidocanol
- Aprotinin
- Prolotherapy agents

Prepare a suitable pharmacological component of a medical kit for the treatment of likely injuries or illness in a variety of situations including, but not limited to:

- Contact sports
- Non-contact sports
- Endurance events

- Overseas travel

Be familiar with indications and safe usage (inc contraindications and adverse effects) of the typical medication groups in such kits including, but not limited to, medication for the management of wound care, infection, contraceptive and gynaecological conditions, gastrointestinal problems, asthma, sleep disturbance and allergy.

Be familiar with indications and safe usage of the emergency medications supplied by through the pharmaceutical benefits scheme for the inclusion in doctor's bags.

Travel with prescription and non-prescription medications - refer to Care of Athletes and Teams - Travelling Athletes

Licit and Illicit Drug Use

Recognise the risks and early signs of licit and illicit drug cultures in certain sporting environments.

Advise athletes with alcohol and illicit drug dependencies on the resources available to help them overcome these dependencies. *Refer to Care of Athletes and Teams - Care of Sports Teams.*

Advise athletes of resources available to determine whether a specific substance is legal for their sport, e.g. online and telephone resources. - *Refer to Care of Athletes and Teams - Doping and the Athlete.*

Act as a public health advocate, communicator and facilitators of change in such environments. *Refer to Fundamental Competencies - Health Advocacy*

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Academic Module - Sports Pharmacology.
- Tutorial program - Internal Medicine - Sports Pharmacology and Pain Management.

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Care of Athletes and Teams (online) - Doping and the Athlete and The Travelling Athlete
- Completion of team physician and event coverage requirements.
- Prepare a medical bag suitable for a particular sport and have it reviewed by the supervisor.
- Compile resources available for those dependent on licit and illicit drugs.
- Compile a list of resources athletes have ready access to (online, 24hr phone lines) regarding banned and non-banned substances.
- Attend a pain management clinic or participate in a course offered to patients.
- Self-directed learning - review the resource list for this topic.

1.3.15 Nutrition for Exercise and Sport

Suggested Program Focus: Year Two

Learning Outcomes

Discuss terminology used to describe carbohydrates (e.g. simple, complex, quality, nutrient-rich, high/low glycemic index) and protein (e.g. complete and incomplete protein, amino acids)

Describe and discuss:

Carbohydrates

- Role of fibre
- Function and storage of carbohydrates in the body
- Food sources
- Kilojoule value
- Utilisation of carbohydrates during exercise including different types (e.g. glucose, fructose)
- Influence on exercise performance
- Principles and efficacy of carbohydrate loading and the need for carbohydrate during recovery
- Daily requirements
- Requirements for a range of athletic endeavours
- Periodising carbohydrate availability

Protein

- Function and storage of protein in the body
- Food sources
- Protein supplements
- Kilojoule value
- Utilisation during exercise
- Effect on exercise performance
- Use of protein for muscle recovery and 'bulking up'
- Daily requirements
- Requirements for a range of athletic endeavours

Fat

- Types of fat, e.g. saturated and unsaturated, trans fatty acids, triglycerides, cholesterol, omega-3.
- Function, storage and utilisation of fat in the body
- Food sources
- Kilojoule value
- Utilisation during exercise
- Effect on exercise performance
- Principles and efficacy of fat loading
- Daily requirements
- Requirements for a range of athletic endeavours

Vitamins and Minerals

- Vitamin A, B, C, D, E, K
- Iron, Calcium, Sodium, Potassium, Zinc, Selenium, Magnesium and other trace elements
- Function in the body
- Food sources

Assessment

Part 2 Examination

*Indirectly Mini CEX
and Case based
Discussion*

- Effect on general health and exercise performance
- Effect of overload and deficiency
- Measuring vitamin and mineral status of athletes
- Scientific evidence for supplementation
- Potential risks of vitamin and mineral supplementation
- Calcium intake, Vitamin D and bone mineral changes at various life stages

Fluids

- Function of water in the body
- Hydration and exercise performance
- Hydration assessment and sweat testing
- Advantages and disadvantages of the use of sports drinks and other beverages
- Guidelines for replacing fluids during various sports/exercise
- Alcohol and exercise performance
- Effect of 'making weight' on fluid status

Nutritional Assessment and Planning

Outline the recommended daily allowances of carbohydrate, protein, fat, vitamins, and minerals for the general population (including females and children), exercising population and athletes.

Outline the carbohydrate and protein requirements for strength, power, and endurance athletes.

Generally analyse a food diary, recognise deficiencies and suggest changes needed to meet dietary requirements.

Describe and recognise the consequences of a diet deficient in total kilojoules, or one or more of the major food groups, in an athlete.

Recognise when a patient may have a serious dietary deficiency and the clinical consequences.

Requirements for Different Sports

For various sports, understand the principles of:

- Training nutrition - everyday eating for athletes
- Dietary strategies for pre and post exercise, and during training
- Dietary strategies for pre-competition, during competition and post-competition.

Identify nutritional issues related to specific sports, including but not limited to replenishing energy stores during multiple event competitions, sports in which leanness is encouraged, 'making weight'.

Gastrointestinal issues - refer to Internal Medicine as it relates to Physical Activity - Gastrointestinal Medicine

Special Diets

Discuss how special diets, e.g. gluten-free, lactose free, vegetarian, may effect overall health and performance in the athlete with reference to:

- Total kilojoule intake
- Proportions of nutrient groups

- Intake of vitamins, minerals and trace elements

Be aware of young female patients/athletes with restrictive and/or fad diets and the potential dangerous complications that may arise from nutrient deficiencies, e.g. near-vegetarian, blood group diets.

Consider the recommendations within the current consensus statements on female athlete triad/relative energy deficiency in sport (RED-S), risk assessment, treatment and return to play decisions and apply accordingly.

Explain the components of the female athlete triad and RED-S, recognise at risk athletes and appreciate the need to work in a multi-disciplinary team with a dietitian and psychologist, as appropriate - *Refer to Physical Activity in Specific Populations - Female Athletes.*

Discuss the consequences, how to identify and mechanisms to address low energy availability.

Outline the dietary considerations for the travelling athlete - refer also to *Care of Athletes and Teams - Travelling Athletes.*

Describe the various methods used to assess body composition.

Explain the principles of weight control including the role of nutrition and exercise to reduce to body weight.

Outline the principles of dietary regimes for reducing body fat and for increasing muscle mass, including weight management in weight category sports.

Evaluate the scientific evidence for nutritional ergogenic aids including creatine, bicarbonate of soda, caffeine and colostrum.

Discuss the advantages and disadvantages of using ergogenic aids and sports foods, including high carbohydrate and protein supplements/meals.

Keep up to date with the various supplements available to athletes, differentiating those that may be useful from those that are only promoted as having an ergogenic effect.

Supplements and supplement use - refer to Care of Athletes and Teams - Doping and the Athlete.

Lifestyle Disease

Discuss the role of diet and exercise on cardiovascular health.

Discuss the role of diet and exercise on the development and management of insulin resistance, diabetes and other metabolic conditions, e.g. hyperlipidaemia.

Also refer to Internal Medicine as it relates to Physical Activity - Exercise Prescription for Health and Endocrinology for diabetes and insulin resistance.

Eating Disorders - *also refer to Internal Medicine as it relates to Physical Activity - Mental Health and Care of Athletes and Teams - Sport Psychology.*

Recognise the detrimental medical consequences of eating disorders, including but not limited to amenorrhoea, bone mineral density, electrolyte disturbances.

Order appropriate investigations, including but not limited to electrolytes, hormonal assays, liver and renal function tests, iron studies, vitamin and mineral assays, BMD.

Recognise athletes with one or more components of the female athlete triad syndrome and work in a multi-disciplinary team with a dietitian and psychologist, as appropriate.

Promote the prevention of eating disorders in sport by providing information on nutrition, healthy weight management and being sensitive to weight issues.

Nutrition in female athletes, children and older people - refer to Physical Activity in Specific Populations

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Academic Module - Nutrition for Sports Medicine 1 & 2
- Academic Module - Sports Psychology for Sports Medicine
- Tutorial program - Nutrition for Exercise and Sport

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Internal Medicine (online) - Endocrinology for diabetes and insulin resistance, Haematology for iron deficiency and Exercise In the Prevention and Management of Chronic Disease
- ACSEP Short Learning Modules: Care of Athletes and Teams (online) - The Tired Athlete.
- ACSEP Short Learning Modules: Special Populations (online): The Female Athlete
- Observe sports dietitian consultations with athletes.
- Work with a team, which has a sports dietitian attached.
- Prepare an example of dietary requirements for an athlete in an endurance event - diet and hydration, pre-competition, during and post competition.
- Keep a food diary of your own food intake and analyse and discuss with supervisor.
- Prepare a list of suitable nutrition resources for patient education.
- Self-directed learning - review the resource list for this topic.

1.3.16 Environment Related Injury and Illness

Suggested Program Focus: Year Two

Learning Outcomes

Underwater Medicine

Outline the physical principles of diving including Boyle's Law and Henry's Law and understand how they relate to possible injury or illness. #

Describe the causes, signs and symptoms, diagnosis, prevention, management and long term consequences (where relevant) of the following list of conditions:

- Barotrauma including face, ear, nose and lungs.
- Osteonecrosis
- Decompression sickness
- Nitrogen narcosis
- Oxygen toxicity

Recognise the risks of diving with pre-existing medical conditions including asthma, chronic obstructive pulmonary disease, diabetes, epilepsy, psychiatric problems, bleeding diatheses, gastrointestinal problems, other soft tissue injury, obesity and dehydration.

Describe how recompression units and hyperbaric chambers work and how they may be used in the management of relevant conditions.

Altitude

Discuss the various physiological responses, at rest and during exercise, and effects on the different body systems, that occur over varying time frames at altitude.

Describe the causes, range of symptoms, diagnosis and management of:

- Acute mountain sickness
- High-altitude pulmonary oedema
- High-altitude cerebral oedema
- Retinal pathology

Explain and implement strategies for the prevention of altitude illness, including advising patients and teams.

Recognise the possible interactions between high-altitude exposure and chronic medical conditions including:

- Coronary artery disease, cerebrovascular disease and hypertension
- Asthma and COPD
- Chronic cardiac failure
- Chronic renal impairment
- Epilepsy and neurological disorders
- Blood dyscrasias including Thallasaemia and Sickle Cell Anaemia

Advise individuals and teams of appropriate acclimatisation strategies in preparation for competition in a high altitude environment.

Assessment

Part 1

Examination

Part 2 Examination

Indirectly Case based Discussion

Evaluate the scientific evidence regarding training at altitude, the use of altitude simulators and other strategies to improve performance at sea level and altitude.

Heat Illness

Outline the physical principles of heat transfer including radiation, conduction, convection and evaporation. #

Explain the physiology of thermoregulation in hot and humid conditions# and how this relates this to exercise performance.

Outline the factors that modify heat tolerance including acclimatisation and hydration, and predict individuals at risk for heat illness.

Describe and differentiate the symptoms of the spectrum of heat illnesses including heat syncope, heat exhaustion and heat stroke.

Explain the pathophysiology, causes, consequences, complications and management of severe heat illness.

Understand and calculate wet bulb globe temperature and how it relates to warnings, and the scheduling and cancellation of events.

Heat Stress and Children - *refer to Physical Activity in Specific Populations - Children.*

Cold Injuries

Explain the physiology of thermoregulation in cold conditions (including in water) and heat production at rest and during exercise. #

List pre-disposing factors for cold injuries and the steps that can be taken to prevent heat loss and reduce risk.

Describe and discuss the pathophysiology, symptoms and signs, diagnosis, prevention and management of cold injuries and illness including:

- Cold-induced bronchospasm
- Frostbite
- Hypothermia

Prepare for a range of cold injuries in a variety of settings, including endurance and water based events.

Policies regarding exercise in extreme environments - *Refer to Care of Athletes and Teams – Events*

Air Quality

Discuss the effects of poor air quality on performance.

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Environment Related Injury and Illness.

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Environment Related Injury and Illness (online) -
- Exercise and the Heat, Underwater medicine, Altitude medicine and Exercise in the cold
- Visit a recompression unit certified for treatment of decompression disease.
- Visit the AIS altitude suite.
- Structured scenarios provided by supervisor - advise on preparation strategies for:
 - a team travelling to a high altitude to compete and/or train.
 - an event in extreme weather (hot, cold).
- Investigate the air quality and thermal comfort of the geographic location your athlete is competing/training.
- Self-directed learning - literature review on training at altitude and performance improvement and refer to the resource list for this topic.

SECTION 1: SPORT AND EXERCISE MEDICINE FOUNDATIONS

DOMAIN 1.4: PHYSICAL ACTIVITY IN SPECIFIC POPULATIONS

Subject Areas:

- 1.4.1 Female Athletes
- 1.4.2 Children
- 1.4.3 Older People
- 1.4.4 Para-athletes

1.4.1 Female Athletes

Suggested Program Focus: One

Learning Outcomes

Describe normal menstrual cycle physiology including menarche.

Explain changes that occur in the pre-pubertal female and the influence of exercise training on the rate of growth, maturation and reproductive function.

Define the term, explain the relevant physiology, and describe the pathological associations, where relevant, for the following:

- delayed menarche
- luteal phase deficiency
- oligomenorrhoea
- primary amenorrhoea
- secondary amenorrhoea

Outline the prevalence of menstrual cycle disturbance in female athletes and which athletes/sports are predisposed.

Explain contributing factors to menstrual dysfunction in the female athletes.

Discuss the effect of the menstrual cycle on performance.

Describe the range of contraceptive agents available including barrier methods, the contraceptive pill, IUDs, and pharmaceuticals.

For the various methods of contraception, outline the:

- Benefits, both general and specific to the athlete
- Side effects, including the effects on performance
- Contraindications and failure rate

Define polycystic ovary syndrome and describe and discuss

- Clinical features
- Pathophysiology including the relationship to metabolism
- Signs and symptoms
- Investigations
- Criteria for diagnosis
- Consequences, i.e. infertility
- Management

Female Athlete Triad

Explain the three components of the female athlete triad and the scientific theories behind how they are interrelated.

Discuss the prevalence, risk factors and predisposed groups.

Recognise warning signs, and symptoms of each component of the triad in order to facilitate early intervention.

Appreciate the psychological and social issues that may contribute to the female athlete triad.

Assessment

Part 2 Examination

*Indirectly Mini CEX
and Case based
Discussion*

Understand the importance of multidisciplinary treatment approaches for a patient who has components of the female athlete triad, and describe all aspects of the treatment.

Consider the recommendations within the current consensus statements on female athlete triad/relative energy deficiency in sport (RED-S), risk assessment, treatment and return to play decisions and apply accordingly.

Osteoporosis - *refer to Internal Medicine – Rheumatology*

Nutrition

Understand iron deficiency and anaemia in the exercising woman, and describe:

- Prevalence
- Aetiology
- Signs and symptoms
- Investigations
- Treatment and follow up

Describe other common nutritional deficiencies in the exercising female.

Eating Disorders - *refer to Internal Medicine - Nutrition for Exercise and Sport.*

Breast Health

Recognise the various causes of breast masses and refer appropriately.

Advise athletes regarding appropriate breast support during exercise.

Advise patients regarding the prevention and treatment of:

- Breast trauma
- Nipple injuries

Advise patients regarding exercise post breast surgery.

Evaluate the scientific evidence regarding physical activity and the prevention of breast cancer.

Gender Differences

Compare and contrast male and female athletes regarding the following:

- Anatomy (e.g. wider pelvis, narrower shoulders)
- Exercise Physiology (e.g. aerobic capacity, training effect, functional capacity)
- Biomechanics
- Body composition
- Muscle bulk and strength (including distribution of strength)
- Social context

Appreciate the difference in incidence and contributing factors to patello-femoral pain syndrome, anterior cruciate ligament injuries and stress fractures in exercising females.

Refer also to Injury Assessment, Management and Rehabilitation - Assessment and Management of Sports and Exercise Related Injuries.

Pregnancy

Explain the maternal physiological responses to pregnancy.

Describe the physiological effect of exercise on a pregnant woman and the foetus.

Discuss the theoretical and known risks of exercise to a pregnant women and the foetus, including but not limited to substrate availability, growth and risk of injury.

Discuss the benefits of exercise to a pregnant women and the foetus.

Critically evaluate whether the theoretical risks of exercise to a pregnant women and the foetus are reasonable and balance against the benefits of exercise.

Provide exercise guidelines, safety advice and counselling to women who wish to start an exercise program, continue to exercise, or compete during their pregnancy for a range of sports and intensities of exercise.

Outline the absolute and relative contraindications to exercise.

Describe the effects of exercise on labour.

Outline factors to be considered when advising a patient on postpartum exercise (e.g. lactation, breast care, hypermobility, nutrition).

Discuss the causes of pre and post partum lower back and pelvic pain and how it can be managed.

Menopause

Define menopause and describe the physiological changes, including types and rates of bone loss.

Explain why there is an increased incidence of cardiovascular disease in postmenopausal women and the role of exercise and hormone replacement therapy.

Describe the causes, prevention and management of a range of incontinence conditions.

Osteoporosis - refer to Internal Medicine - Rheumatology

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Physical Activity in Specific Populations - Female Athlete.

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Internal Medicine (online) - Endocrinology for polycystic ovarian syndrome and Haematology for iron deficiency and anaemia
- ACSEP Short Learning Modules: Specific Populations (online) - The Female Athlete.
- Observation of Fellows assessing and managing a female athlete - clinical experience within accredited training post.

- Observe a sports dietitian consultation with a female athlete.
- Review bone mineral density scans and hormonal studies from women of all ages.
- Write a short piece on the practical approach to dealing with menstrual dysfunction.
- Present a lecture to general practitioners, coaches or sport trainers - menstrual dysfunction; the female athlete triad; the importance of athletes eating a well balanced diet.
- Case scenario provided by a supervisor - a female athlete with an injury. Various ages, types of sport and types of injury and discuss your approach to investigation and management.
- Self-Directed Learning - *refer to the resource list for this topic area.*

1.4.2 Children

Suggested Program Focus: One

Learning Outcomes

Outline the growth process and understand the developmental milestones.

Describe the areas of the growing bone and their relevance to injury.

Discuss the development of bone strength, and tests that may be used to assess bone strength.

Describe the varying velocity of growth, its relationship to puberty, injury and sporting performance, and relate this to the attainment of adult height and skeletal bone mass.

Discuss the variation between chronological age and physiological age and possible methods of assessing final growth including their accuracy.

Describe the development of physiological parameters in the child and how they relate to fitness, performance and the ability to cope with heat stress.

Explain muscle development in the child showing an understanding of the effect of hormonal development and weight training at varying ages.

Discuss the relevance of the variations in growth, physiology, nutritional needs and muscle development in relationship to injury.

Outline the psychological development through childhood and its relevance to skill development.

Describe variations introduced into some sports to allow children to play the sport in a modified form to develop appropriate skills.

Discuss paediatric nutritional requirements and outline the differences in these requirements in comparison to adults.

Describe the strategies that have been, or may be implemented, to prevent injuries in children and encourage participation in sport, e.g. modified rules, restricted running distances for certain ages, throwing restrictions, selection of contact sporting teams based on weight and use of protective equipment.

Identify the signs and symptoms of mental health issues in children, including depression, anxiety and attention deficit hyperactivity disorder (ADHD) and refer appropriately.

Be aware of the need to apply for Therapeutic Use Exemption (TUE) for a child athlete that requires a medication listed as a banned substance (for example, stimulants used to treat ADHD).

Bone Related Injuries

Describe the Salter classification.

Describe the characteristics of growing bone and the relevance of the following characteristics to injury;

- elasticity (Greenstick, Torus)
- porosity

Assessment

Part 2 Examination

*Indirectly Mini CEX
and Case based
Discussion*

- healing speed
- strength in relationship to ligaments and tendons
- ability to remodel.

Outline the average age of epiphyseal closure for common epiphyses and discuss abnormalities of development including the Slipped Upper Femoral Epiphysis (SUFE).

Describe the cause, signs and symptoms, diagnosis, prevention, complications, management and long term consequences of:

- specific fractures : supracondylar of elbow or knee
- specific stress issues: radial epiphysitis in gymnasts, little league elbow.

Discuss the rupture of the anterior cruciate ligament in a child and how this injury differs from that of an adult, particularly in regards to type of injury and management.

Describe an Apophysis.

Describe cause, signs and symptoms, diagnosis, prevention, management and long term consequences of the following conditions:

- Sever's Disease
- Islen's Disease
- Osgood Schlatter's Syndrome
- Sinding Larssen Johanssen Syndrome

Describe cause, signs and symptoms, diagnosis, prevention, management and long term consequences of the range of injuries associated with the apophyses relevant to the following muscle groups

- Hamstring
- Rectus femoris
- Sartorius
- Psoas
- Triceps
- Tibialis posterior

Discuss the "play to pain" concept and show an understanding of possible problems of continued activity when apophysitis is present.

Discuss the incidence, clinical presentation, signs and symptoms, causes, types where relevant, investigations and management of abnormalities of growth and development including:

- tarsal coalition
- scoliosis
- spondylolisthesis
- discoid meniscii
- congenital hip dysplasia
- extra bones (os perineum, os tibiale externum, os navicularae)
- extra muscles (accessory soleus)

Osteochondroses

Describe the possible cause, signs and symptoms, diagnosis, prevention, management and long term consequences of the following:

- Scheuermann's disease
- Perthes disease
- Osteochondritis dissecans of the knee
- Osteochondritis dissecans of the elbow
- Freibergs disease
- Kohlers disease

Medical Problems in Children

List specific precautions that should apply when children with the following conditions are involved in sport:

- Asthma
- Diabetes and Insulin resistance
- Epilepsy
- Cystic fibrosis
- Paediatric rheumatic disease
- Progressive neuromuscular disease
- Congenital heart disease
- Haemophilia
- Obesity
- Eating disorders
- Hypermobility, Marfan syndrome, Ehlers-Danlos syndrome, Osteogenesis imperfecta
- Infectious disease
- Congenital deformities (eg. Poland anomaly, Sprengel's deformity, congenital absence VMO)
- Childhood malignancy

Discuss the benefits of exercise on the conditions listed above.

Appreciate that a childhood sporting injury may be the presentation of an inflammatory condition, infective process or tumour.

List and broadly describe common childhood bony tumours both benign and malignant.

Outline your approach to the areas below as they relate to children:

- Supplement use
- The "pushy" parent and /or coach
- The 'overcommitted' child
- Overtraining
- Nonsteroidal anti-inflammatory use
- Atypical injuries possible child abuse
- Radiation exposure in medical testing
- Pre-participation medicals
- Markers of overtraining in the child athlete
- Biomechanical malalignments i.e. flat feet, genu varum, rotational deformities

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Physical Activity in Specific Populations - Children.

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Specific Populations (online) - Children
- Observation of Fellows assessing and managing a paediatric patient - clinical experience within accredited training post.
- Observe a sports dietitian consultation with a young female athlete.
- Offer coverage to a school sporting team.
- Prepare an information sheet for parents on one of the medical problems in children, particularly discussing the benefits of exercise to that disease.
- Case scenario provided by supervisor - a childhood fracture, disease or syndrome and discuss the diagnosis and management plan.
- Self-Directed Learning - *refer to the resource list for this topic area.*

1.4.3 Older People

Suggested Program Focus: One

Learning Outcomes

Explain the physiological effects of aging on the following:

- Aerobic capacity
- Cardiovascular system
- Respiratory system
- Muscle
- Cartilage
- Menisci, discs, ligaments and tendons
- Bone
- Renal system
- Gastrointestinal system
- Skin
- Vision
- Balance
- Neurological function
- Thermal Regulation

Discuss exercise physiology and the training effect that occurs with regular exercise in the older exercising person, and compare this to a young adult.

Assess how physical activity may modify the negative consequences of the physiological and psychological changes and/or decline associated with aging.

Assess the role of exercise in the prevention and treatment of chronic medical conditions e.g. diabetes, obesity, cardiovascular disease, osteoporosis and cancers - *Refer to Internal Medicine - Exercise Prescription for Health*

Explain the risks of physical activity for older participants and the modifications to reduce risk of injury and illness.

Identify common causes of exercise-related injury, and common sites of injury, in the older person.

Advise older exercising persons on pertinent nutritional issues including the importance of increased calcium intake, vitamin D exposure, protein intake and adequate hydration.

Understand that older exercising persons may be on multiple medications and how interactions and side effects may predispose the older participant to injury or illness.

Appreciate that injury management priorities and recovery in the older person may differ from the younger person.

Recognise the psychological issues that may be experienced by the older person who is undertaking regular activity, and must reduce this activity due to injury or illness.

Outline the commonly used medications for older people and their effect on exercise performance, e.g. betablockers. *Refer to Sports Pharmacology.*

Assessment

Part 2 Examination

*Indirectly Mini CEX
and Case based
Discussion*

Type 2 Diabetes - *refer to Internal Medicine - Exercise Prescription for Health and Endocrinology.*

Discuss how osteoporosis and or osteoarthritis may affect the older person's ability to exercise. *Refer to Internal Medicine - Rheumatology.*

Exercise Prescription

Identify focus areas of a pre-participation examination for older persons and investigations which may need to be performed.

Devise an exercise program for an older person, which involves exercises designed to enhance strength, balance and flexibility taking into account suitable instruction and supervision for participants who have never undertaken an exercise program before.

Discuss how the parameters of an exercise program can be altered to ensure the program is safe, and to improve adherence, for an older participant (i.e. consider equipment, training program recovery)

Older Athletes

Recognise the psychological issues that may be experienced by the older athlete;

- Involvement in competitive events.
- Retirement from competitive sport occurs. *Refer to Care of Athletes and Teams - Sport Psychology.*

Appreciate how the older athlete's medical and injury profile differs from that of an older exercising person.

Recognise specific injury and illness issues, including preventive and management strategies, related to organising and instituting medical coverage of a Masters event. *Refer to Care of Athletes and Teams - Events.*

Advise Masters event athletes regarding management of pre-existing injuries prior to the event, excessive alcohol consumption and dehydration, prevention of sexually transmitted diseases.

Be aware of doping issues in the Masters athlete, including the use of performance enhancing drugs.

Appreciate that therapeutic use exemption applications are different for older athletes as recognition must be made for chronic medical conditions e.g. asthma, CPD, hypothyroidism.

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Physical Activity in Specific Populations - Older People.

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Internal Medicine (online) - Exercise Medicine and Exercise for the Prevention and Management of Chronic Disease.
- ACSEP Short Learning Modules: Specific Populations (online) - Exercise and the Older Athlete

- Design an exercise program for an elderly, moderately osteoporotic individual.
- Instructions/information you would give to an older person undertaking a gym program for the first time.
- Pre-participation medicals: are there any validated criteria for exclusion from exercise in the older population?
- Design individual exercise programs for an older person for a variety of medical conditions.
- Attend surgery on older persons with musculoskeletal injuries in order to observe pathology.
- Case studies on older athletes with typical musculoskeletal injuries.
- Discuss with psychologist the issues surrounding retirement from competitive sport and/or reduction in physical activity.
- Medical coverage of Masters event - appreciate the uniqueness of this population.
- Self-Directed Learning - review the resource list for this topic area.

1.4.4 Para-athletes

Suggested Program Focus: One

Learning Outcomes

Outline the health problems that may arise from a sedentary existence.

Broadly describe the various neuromotor and sensory disabilities.

Classification

Define the categories of classification both in general and sport specific terms.

Explain the purpose of classification and why classification is necessary.

Describe how the process of classification is conducted, including the bench test, technique test and visual review during competition.

The para-athlete with a spinal cord injury

Discuss the pathophysiology of different types of spinal cord injury (SCI) including the different regions affected and the corresponding clinical signs.

Explain the altered physiological response to exercise and training in the athlete with a SCI.

Describe the common musculoskeletal overuse/posture complaints of wheelchair athletes, including but not limited to:

- Shoulder
- Upper limb nerve entrapments
- Cervical and Thoracic spine

Identify the possible musculoskeletal acute injuries in wheelchair sports and discuss the assessment and management of each.

Describe and discuss the pathophysiology, signs and symptoms, diagnosis, prevention and management of the common disability related medical issues seen in SCI athletes, including but not limited to: urinary tract infections, skin pressure areas and ulceration and osteoporosis.

Discuss the thermoregulation issues of athletes with a SCI and advise athletes regarding preparation and competition in hot and cold environments.

Define autonomic dysreflexia, identify the common presenting symptoms and establish an acute management plan for an athlete who develops this condition.

Prepare education advice that would be appropriate to deliver to a group of junior para-athletes on the prevention and early recognition of autonomic dysreflexia.

Differentiate the various wheelchairs available to an athlete with SCI, particularly the difference between a day chair and sport chair, and explain the implications of chair type in relation to potential injuries.

Compare and contrast the approaches to rehabilitation for para-athletes as opposed to able bodied athletes.

Assessment

Part 2 Examination

*Indirectly Mini CEX
and Case based
Discussion*

The para-athlete with an intellectual disability

Discuss the importance of consent when working with an athlete with an intellectual disability (ID).

Identify the common concurrent medical issues faced by athletes with an ID, including ocular and visual defects, congenital heart disease and atlantoaxial instability, and how these conditions may affect participation.

Describe interventions to assist participation of ID athletes in various sports.

Investigate the participation opportunities for para-athletes with an intellectual disability, including the difference between the Special Olympics and the Paralympics.

The para-athlete with a physical disability

Describe the different types of cerebral palsy.

Discuss the complications and/or difficulties that patients face with traumatic amputations with regard to the amputated limb.

Discuss the different upper and lower limb amputee athletes and describe the types of prostheses they may use to increase functionality for activities of daily living and training/sport.

Discuss the challenges in working with athletes with visual and/or hearing impairment in terms of skill development, injury and team travel.

Sports available for para-athletes

Familiarise yourself with the Summer and Winter Paralympics sport and explain which athletes may participate in each sport.

Consider the possible common injuries that will occur in AWD relative to the type of disability and the sport they are participating in.

Team coverage for para-athletes

Explain the considerations for international travel with a group of para-athletes, including pre-departure planning, transit / travel, in-competition resource requirements and emergency planning.

Event coverage for para-athletes

Describe administrative issues associated with preparing for an event, which will have para-athletes, for example, additional volunteers/spotters.

Describe modifications that must be considered for an event that will have para-athletes, for example, changes to the event course/field, transitions - getting in and out of the water in a triathlon. *Refer to Care of Athletes and Teams - Events*

Consider the additional clinical supplies required for an event that will have para-athletes, for example, catheters, supplies to treat blisters.

Anti-doping considerations

Be aware of the high risk of inadvertent doping in para-athletes due to treatment of medical conditions.

Define the practice of 'boosting', which group of athletes it may benefit, and the regulations surrounding its practice.

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Para-athletes.

It is suggested that during the training program, registrars participate in/experience the following:

- ACSEP Short Learning Modules: Specific Populations (online) - Para-athletes.
- Observation of Fellows assessing and managing a para-athlete.
- Plan to travel overseas with a group of athletes (consider pre-departure planning, transit arrangements etc) and prepare a list of what medical supplies you would take with you on the plane and in your medical bag.
- Travel with a team of para-athletes.
- Provide coverage for an event that has para-athletes participating.
- Observe a game of wheelchair tennis / basketball or rugby.
- Familiarise themselves with the common prosthesis and sports wheelchairs used by para-athletes.
- Visit a prosthetist to discuss appropriate prostheses and their impact on injury.
- Draft a guide to Autonomic dysreflexia that would be appropriate to educate allied support staff for a para-athlete team.
- Prepare a list of important administrative and clinical considerations for a specific event with para-athletes.

SECTION 2: CLINICAL DECISION MAKING

DOMAINS

Subject Areas:

- 2.1 Patient Assessment
- 2.2 Investigations
- 2.3 Preventive and Therapeutic Interventions
- 2.4 Procedural Skills

DOMAIN 2.1: PATIENT ASSESSMENT

Perform an appropriate patient-centred assessment, including history and patient examination.

Suggested Program Focus: Year One to Four

Learning Outcomes

Identify and prioritise issues to be addressed in a patient encounter, including the patient's context (e.g. cultural background, involvement in physical activity/sport) and preferences.

Elicit a history that is relevant, concise and accurate to context and preferences, for the purposes of diagnosis and management, prevention and health promotion.

Perform a focused physical examination that is relevant and accurate, for the purposes of diagnosis and management, prevention and health promotion.

Refer to ACSEP Examination Videos.

Assessment

Mini-CEX

8 injury assessments, which must include a mix of acute and overuse injuries.

- Wrist
- Shoulder
- Lumbar Spine
- Hip/Groin
- Knee
- Shin
- Ankle
- Foot

4 different medical assessments. Choose from:

- Exercise induced bronchospasm/asthma
- Epilepsy
- Risk factors for Chronic Disease e.g. obesity, cardiovascular disease, metabolic syndrome/insulin resistance
- Type 1 or 2 Diabetes
- Menstrual cycle disturbance/female athlete triad
- Tired athlete
- Chronic sore throat
- Osteoporosis
- Osteoarthritis of a major joint

All assessments must be performed on a variety of patients - different sex, age and athletic standard. Preferably, one assessment should be conducted on a para-athlete.

Part 2 Examination - Clinical

Case Based Discussion (*refer to Interventions*)

DOMAIN 2.2: INVESTIGATIONS

Select and interpret appropriate investigations for various pathologies.

Suggested Program Focus: Year One to Four

Learning Outcomes

Select medically appropriate investigative methods in a resource-effective and ethical manner.

Interpret the findings of investigations appropriately, evaluating the extent and accuracy of the results, and liaising with the author of reports when necessary.

Critically appraise the quality of a radiological investigation and give an estimate of sensitivity and specificity for common investigations.

Comprehensively interpret all radiological investigations, including demonstrating awareness of appropriate age related changes, and evaluate the accuracy of associated radiological report.

Demonstrate effective clinical problem solving and judgment to address patient problems, integrating information from the history, physical examination and investigations to generate differential diagnoses and patient-centred management plans.

Assessment

Case Based Discussion (*refer to Interventions*)

Part 2 Examination - Written and Clinical

Mini-CEX, where appropriate *refer to Patient Assessment*

DOMAIN 2.3: INTERVENTIONS

Use preventative and therapeutic interventions effectively

Suggested Program Focus: Year One to Four

Learning Outcomes

Establish goals of care with patients, which may include improving performance or function, treating symptoms and underlying condition, or preventing injury.

Implement an effective management plan in collaboration with a patient, individual athlete, sporting group or team, and other relevant stakeholders;

Apply clinical knowledge to demonstrate effective, appropriate, and timely application of preventive or therapeutic interventions for a patient, individual athlete, sporting group or team;

Ensure appropriate informed consent is obtained and documented for therapies and/or procedures;

Establish the roles of the patient and all team members with regard to follow up, and ensure that agreed follow up occurs.

Assessment

Case Based Discussion

A selection of 6 different medical cases and 6 different injury cases (including one trauma) from the list below:

- Chronic Disease
- Environment related illness
- Infective illness compromising an athlete's ability to train/compete
- Concussion and/or post concussive syndrome
- Severe Asthma in an elite athlete
- Nutritional deficiency (Fe, B12, Vit D)
- Chronic blood loss or anaemia
- Type 2 Diabetes
- Shortness of breath, dizziness, palpitations and/or collapse in a young athlete
- Runner's diarrhoea
- Genitourinary trauma (e.g. testicular/renal)
- Electrolyte disturbance in an endurance athlete
- A para-athlete
- Stress Fracture in a female athlete with menstrual irregularities
- Avulsion of a growth plate in a paediatric patient
- Traumatic dislocation of a shoulder in a younger patient.
- Chronic pain following an ankle injury
- Non-surgical management of chronic ankle instability
- Lower back pain in an adolescent dancer, gymnast, javelin thrower or fast bowler
- Chronic tendonopathy
- Swollen joint in an athlete (query possible inflammatory arthropathy)
- Suspected spinal trauma
- Facial or inferior orbital trauma
- Injury resulting from faulty/inappropriate technique, biomechanics or equipment
- Injury resulting from training error

Part 2 Examination

Mini-CEX in some circumstances (*refer to Patient Assessment*)

DOMAIN 2.4: PROCEDURAL SKILLS

Demonstrate proficient and appropriate use of procedural skills, both diagnostic and therapeutic.

Suggested Program Focus: Year One to Four

Learning Outcomes

Demonstrate effective, appropriate, and timely performance of diagnostic and therapeutic procedures relevant to their practice as a sports physician, including but not limited to;

- Joint and soft tissue injections
- Joint and soft tissue aspirations
- Ultrasound guided injections (optional)
- Suturing of skin wounds and wound management

Appropriately document and disseminate information related to procedures performed and their outcomes;

Assessment

Direct Observation of Procedural Skills (DOPS)

- Subacromial joint space injection
- Acromioclavicular joint injection
- Knee joint injection/aspiration
- Ankle joint injection
- Posterior ankle impingement injection
- Ultrasound guided injection (optional)

Training Diary / Logbook

- Lateral epicondyle tendon injection
- Wrist joint injection
- Glenohumeral joint injection
- Morton's neuroma injection
- Plantar fascia injection
- Sinus tarsi injection
- Elbow joint aspiration/injection (radio-capitellar joint)
- All common bursal injections, e.g. trochanteric, olecranon, prepatella, pes anserine

SECTION 3: FUNDAMENTAL COMPETENCIES

DOMAINS

Subject Areas:

- 3.1 Communication
- 3.2 Collaboration
- 3.3 Leadership and Management
- 3.4 Health Advocacy
- 3.5 Research, Teaching and Learning
- 3.6 Professionalism
- 3.7 Cultural Awareness and Safety

DOMAIN 3.1: COMMUNICATION

| Suggested Program Focus: Year One to Four | Assessment |
|--|--|
| <p>Learning Outcomes</p> <p>Establish relationships with the sporting team or group as a whole, coaches, managers and other health professionals involved with a sporting organisation or team to facilitate optimal care of athlete or team.</p> <p>Ensure athletes understand the role of the sports physician and are comfortable to approach their doctor with any medical issues.</p> <p>Accurately interpret information within a referral letter.</p> <p>Establish initial rapport with a patient and/or others present through making eye contact, acknowledging issues raised in a referral letter (if applicable) and reflective listening to the patient's history.</p> <p>Use patient-centred interviewing skills to gather information, formulate an accurate diagnosis and prepare an appropriate management plan.</p> <p>Identify and explore the patient's issues and concerns within the scope of a focused consultation, and appreciate the therapeutic value of the consultation alone.</p> <p>Listen effectively by:</p> <ul style="list-style-type: none">• Asking open-ended questions• Responding to non-verbal cues• Clarifying information provided by the patient• Clarifying understanding of information delivered. <p>Identify and manage communication barriers with patients, including those who; have a visual or hearing impairment, an intellectual disability, poor literacy or numeracy skills or are from culturally and linguistically diverse backgrounds.</p> <p>Arrange for a suitable professional (Aboriginal or Maori health worker or interpreter) to assist in overcoming communication barriers, as appropriate.</p> <p>Communicate effectively with adolescents and, where appropriate, facilitate communication between young persons and their parents/guardians with regard to difficult issues pertaining to treatment and/or management.</p> <p>Synthesise relevant information from other sources, such as a patient's family or carers, coach and other professionals.</p> <p>Foster discussion to encourage shared decision-making with the patient.</p> <p>Manage emotionally charged communications and conflicts, such as delivering bad news, and addressing anger, confusion and misunderstanding.</p> <p>Assist patients to identify, access and make use of information and communication technologies to manage their health.</p> | CTS/CTI Report Mini CEX DOPS Team and Event Coverage Requirements Part 2 Examination - Clinical |

Discuss laboratory and/or radiographic findings with patients and relate these to the clinical scenario.

Provide explanations about the implications of their diagnosis, treatment options, and complications that are clear and adapted to the patient's level of understanding and need.

Disclose adverse events to patients and their families accurately and appropriately.

Present verbal reports of clinical encounters and plans succinctly and accurately to colleagues.

Communicate accurately, clearly, promptly and comprehensively with relevant colleagues by means appropriate to the urgency of the situation (telephone, letter), especially where responsibility of a patient's care is transferred.

Maintain clear, accurate and appropriate written or electronic records of clinical consultations, encounters and plans.

Write a succinct and timely letter back to the referring doctor.
Write an appropriate referral letter.

Discuss medical issues of athletes with coaches, managers and other health professionals, in a manner that respects patient privacy and confidentiality.

Provide information to sporting group or teams regarding medical protocols (preseason injury and illness prevention strategies, blood rules, vaccinations), using language suitable to level of understanding.

Present medical information to the public or media about a medical issue, when appropriate, using language suitable to the audience and the topic.

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Fundamental Competencies.

It is suggested that during the training program, registrars participate in/experience the following:

- Observe supervisor interacting with patients, athletes and sports teams.
- Be observed by supervisor while interacting/consulting with patients, athletes and teams and have supervisor provide feedback.
- Video role plays of patient consultations and reflect on communication skills that need to be improved.
- Prepare a script of how you would tell a professional athlete that their injury has terminated their sporting career, and use role plays to practice its delivery.
- Participate in formal communication skills training.
- Lead a sport team discussion (e.g. on injury prevention, acclimatisation, avoiding illness when travelling overseas).
- Relay medical information about an athlete to a coach or manager, and obtain feedback from an observing Supervisor.

- The Supervisor asks the Registrar to provide notes on a random patient - the Supervisor tries to present the case back to the Registrar based on notes and information contained within the patient record.
- Investigate clauses within contracts, regarding confidentiality and obtaining consent for medical treatment, for a team you are covering.
- Prepare a media statement on a pertinent issue provided by your Supervisor, e.g. alcohol advertising in sport, recreational drug use by football players, management of concussion/head injury in athletes.
- Identify local Aboriginal or Maori health workers interpreter services you can utilize should the need arise.
- Review online video resources from ACSEP conference 2016: Culturally Safe Health Care.

DOMAIN 3.2: COLLABORATION

Suggested Program Focus: Year One to Four

Learning Outcomes

Explain the roles and responsibilities of the SEM physician and other professionals in the health care team, including but not limited to the referring practitioner, radiologist, orthopaedic surgeon, podiatrist, physiotherapist, sport dietitian and sport psychologist.

Participate effectively in inter-professional healthcare team meetings.

Recognise and respect the diversity of roles, responsibilities and competencies of other professionals in relation to the SEM physician.

Establish and maintain healthy inter- and intra-professional working relationships to provide collaborative care for patients, athletes, sporting groups or teams.

Negotiate overlapping and shared responsibilities with inter-and intra-professional health care providers for episodic or ongoing patient care.

Work with colleagues to assess, plan, provide and review other tasks such as research, educational work, or administrative responsibilities, where appropriate.

Work effectively with personnel such as managers, coaches and sport administrators to develop policies, review medical guidelines and implement screening protocols.

Respect the healthcare team ethics including confidentiality, resource allocation, and professionalism.

Recognise own differences, misunderstandings and limitations that may contribute to inter-professional tension.

Respect differences, misunderstandings and limitations in others professionals.

Effectively work with others to prevent, negotiate and resolve inter-professional conflict.

Participate effectively in team meetings with various stakeholders, including but not limited to players, coaches, management and administrators.

Recognise when care should be transferred to another health care provider.

Demonstrate effective and safe handover of care, both written and verbal, during a transition of responsibility of care of a patient, athlete, or team.

Assessment

CTS/CTI Report

Team and Event Coverage Requirements

Part 2 Examination

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Fundamental Competencies.

- Team Coverage Requirements - participation in weekly team meetings and contributing to discussion where appropriate.

It is suggested that during the training program, registrars participate in and/or experience the following:

- Daily clinical practice in an accredited training post - arranging referrals, working with physiotherapist, liaison with coaches, assisting with surgery.
- Attend multidisciplinary meetings.
- Supervisor provides case scenario - an athlete with an eating disorder - consider your approach and liaison with other professionals.
- Supervisor provides case scenario - an athlete with a lower limb overuse injury.
- Develop a written care plan for a patient you have assessed, developed in collaboration with other doctors.
- Sit in consultations with other health professionals, including a radiologist, podiatrist, physiotherapist, sports dietitian.
- Prepare a list of suitable allied health professional support services to refer patients to.
- Self-directed learning - review the resource list for this topic.

DOMAIN 3.3: LEADERSHIP AND MANAGEMENT

Suggested Program Focus: Year One to Four

Learning Outcomes

Describe the structure and function of the healthcare system as it relates to sport and exercise medicine, including the role of sport and exercise physicians.

Describe the role of the sport and exercise medicine physicians within the medical team in a professional sporting club or national sporting organisation.

Accept leadership roles as appropriate:

- Chair or participate effectively in committees and meetings.
- Lead or implement change in health care, at team and community level
- Plan relevant elements of health care delivery (e.g. work schedules).
- Facilitate change in health care to enhance services and outcomes

Allocate health care resources for optimal patient care.

Contribute to strategies to improve the value of health care delivery.

Manage a practice including information technology, finances and healthcare resources, where relevant.

Effectively manage registrars and staff by:

- Demonstrating leadership
- Communicating effectively
- Prioritisation of tasks
- Delegating
- Ensuring tasks are progressing as planned
- Providing constructive feedback
- Coaching and mentoring as appropriate.

Manage professional obligations and demonstrate initiative, punctuality, reliability and dependability.

Conduct staff appraisal in accordance with workplace policies and processes.

Implement processes to ensure personal practice improvement, for example, a practice audit.

Set priorities and manage time to balance practice and personal life.

Recognise when other staff are under stress and not performing as expected, provide support for them, and take action as necessary to ensure that patient safety is not compromised.

Quality and Safety

Use evidence and information from quality improvement processes to guide practice improvement.

Assessment

CTS/CTI Report

Team and Event Coverage Requirements

Part 2 Examination

Demonstrate the ability to:

- Prescribe and administer medications
- Educate patients about their medications
- Accurately calculate all drug doses
- Document, and report where relevant, all medication errors (prescribing, dispensing, administering) and near misses

Be aware of regulations regarding storage and documentation of restricted drugs e.g. opioids.

Follow up patients to check any side effects from medication use, where relevant.

Implement principles of safety with long term drug therapy.

Promote safe continuity of care for patients by advising referring practitioners and allied health professionals of management plans.

Know of the notifiable diseases which should be reported in your jurisdiction and notify the relevant authority within 24 hours of making a diagnosis.

Implement programs to measure the benefit or success of intervention programs including treatment and/or screening protocols used in the team situation, or in private practice.

Adverse Events

Recognise and manage personal errors and adverse events.

Identify the many factors that contribute to adverse events, including psychological precursors of error, and implement strategies aimed at reducing these factors.

Report appropriately on adverse events, care errors and system failures and rectify, where possible.

Analyse incident reports, adverse events and near misses to identify opportunities for improvements in patient care.

Recognise the learning opportunities from reporting errors.

Appropriately manage the patient's and staff needs where they are involved in an adverse event.

Be aware of the legal aspects of investigation and disclosure of adverse events.

Outline the principles of open disclosure.

Ensure adequate medico-legal and business insurance coverage.

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Fundamental Competencies.

It is suggested that during the training program, registrars participate in and/or experience the following:

- Supervisor to provide case scenario - consider effective use of resources when managing a patient with a stress fracture.
- Supervisor provides a case scenario - treating a young athlete whose family does not have private health insurance.
- Become a Registrar Representative on a College Committee.
- Consider the private practice/department you are working in, what information technology changes would you make to improve patient care?
- Consider the private practice you are working in, and if the Supervisor is willing to discuss, how much does it cost per week to run the practice/department? What is the practice structure and what options are available - partnership, employee, sole practice etc.
- You want to start your own practice tomorrow - consider the startup costs associated with this endeavour.
- A sporting team has a particular budget for the medical care of its team. How will you use the funds most effectively?
- Audit an area of clinical practice that consumes significant resources (i.e. high tech imaging). Compare with a colleague.
- Participate in practice meetings, where possible.
- Participate in a patient audit of a peer's practice.
- Attend formal courses on time management and stress management.
- Self-directed learning - review the resource list for this topic.

DOMAIN 3.4: HEALTH ADVOCACY

| Suggested Program Focus: Year One to Four | Assessment |
|---|--|
| <p>Learning Outcomes</p> <p>Work with a patient, athlete, a sporting group or team, to address their general health needs, for example, vaccinations, contraception, skin examinations and cancer screening.</p> <p>Increase opportunities for health promotion, and injury and disease prevention with a patient, athlete, sporting group or team.</p> <p>Advocate for good health, including the benefits of a healthy diet and regular exercise, by providing information to individuals, public gatherings, the media, government and sporting organisations.</p> <p>Appreciate the possibility of conflict inherent in the role of a physician as a health advocate for a patient, athlete, sporting group or team, with that of a manager, coach or administrators.</p> <p>Describe the role of the medical profession in advocating collectively for the health and safety of patients, athletes, sporting teams or groups.</p> <p>Work collaboratively with other agencies to improve the health of communities.</p> <p>Respond appropriately to media requests, taking into account the importance of confidentiality and overall health promotion.</p> <p>Identify areas of high need within the practice population, e.g. Aboriginal and Maori populations, and identify opportunities for advocacy, health promotion, and injury and disease prevention.</p> <p>Determinants of health (e.g. socioeconomic status, cultural and religious background) - <i>refer to Fundamentals of Sport and Exercise Medicine: Exercise Prescription for Health.</i></p> <p>Approach to implementing change - <i>refer to Fundamentals of Sport and Exercise Medicine - Exercise Prescription for Health (Exercise Adherence etc).</i></p> | <p>CTS/CTI Report</p> <p>Mini CEX</p> <p>Case based Discussion</p> <p>Team and Event Coverage Requirements</p> <p>Part 2 Examination</p> |

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Tutorial program - Fundamental Competencies.

It is suggested that during the training program, registrars participate in and/or experience the following:

- Present a lecture to a sporting group or team on a topic associated with maintaining a healthy lifestyle and disease and injury prevention.
- Prepare an information sheet regarding healthy eating habits plan, or source suitable pamphlets on nutrition, for a patient.
- Develop an exercise plan for improving general health and fitness
- Supervisor to provide a case scenario - prepare an intervention plan to address an opportunity for inducing desirable change

- Identify health risks associated with a particular sport and consider how you would review the rules of the sport, and whom you would need to work with, within and outside the profession, to encourage change.
- Consider the general health needs for a particular sporting group or team, e.g. team of female disabled athletes.
- Self-directed learning - review the resource list for this topic.

DOMAIN 3.5: RESEARCH, TEACHING AND LEARNING

| Suggested Program Focus: Year One to Four | Assessment |
|---|---|
| <p>Learning Outcomes</p> <p>Describe the principles of professional development and ongoing learning.</p> <p>Recognise and reflect on issues in practice, determine areas in which knowledge needs to be improved and organise appropriate education and training.</p> <p>Integrate new learning into practice and evaluate the impact of changes.</p> <p><u>Teaching</u></p> <p>Facilitate the learning of patients, families, students, registrars, other health professionals, the public and others.</p> <p>Collaboratively identify the learning needs and desired learning outcomes of others.</p> <p>Demonstrate effective teaching to facilitate learning.</p> <p>Promote a safe learning environment.</p> <p>Give an effective lecture or presentation.</p> <p>Assess and reflect on a teaching encounter.</p> <p>Provide constructive feedback to the learner.</p> <p>Describe the principles of ethics with respect to teaching.</p> <p>Be familiar with a range of sources of research publications and electronic literature databases.</p> <p>Describe the basic concepts of evidence-based medicine and its limitations.</p> <p>Discuss the factors contributing to the validity and reliability of research.</p> <p>Define and describe levels of evidence.</p> <p>Explain common research terminology e.g. hypotheses, endpoints, outcomes, incidence, prevalence, biases.</p> <p>Describe and give examples of qualitative and quantitative research methods.</p> <p>Compare and contrast types of research design e.g. controlled clinical trials, case-control studies, historical and concurrent controls, blind and double-blind studies, prospective/retrospective.</p> <p>Generally discuss the relative benefits of various statistical methods and tests e.g. correlation co-efficient, Chi-squared, logistic regression and when they are appropriate to use.</p> <p>Define and describe the importance of different outcome measures in SEM e.g. player hours, time to progression, quality of life.</p> | CTS/CTI Report Research Requirements Team Coverage Requirements |

Discuss levels of significance, types of errors and power calculations.

Describe key principles of meta-analyses and systematic reviews.

Interpret basic statistical and epidemiological concepts and data.

Be familiar with software used for statistical analyses.

Pose a scholarly question.

Conduct a systematic literature search for evidence.

Critically appraise retrieved evidence in order to address a clinical question.

Develop and apply appropriate protocol and methods for research.

Demonstrate the ability to write a scientific or medical paper including appropriate referencing.

Appropriately disseminate the findings of a study.

Integrate research conclusions into clinical care.

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must participate in/complete:

- Academic Module - Research Methodology for Sports Medicine

It is suggested that during the training program, registrars participate in and/or experience the following:

- Participate in the MOPS program.
- Attend annual scientific meetings.
- Complete courses relevant to sport and exercise medicine to improve skills in areas of interest.
- Develop a systematic personal plan to review sport and exercise medicine journals and/or participate in a journal club.
- Discuss current literature with Supervisor and how key findings may be integrated into everyday practice.
- Read the NHMRC guidelines on the ethical conduct of research.
- Complete the research requirements of the training program.
- Present at the weekly tutorial program
- Present a lecture for a local sporting organisation on the prevention of injury.
- Reflect on the outcomes of a teaching encounter with a patient, and how you would improve a similar session.
- Self-directed learning - review the resource list for this topic.

DOMAIN 3.6: PROFESSIONALISM

| Suggested Program Focus: Year One to Four | Assessment |
|---|--|
| <p>Learning Outcomes</p> <p><u>Professionalism</u> Exhibit professional behaviours and relationships in all aspects of practice, reflecting honesty, integrity, commitment, compassion, respect and altruism.</p> <p>Conduct oneself in a professional manner at all times when accompanying athletes or teams, for example, on the sporting field, in change rooms, ‘after hours’ when travelling with athletes.</p> <p>Demonstrate a commitment to high quality care and collaborative practice.</p> <p>Recognise and appropriately respond to ethical issues encountered in practice.</p> <p>Appropriately recognise and manage conflicts of interest.</p> <p>Exhibit professional behaviours in the use of technology-enabled communication.</p> <p>Recognise the principles and limits of patient confidentiality as defined by professional practice standards and the law.</p> <p>Ensure the contract between an athlete and a sporting organisation adequately defines the process of reporting information regarding an injury or illness to a relevant third party (i.e. coach, manager or sporting organisation).</p> <p>Fulfil the professional and ethical codes, standards or practice, and laws governing practice.</p> <p>Be aware of any mandatory reporting regulations with regards to child neglect and abuse in your jurisdiction.</p> <p>Recognise and respond to unprofessional and unethical behaviours in others.</p> <p>Participate in peer review.</p> <p>Exhibit self-awareness and effectively manage the influences on personal well-being, mental health and professional performance.</p> <p>Manage personal and professional demands for sustainable practice.</p> <p>Promote a culture that recognises, supports and responds effectively to colleagues in need.</p> | CTS/CTI Report Mini CEX Team Coverage Requirements Part 2 Examination |
| <p>Teaching and Learning Methods</p> <p>To achieve the learning outcomes of this module, it is suggested that during the training program, registrars participate in and/or experience the following:</p> | |

- Tutorial program - Fundamental Competencies.
- Review 'Good Medical Practice' - Code of Conduct for doctors working in Australia.
- Investigate the code of professional conduct for a sporting team you are working with.
- Discuss the following ethical dilemmas with your supervisor -
 - A player sustains an injury during a grand final and the coach would like the player to go back on the field, though this is contrary to your advice?
 - Can you leave the game to attend to a spectator who is having a medical emergency?
 - You disagree with the opposing team physician's decision to allow a player to play on after suffering a concussion.
 - A player comes to you with a personal problem, which does not impact upon performance. You have signed a contract to inform the sporting organisation of all medical issues with athletes.
- Discuss issues regarding consent and the intellectually disabled athlete.
- Establish relationships with colleagues and create a community of practice to discuss approaches to practice and concerns.
- Self-directed learning - review the resource list for this topic.

DOMAIN 3.7: CULTURAL AWARENESS AND SAFETY

| Suggested Program Focus: Year One to Four | Assessment |
|--|--|
| <p>Learning Outcomes</p> <p>Be aware of one’s own religious beliefs and cultural biases and the influence they may have on interaction with others.</p> <p>Recognise that personal beliefs and values, and experience shape one’s views regarding clinical issues.</p> <p>Approach the management of each patient free from bias, which may result from personal beliefs and values.</p> <p>Ensure appropriate referral of the patient when personal beliefs or biases impact upon professional behaviour.</p> <p>Explain the importance of being culturally sensitive to enhance patient care.</p> <p>Appreciate how the unique history and culture of Aboriginal and Torres Strait Islander peoples (Australia) and Maori and Pacific peoples (NZ) impacts upon their current health and other disparities.</p> <p>Describe elements of the Aboriginal and Torres Strait Islander culture (Australia) and Maori and Pacific culture (NZ) that may impact upon interactions between indigenous people and health services (e.g. perceptions of hospitals in relation to death and cultural respect, strong family and community ties).</p> <p>Recognise the relationship between strong cultural belonging and health and wellbeing.</p> <p>Identify the barriers to receiving quality healthcare by different ethnic and racial groups.</p> <p>Describe the potential psychosocial issues for Aboriginal and Torres Strait Islander peoples (Australia) and Maori and Pacific peoples (NZ), including the possible reasons for an increased prevalence in the indigenous population.</p> <p>Access and utilise resources to help address the unique clinical needs of refugees and asylum seekers that may have had poor or interrupted healthcare access.</p> <p>Apply knowledge of a patient’s cultural and religious background, values/attitudes and beliefs when assessing and developing a management plan with them.</p> <p>Access and use resources available to support cross-cultural practice (interpreters, translated resources and community partners such as aboriginal and Maori health workers).</p> <p>Develop partnerships with appropriate individuals, organisations and representative networks and use information and advice when working with other cultural groups.</p> | CTS/CTI Report Mini CEX Team Coverage Requirements Part 2 Examination |

Provide a culturally safe environment where patients of all cultures have access to quality patient care.

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must complete:

- Tutorial program - Fundamental Competencies

It is suggested that during the training program, registrars participate in and/or experience the following:

- Consider the personal beliefs you have and how you would approach managing a patient with beliefs different to your own, for example, a 16 year old girl is 8 weeks pregnant and would like advice regarding termination.
- Improve your awareness of the health issues faced by Aboriginal and Torres Strait Islander and/or Maori peoples by reviewing relevant websites.
- Complete an online module on cultural awareness
- Investigate the interpreter services and liaison services available for use in your clinical practice
- Learn about key cultural preferences for Aboriginal and Torres Strait Islander and/or Maori peoples, including with regard to physical contact, sharing information and consent, non-verbal communication such as eye contact.
- Spend some time working in an Aboriginal Health Care Service or Maori health provider.
- Review ACSEP video resources National Conference 2016: Culturally Safe Health Care.
- Self-directed learning - review the resource list for this topic.

SECTION 4: CARE OF ATHLETES AND TEAMS

DOMAINS

Subject Areas:

- 4.1 Emergency and Acute Trauma in Sport and Exercise Medicine
- 4.2 General Medicine for Care of Athletes
- 4.3 Care of Sports Teams
- 4.4 Events
- 4.5 Travelling Athletes
- 4.6 Doping and the Athlete
- 4.7 Sport Psychology

DOMAIN 4.1: EMERGENCY AND ACUTE TRAUMA IN SPORT AND EXERCISE MEDICINE

| Suggested Program Focus: Year Two | Assessment |
|---|--|
| <p>Learning Outcomes <u>Emergency Sports Medicine</u> Universal Precautions for Infectious Disease - <i>refer to Care of Athletes and Teams - Care of Sports Teams.</i></p> <p>Outline the general principles of the initial patient assessment in an emergency situation.</p> <p>Describe and perform a primary survey e.g. ABCDE – airway, breathing, circulation, disability including neurological status, exposure/environment.</p> <p>Have appropriate emergency equipment available for emergency care at particular sporting event.</p> <p>Describe and perform cardiopulmonary resuscitation and be familiar with the use of a defibrillator.</p> <p>Identify circumstances in which airway compromise may occur (e.g. head and neck trauma, foreign body, individual anatomy of the neck, vomiting).</p> <p>Recognise the signs and symptoms of acute airway obstruction and describe the techniques to establish and maintain a patent airway, in particular outline the role of suction and oropharyngeal airways.</p> <p>Perform airway manoeuvres including jaw thrust, chin lift and head tilt.</p> <p>Perform advanced airway management procedures including laryngeal mask airways, mini-tracheostomy intubation, endotracheal intubation and needle cricothyroidotomy, in a simulated setting.</p> <p>Recognise shock, or the potential for a patient to develop shock.</p> <p>Outline potential causes of shock.</p> <p>Outline the management strategies for the shocked patient including control of external bleeding and volume replacement measures.</p> <p>Recognise signs and symptoms of possible internal trauma and haemorrhage.</p> <p>Recognise the signs and symptoms of allergic reactions and acutely manage accordingly.</p> <p>Describe and recognise the spectrum of brain injuries that may occur in sport, for e.g. intracranial haemorrhages, concussion.</p> <p>Organise retrieval and refer the patient for appropriate treatment in a timely manner, seeking assistance from others, where relevant.</p> <p>Explain the initial management of larger scale emergency situations when the safety of athletes, officials and spectators have been compromised - <i>refer to Care of Athletes and Teams - Events.</i></p> | <p>Training Diary / Logbook</p> <p>Team Coverage Requirements</p> <p>Management of Sporting Trauma (MOST) Course</p> |

Perform an on-field assessment of a variety of musculoskeletal injuries and determine whether it is safe for a player to continue.

Describe and recognise and assess different levels of consciousness.

In the case of concussion, perform an on-field cognitive assessment (Pocket SCAT, Standardized assessment of concussion - SAC, Maddocks questions, balance testing and clinical assessment) to determine whether it is safe for the player to continue play and monitor appropriately.

In the case of concussion, determine situations when a player should be removed from the field.

Perform a full SCAT test and complete neurological assessment in situations where player has been removed from field of play.

Describe/demonstrate the process for determining fitness for return to play after head injury.

Describe process for post-game management of concussion and subsequent monitoring or referral where appropriate.

Prescribe appropriate testing and rehabilitation of a concussed player during the following week(s), where relevant, and apply principles of decision-making about fitness to play in the next game.

Recognise cervical spine injuries, and where a player may have sustained a stable or unstable cervical spine fracture.

Fit and size cervical collars.

Recognise the signs and symptoms of other spinal cord injuries.

Describe, demonstrate and perform techniques for moving and transporting an injured athlete, including leading a team of people to safely transfer a player from the field (e.g. stabilise neck, maintain airway) using the appropriate equipment, e.g. a spinal board, or resources available.

Describe the various phases of off-field injury assessment.

Describe and perform various methods for controlling nasal haemorrhage.

Clean wounds effectively and select and apply appropriate dressings.

Classify the different types of wounds and identify when strips, glue or sutures are indicated.

Confidently use various local anaesthetics and regional anaesthetic techniques including ring blocks.

Perform skin and subcutaneous suturing, stapling and gluing.

Assess and initially manage acute soft tissue injuries, i.e. RICE.

Discuss the principles of fracture management and splinting.

Recognise a suspected fracture/s, assess neurovascular status and apply a

splint where appropriate.

Recognise and reduce common dislocations, where possible, for e.g. shoulder, elbow, fingers, patella, toes. *Refer to Injury Assessment, Management and Rehabilitation - Assessment and Management of Sport Related Injuries.*

Recognise when a fracture-dislocation may need to be reduced acutely. Recognise hip and ankle dislocations and refer as appropriate. *Refer to Injury Assessment, Management and Rehabilitation - Assessment and Management of Sport Related Injuries.*

Emergencies in scuba diving and alpine environments; recognising and treating hyperthermia and hypothermia - *refer to Internal Medicine – Environment related Injury and Illness*

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must complete:

- Tutorial program - Trauma
- Management of Musculoskeletal and Sporting Trauma (MOST) Course

It is suggested that during the training program, registrars participate in and/or experience the following:

- ACSEP Short Learning Modules: Internal Medicine (online): ENT and Dental Trauma in sport
- Complete CPR Course/ALS and maintain currency of certification
- MOST Course refresher
- During operating assistance sessions, gain airway management experience from an anaesthetist, e.g. intubation, insertion of oro-pharyngeal airways, practice intravenous catheterization.
- Observe and as appropriate, assist a sports physician managing traumas on the field and on the side line
- Compile a list of emergency equipment needed for a particular sporting event.
- Review/Debrief on the management of an emergency with a peer, supervisor or mentor and reflect on strengths and weaknesses, including the discussion of your psychological response to the situation.
- Self-Directed Learning - *refer to the resource list for this topic area*

DOMAIN 4.2: GENERAL MEDICINE FOR CARE OF ATHLETES

Suggested Program Focus: Year Two to Four

Learning Outcomes

Diagnose, order investigations, provide treatment and/or refer where appropriate for the following:

Cardiovascular Medicine

- Hypertension
- Acute angina
- Non-musculoskeletal chest pain
- Peripheral vascular disease

Respiratory Medicine

- Upper Respiratory Tract Infections
- Bronchitis
- Pneumonia
- Sinusitis
- Pharyngitis
- Tonsillitis
- Asthma

Rheumatology

- Inflammatory arthritis
- Degenerative arthritis

Gastrointestinal medicine

- Gastro-Oesophageal Reflux Disease
- Gastritis and Peptic Ulcer Disease
- Irritable Bowel Syndrome
- Suspected Coeliac disease

Renal Medicine

- Urinary Tract Infection
- Renal calculi

Endocrinology

- Hyperglycaemia
- Hypoglycaemia

Ophthalmological

- Foreign bodies in the eye
- Conjunctivitis

Ear, Nose and Throat

- Epistaxis
- Ruptured tympanic membrane
- Otitis Media, Otitis Externa
- Labyrinthitis (dizziness/vertigo)

Other

Recognise and manage common types of headaches.

Diagnose, manage and treat the following:

- Psychiatric issues including acute psychosis, depression, anxiety, insomnia, eating disorders.
- Sexual health issues including sexually transmitted diseases.
- Basic gynaecological issues

Assessment

Part 2 Examination

*Indirectly Mini CEX
and Case based
Discussion*

- Allergic reactions

Treat common dermatological conditions, including but not limited to:

- Paronychia
- HSV - cold sores, scumpox
- Contact dermatitis
- Eczema
- Fungal infections of skin, nails, scalp
- Folliculitis, abscess, etc

Differentiate benign skin lesions, cysts and tumours from more sinister ones, and investigate/refer as appropriate.

Teaching and Learning Methods

It is suggested that during the training program, registrars participate in and/or experience the following:

- Sit in with a general practitioner
- ACSEP Short Learning Modules: Internal Medicine (online) - all modules
- ACSEP Short Learning Modules: Care of Athletes and Teams Modules (online) - all modules

DOMAIN 4.3: CARE OF SPORTS TEAMS

| Suggested Program Focus: One | Assessment |
|---|---|
| <p>Learning Outcomes</p> <p>Describe the structure, participants, rules, common injuries and medical problems for each sport commonly played/participated in, in Australasia, including but not limited to:</p> <ul style="list-style-type: none">• Athletics• Australian Football• Cricket• Cycling• Football (Soccer)• Golf• Gymnastics• Hockey• Kayaking and Canoeing• Netball• Rowing• Rugby League• Rugby Union• Skiing and Snowboarding• Swimming• Tennis• Triathlon• Volleyball <p>Assist in the care of elite Sports Teams representing ten of the sports listed above.</p> <p>Outline the role of the team physician, other professionals who support the team (i.e. coach, sports trainer) and the decision making hierarchy.</p> <p>Ensure the sporting organisation/club understands the team physician's role, time commitment and expected interaction with coaching staff.</p> <p>Review specific medical problems of team members and officials and prepare accordingly.</p> <p>Manage the care of indigenous athletes in the team environment, applying knowledge of the specific health and psychosocial issues for this population.</p> <p>Develop a unique injury profile for an indigenous athlete, with consideration of specific risk factors for Aboriginal and Torres Strait Islander peoples (Australia) and Maori and Pacific peoples (NZ).</p> <p><i>Refer to Fundamental Competencies - Cultural Awareness and Safety.</i></p> <p>Tailor pre-participation examination and medical screening to the applicable sport and position within the team.</p> <p>Perform baseline psychometric testing on all team members, where relevant, to use in the incidence of concussion assessment.</p> | <p>Training Diary / Logbook</p> <p>Team Coverage Requirements</p> <p>Part 2 Examination</p> |

Review previous and current medications, supplements and hydration strategies of all team members, and advise accordingly.

Identify what medical supplies, equipment and facilities are required for appropriate care of the team and ensure it is supplied for the team.

Prepare an appropriate medical kit and pharmaceuticals for travelling with a team. *Refer to Care of Athletes and Teams - Travelling Athletes.*

Understand the physiological requirements and injury profile for the sport.

Prepare a sport specific 'prehabilitation' program, including exercises to improve strength, power, flexibility, and proprioception, to prevent common injuries of the sport.

Provide advice on the structuring of training sessions, to prevent common injuries of the sport.

Be familiar with the different types of injuries that occur more regularly during each stage of the season and advise regarding prevention of injury or manage injuries, as appropriate.

Monitor overall wellbeing of the team members, recognise fatigue and overtraining, and make recommendations accordingly.

Monitor overall mental wellbeing of team and staff members, recognize signs and symptoms of anxiety, depression and other mental health conditions, and manage or refer appropriately.

Educate team members, family and staff with regard to signs and symptoms of mental health issues and the importance of seeking help if they are recognised.

Recognise that injury or significant illness can have psychological ramifications on athletes, and determine if intervention is required.

Liaise with physiotherapist and advise on suitable protective equipment and/or taping and bracing for individual players.

Be familiar with the local allied health professionals that provide support to the team.

Set up support teams of medical consultants experienced in sport related conditions dictated by the likely injuries of the sport.

Develop a policy/plan regarding the management of emergency medical situations at training and during competition/games.

Ensure availability of appropriate transport in cases of medical emergency (eg: ambulance) and develop policy for a staff member to accompany team member/official requiring such transport.

For collision sports, prepare plans for urgent imaging on competition/game day.

Liaise with medical staff at the destination of away competition/games and

establish systems of care and referral.

Develop a protocol for post game/competition injury and illness assessment and advise regarding availability for follow up appointments outside designated team sessions.

Develop a policy/protocol regarding return to sport after a variety of injuries.

Follow up injuries of each team member during the season and ensure appropriate and sensible goals are set with regard to return to sport.

Follow up each player's prescribed injury rehabilitation programs post season, to ensure full recovery of each member of the team by the following season.

Recognise issues associated with conflict of interest and confidentiality in the sports team setting and manage them appropriately. *Refer to Fundamental Competencies - Professionalism.*

Maintain contemporaneous medical records on all team members. *Refer to Fundamental Competencies - Communication.*

Determine whether player contracts give permission to divulge medical details of individual athletes to coaching and other staff, and act accordingly.

Initiate and lead weekly meetings, of appropriate team staff, to review injuries, illnesses and psychosocial issues.

Collate injury data and prepare reports to inform team officials, and develop prevention and preparation strategies for the following season.

Comply with reporting requirements regarding injury or illness data to the national sporting organisation or chief medical officer.

Take a leadership role in educating team members and staff regarding allowed, restricted and prohibited drugs used in sport, and testing protocols, where relevant. *Refer to Sports Pharmacology and Doping and the Athlete.*

Develop a policy and procedure with regard to medical staff being aware of any supplements used and medications prescribed by an external health professional/s.

Collaborate with other health professionals supporting the team to provide education to members of the team and staff i.e. nutrition, injury prevention, recovery etc.

Refer to Fundamental Competencies - Cultural Awareness and Safety.

Infectious Disease

Discuss guidelines/recommendations associated with reducing the risk of transmitting blood borne infectious disease (HIV, Viral Hepatitis) in contact or collision sports.

Develop and adopt policy regarding reducing the risk of infectious disease for a team.

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must complete:

- Completion of Team Coverage Requirements
- Tutorial program - Care of Athletes and Teams, Sport Psychology, Mental Health

It is suggested that during the training program, registrars participate in and/or experience the following:

- ACSEP Short Learning Modules: Care of Athletes and Teams (online) - Doping and the Athlete, The Travelling Athlete and The Tired Athlete
- Devise a strategy to monitor the overall wellbeing of players.
- Prepare an injury prevention strategy for a team.
- Research information regarding the transmission of infectious diseases and review the policy for reducing transmission of infectious diseases of a team you are working with; observe team practices and note the extent the policy is adopted.
- Develop policies on game day nutrition/supplements, hydration, recovery and injury management for a specific sport team.
- Review injury list and data with supervisor.
- Discussions with Fellows regarding their experiences with the care of a team in various sports.

DOMAIN 4.4: CARE OF SPORTS TEAMS

| Suggested Program Focus: One | Assessment |
|---|--|
| <p>Learning Outcomes</p> <p>Prepare registration forms, in conjunction with event co-ordinator, to ensure forms include medical history.</p> <p>Develop agreement concerning medical care and administration responsibilities between the medical team and the organising body.</p> <p>Discuss guidelines for conducting sporting events in hot weather, including risk minimisation strategies.</p> <p>Assess potential environmental conditions, site and event risk factors and make recommendation for change as appropriate. <i>Refer to Fundamentals of Sports Medicine - Physical Activity and the Environment.</i></p> <p>Develop a postponement/cancellation policy for the event based on extreme weather conditions i.e. very high temperatures/humidity, hail, lightning etc.</p> <p>Liaise with event coordinator regarding scheduling of start and finish times for elite through to novice competitors.</p> <p>Ensure the event site plan has:</p> <ul style="list-style-type: none">• Adequate space to accommodate all participants, spectators, medical facilities and emergency vehicles• Medical facilities that are a suitable size• Medical facilities that are positioned appropriately• Clear access for emergency vehicles and room for them to park. <p>Organise floor plans for medical facilities, and the equipment and supply needs for each.</p> <p>Organise medical team before the event (including doctors trained for sporting injuries and medical emergencies, physiotherapists, sports trainers, nurses, spotters), ensure they are fully briefed and ready to fulfill their role on the day.</p> <p>Develop and communicate medical protocols to all appropriate parties, including acute on site care, return to play, and retrieval to medical facilities, where relevant.</p> <p>Liaise with event coordinator regarding logistics including transport, communication and command and control.</p> <p>Liaise with the Australian Sports Anti-Doping Authority (ASADA) to provide appropriate facilities for drug testing, where relevant.</p> <p>Provide pre-race/event medical briefing immediately prior to the start date or time.</p> <p>Plan suitable medical care for the event/race based on the environmental conditions, type of activity, scale of race/event, terrain, intensity of activity</p> | <p>Training Diary / Logbook</p> <p>Event Coverage Requirements</p> <p>Part 2 Examination</p> |

and age and physical condition of participants.

Organise an on-site ambulance and mobile medical vehicles at appropriate locations, where relevant.

Establish procedures for evacuation of a seriously injured or ill athlete, official or member of the crowd including ambulance and helicopter evacuation to a designated hospital.

Notify local medical facility/hospital emergency department of the particulars regarding a forthcoming event/race (e.g. time, number of participants).

Develop an adverse event protocol for death or catastrophic injuries or illness.

Develop and maintain medical event records and injury data.

Follow a modified universal precautions protocol for handling and disposing of bodily fluids and contaminated medical waste and all other OHS principles.

Conduct post event review of medical care plan.

Review and analyse event injury, illness and environmental data and inform relevant parties.

Ensure appropriate provisions are made for the inclusion of para-athletes in an event you are organising coverage for. *Refer to Physical Activity in Specific Populations – Para-Athletes.*

Endurance Events

Reduce the incidence of injury and illness by providing general education/information for participants including pre-race eating and hydration before and during the event, where relevant.

Manage hydration needs for mass participation events and plan the number and positioning of drinks stations.

Liaise with event co-ordinator regarding implementation of a tracking system for injured or ill participants.

Determine the number and type of medical personnel and the appropriate proportion of personnel at the medical facility(s) and first aid stations, where the relevant.

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must complete:

- Completion of event coverage requirements.
- Tutorial program - Care of Athletes and Teams - medical coverage of an endurance event
- Review various policies regarding the cancellation of events (e.g. SMA etc)

It is suggested that during the training program, registrars participate in and/or experience the following:

- ACSEP Short Learning Modules: Care of Athletes and Sports Teams Modules (online) – Rowing, Gymnastics, Rockclimbing and Dance Medicine.
- Coverage of a disabled event.
- Case scenario of an event provided by supervisor – prepare list of medical equipment and supplies needed.
- Review and analyse event injury and data with supervisor (debrief).

DOMAIN 4.5: TRAVELLING ATHLETES

| Suggested Program Focus: One | Assessment |
|--|--|
| <p>Learning Outcomes</p> <p>Understand the structure and function of team support personnel on any given trip.</p> <p>Develop and implement pre-travel medical information sheets for athletes and officials to be completed prior to travel and provide information regarding environmental acclimatisation, nutrition and jet lag.</p> <p>Evaluate pre-travel medical information sheets and prepare appropriate medications, supplies and specialist support (on location or by phone) to manage all possible medical issues related to reported medical conditions.</p> <p>Source information regarding overseas travel to the particular destination and ensure all members of the travelling team have up to date vaccinations, treatment and advice on preventive strategies to reduce risk of illness.</p> <p>Organise an appropriate room at the destination to use, and relevant supplies, for consulting.</p> <p><i>Refer to Injury Assessment, Management and Rehabilitation - Emergency and Acute Trauma in Sport and Exercise Medicine.</i></p> <p>Diagnose, manage and treat the following clinical concerns:</p> <ul style="list-style-type: none">• Traveller’s diarrhoea• Psychiatric issues including acute psychosis, depression, anxiety, insomnia, eating disorders.• Sexual health issues including sexually transmitted diseases.• Basic gynaecological issues• Allergic reactions <p>Determine appropriate strategy for communication with coaches and other team support personnel regarding medical issues with athletes.</p> <p>Source information regarding any endemic illnesses at destination and prepare accordingly.</p> <p>Source information on availability of imaging facilities, other investigations and medical supplies at destination – this will help dictate what supplies to take.</p> <p>Ensure ability to communicate with medical support team back home e.g. sending x-ray images back to hand surgeon.</p> <p><u>Drug Testing and Medications</u></p> <p>Understand the World Anti-Doping Agency (WADA) guidelines for the particular sport. <i>Refer to Care of Athletes and Teams - Doping and the Athlete.</i></p> <p>Review medications and supplements athletes are using prior to travel, and make recommendations for change as appropriate.</p> <p>Request approval from the Therapeutic Goods Authority (TGA) for the</p> | <p>Training Diary / Logbook</p> <p>Sports Team Coverage Requirements</p> <p>Part 2 Examination</p> |

import and export of medications to and from Australia.

Keep an updated inventory of medications, especially when travelling for an extended period of time, to provide to customs officials when necessary.

Prepare a medical bag with medications, supplies and equipment for travel according to :

- Type of sport
- Duration of event
- Location of event

Ensure medical bag contains suitable agents for general medical care of athletes and officials (being mindful of restricted and banned substances for the particular sport).

Investigate regulations regarding quantity and type of medications, which may be imported to a specific destination you are travelling to.

Develop a strategy for athletes to manage specific dietary considerations while travelling.

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must complete:

- Tutorial program - Care of Athletes and Teams - team physician travel issues

It is suggested that during the training program, registrars participate in and/or experience the following:

- ACSEP Short Learning Modules: Care of Athletes and Teams Modules (online) - The Travelling Athlete
- ACSEP Short Learning Modules: Internal Medicine (online) - Immunology and Infectious Disease
- Develop pre-travel medical information sheets
- Case scenarios provided by supervisor - consider the sport, destination (e.g. New Delhi, Central Africa) and preparation required
- Develop nutrition advice information sheets for travelling athletes
- Develop a list of contacts you may consult with by phone/email while you are away

DOMAIN 4.6: DOPING AND THE ATHLETE

Suggested Program Focus: Year Two

Learning Outcomes

Define the following terms:

- Doping
- Prohibited substances
- Permitted substances
- Prohibited Method
- Cut-off level
- Detection window
- Adverse analytical finding
- Anti-Doping rule violations
- Athlete whereabouts requirements

Define 'in' and 'out' of competition and the differences this term can have with a weekly sport (e.g. football) as opposed to a major event (e.g. Olympics or Commonwealth Games).

Know the criteria for a substance or method being placed on the prohibited list.

Recall the current World Anti-Doping Authority Code (WADA), including the categories of the WADA prohibited list.

Explain the implications of the code for athletes and sporting bodies at the various levels of competition.

Explain the possible rationale or motivation for drug misuse.

Outline the prevalence of drugs in sport in general, and in specific sports.

For the following list of drugs describe and discuss:

1. Common examples.
 2. Pharmacokinetics and the physiological effect
 3. Beneficial effect (actual or perceived) on performance and potential adverse effects
 4. The status of the drug (i.e. banned, restricted etc) for various administration methods, where relevant
 5. The status of the drug for specific sports, in and out of competition
 6. Testing method, e.g. urine or blood testing.
- Anabolic agents including but not limited to anabolic-androgenic steroids, testosterone precursors, tetrahydrogestinone (THG), clenbuterol.
 - Hormones and hormone related substances including but not limited to erythropoietin (EPO), EPO-like substances, insulin like growth factors (IGF), human chorionic gonadotrophin, insulin, corticotrophins.
 - Beta-2 agonists (where relevant)
 - Agents with anti-oestrogenic activity
 - Diuretics and other masking agents

Assessment

Sports Team
Coverage
Requirements

Part 2 Examination

- Stimulants including amphetamines, ephedrine, cocaine and modafinil
- Narcotics
- Cannabinoids
- Glucocorticosteroids
- Alcohol
- Caffeine
- Beta Blockers
- Local Anaesthetics

Explain the cut off level and detection window for relevant drugs, i.e. pseudoephedrine.

Caution athletes on the possibility of supplements and sports foods being contaminated with prohibited substances.

Apply the recommendations of the ACSEP's position statement – Sports Supplements.

Discuss the AIS supplements framework and classification system which ranks sports foods and supplement ingredients into groups based on scientific evidence.

Educate athletes on how to reduce the risk of exposure to contaminated products including but not limited to: identifying suspect products; not purchasing supplements over the internet; using single substances and the importance of an Australian Therapeutic Goods Administration (TGA) number.

Develop a system to regularly check the supplements an athlete is taking to ensure the product does not contain any prohibited substances.

Generally describe the methods outline below, give examples where relevant, and discuss the tests available that detect athletes' use of such methods:

- Enhancement of oxygen transfer
- Chemical manipulation including masking agents
- Physical manipulation including catheterisation and substitution
- Gene doping
- Platelet rich plasma and stem cell therapy, where relevant

Discuss the different sources whereby a doctor and athlete can check and confirm the status of substances and methods and when they are prohibited.

Understand testosterone:epi-testosterone (TE) ratios, the implications of a high ratio and generally how this may be investigated, including the use of isotopic radio mass spectrometry.

Determine when a high ratio is due to a doping offense or when it may be due to other causes.

Discuss the need for gender verification and the pathophysiology of masculinising gender disorders.

Discuss the efficacy and significance of different testing samples e.g. urine, blood and hair.

Generally describe the sanctions for an athlete found positive for doping or using a prohibited method, and appreciate how these sanctions may change with review of the WADA code.

Comprehensively describe drug testing procedures, process protocols from when an athlete is notified that they will be tested, through to the sample being sent to an accredited laboratory for analysis.

Understand:

- Who may be tested - national and international selection criteria
- Which category of sports are likely to be subject to urine and/or blood tests
- Sample collection procedures - selection, notification, sanctions for non-compliance and the role of chaperones.
- Athletes rights and responsibilities

Participate in the drug testing process as an athlete representative.

Outline the drugs an athlete needs to notify the testing team of, at the time of testing.

Determine if a therapeutic use exemption (TUE) is required for a given athlete (based on the type of substance, when a substance is prohibited and the level of competition).

Complete and submit an accurate TUE application form for an athlete, according to the required criteria, and liaise with the drug medical advisory committee (ASADA) as required.

Describe emergency situations that may require a TUE, including intravenous rehydration.

Follow up on discharges summaries after an athlete in your care has been admitted to hospital, to check medications given and the possible need to submit a retrospective TUE.

Explain how drug testing results are managed and the procedure for athlete notification.

Describe role of ASADA and the anti-doping rule violation panel (ADRVP) in Australia.

Recognise an athlete who is using illegal drugs (illicit or performance enhancing) and work with a multidisciplinary team, including a psychologist, to manage the care of the athlete.

Appreciate the specific doping considerations for the Para-athlete. *Refer to Special Populations- Para-athletes.*

Medico-legal Aspects - *refer to Fundamental Competencies - Professionalism.*

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must complete:

- Tutorial program - Care of Athletes and Teams - Doping and the Athlete
- Academic Module - Sports Pharmacology

It is suggested that during the training program, registrars participate in and/or experience the following:

- ACSEP Short Learning Modules (online) - Doping and the Athlete
- Be an athlete representative during drug testing
- Prepare and present a lecture on Drugs in Sport
- Completion of Sports Team Coverage Requirements
- Case study - relevant cases in the media
- Case scenario - you find out that a colleague is assisting their athletes with the use of banned substances.
- Discussion with supervisor - does the use of natural products to assist performance, e.g. amino acids, creatine, colostrum, NaHCO₃, lead to a culture of doping.
- Online learning modules on ASADA website www.asada.gov.au
- Self-directed learning - review the resource list for this topic

DOMAIN 4.7: SPORT PSYCHOLOGY

| Suggested Program Focus: Year Two | Assessment |
|---|---|
| <p>Learning Outcomes</p> <p><u>Overtraining and Burnout</u> Recognise the states of staleness, overtraining and burnout and appreciate the role of psychosocial factors in the tired or poorly performing athlete.</p> <p>Describe the physical and psychological characteristics of overtraining and strategies that may be used to potentially predict overtraining syndrome, e.g. salivary IGAs, self-monitoring.</p> <p>Know of tools that may be used to assess psychological states, e.g. Profile of Mood States (POMS).</p> <p>Assess a training program and suggest modifications and psychological strategies to alleviate symptoms of overtraining.</p> <p>Ensure support from coaches and management regarding encouraging adequate recovery for optimal performance.</p> <p><u>Psychology of Injury</u> Discuss how athletes might respond psychologically to an injury in the short and long term.</p> <p>Describe psychological interventions that may be used during the rehabilitation process.</p> <p>Explain the psychological perspective on chronic pain.</p> <p><i>Also refer to Injury Assessment, Management and Rehabilitation - Exercise Prescription for Rehabilitation</i></p> <p><u>Career Termination/Retirement</u> Outline the various causes of and reactions to of career termination.</p> <p>Recognise that the transition to retirement may be particularly difficult for an athlete, especially if they have a strong identity with their chosen sport, and refer the athlete to a psychologist.</p> <p>Recognise that a balance in the lives of athletes (outside interests, education) and interventions while participating in sport is important to help athletes through the transition process after withdrawal or retirement from sport.</p> <p><u>Exercise Psychology</u> Describe the psychological benefits of regular exercise.</p> <p>Discuss the use of aerobic exercise in the prevention and treatment of psychopathology.</p> <p><i>Exercise Adherence - refer to Internal Medicine - Exercise Prescription for Health</i></p> | <p>Part 2 Examination</p> <p>Team Coverage Requirements</p> |

Mental Training for Performance

Goal Setting

Outline the benefits and principles of effective goal setting.

Develop a goal setting program for performance or rehabilitation, adhering to principles of effective goal setting and including short, medium and long term goals.

Regulating Stress, Anxiety and Arousal

Explain the relationship between arousal level and motor performance, including how optimal arousal level may change for different sports.

Describe strategies used for anxiety, arousal regulation and stress management (relaxation and energising techniques).

Mental Imagery

Discuss how mental imagery may be used to improve performance.

Outline the principles for mental imagery practice.

Cognitive Techniques

Describe how and when self talk may be used to increase confidence and improve concentration.

Discuss strategies used to control negative thoughts and emotions.

Motivation

Compare the different types of motivation, including intrinsic, extrinsic and achievement motivation.

Outline the use of techniques for enhancing motivation (including goal setting, music and self talk).

Explain the concept of group dynamics and how it may apply to a newly formed team.

Recognise when team cohesion is less than optimal, and suggest strategies that contribute to increasing and maintaining team cohesion.

Assessment and Treatment

Refer to Internal Medicine as it relates to Physical Activity - Mental Health

Use relevant mental health assessment tools to conduct mental health screening, including but not limited to K10, GAD7 and PHQ-9.

Refer to and liaise with PSYCHIATRISTS/psychologists and other health professionals to treat an athlete with mental health issues or a mental health disorder.

Liaise with a multidisciplinary team, including psychologists, dieticians and expert physicians to treat an athlete suffering from an eating disorder.

Provide patient information and outline community programs which may assist athletes and their families gain a better understanding of mental illness and support if they need help.

Teaching and Learning Methods

To achieve the learning outcomes of this module, registrars must complete:

- Academic Module - Sports Psychology
- Tutorial program - Care of Athletes and Teams - Sport Psychology (sports performance, mental health and general sports psychology)

It is suggested that during the training program, registrars participate in and/or experience the following:

- ACSEP Short Learning Modules: Care of Athletes and Teams (online) - The Travelling Athlete and The Tired Athlete
- ACSEP Short Learning Modules: Internal Medicine (online) - Mental Health
- Working with a sports team - discussions with sports psychologists and what strategies are used with individual players and the team as a whole.
- Develop a personal goal setting program, which adheres to the principles of goal setting.
- Consider how patients may incorporate cognitive strategies to enhance performance or overcome barriers.
- Observe presentations made by a team sport psychologist.
- Incorporate the principles of exercise adherence when prescribing a new exercise program.
- Self-directed learning - review the resource list for this topic.

ACSEP Tutorial Program 2017

Two Year tutorial program

The tutorial program includes 88 tutorial topics over the two years, or 44 tutorials to be provided for Registrars each year.

Format

- Tutorial sessions are of four hours duration. Ideally, a formal lecture/tutorial should be provided on the nominated subject for the first 90-120 minutes of each session, followed by discussion. Organisers may wish to invite a speaker from another medical specialty or allied health area to present.
- An ACSEP Fellow must facilitate every session. The Fellow should address the practical application of the material provided, to the practice of a sport and exercise medicine physician.
- The session could also include registrar driven case presentations (Case Based Discussion assessments could be presented to the group of Registrars), presentation of journal articles etc.

YEAR ONE

| Session | Detail | Selected outcomes from the following sections of the curriculum: |
|---|--|---|
| <p><i>Assessment of Sports Related Injuries</i></p> <p><i>Sessions 1-11</i></p> | <p>The first eleven sessions will be combined sessions of clinical examination and common acute and chronic conditions relating to the anatomical areas below:</p> <ol style="list-style-type: none"> 1. Shoulder 2. Elbow, Upper Arm and Forearm 3. Wrist and Hand 4. Cervical and Thoracic Spine, Thoracic region 5. Lumbar Spine and Sacroiliac Joint 6. Pelvis and Hip 7. Groin and Thigh 8. Knee 9. Ankle and Foot 10. Lower Leg and Injection Techniques 11. Head Injury and Concussion | <p>Section 1 Sport and Exercise Medicine Foundations 1.2 - Injury Assessment, Management and Rehabilitation 1.2.1 - Trauma (for head injury and concussion) 1.2.2 - Assessment and Management of Sport Related Injuries 1.3 - Internal Medicine as it relates to Physical Activity 1.3.7 - Neurology (for head injury and concussion)</p> <p>Section 2 Clinical Decision Making</p> <p>Section 4 Care of Athletes and Teams 4.1 - Emergency and Acute Trauma in Sports Medicine (for head injury and concussion)</p> |

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| <p><i>Diagnostic Techniques and Interpretations</i></p> <p><i>Sessions 12-20</i></p> | <p>Using all modalities, a total of six sessions on the following:</p> <ul style="list-style-type: none"> • Upper Limb • Lower Limb • Head and Spine <p>One session on each of the following:</p> <ul style="list-style-type: none"> • Diagnostic and Interventional Ultrasonography - principles, applications and common appearances • MRI - principles, common applications/practical session • Nuclear Medicine - physiology, indications and common appearances | <p>Section 1 Sport and Exercise Medicine Foundations 1.2 - Injury Assessment, Management and Rehabilitation 1.2.3 - Diagnostic Techniques and Investigations</p> <p>Section 2 Clinical Decision Making (select and interpret investigations for various pathologies)</p> |
| <p><i>Nutrition for Exercise and Sports</i></p> <p><i>Sessions 21-22</i></p> | <p>A total of two sessions on the following:</p> <ul style="list-style-type: none"> • Training, competition and recovery diets, hydration • Eating disorders and disordered eating • Supplements, ergogenic aids and assessment of body composition | <p>Section 1 Sport and Exercise Medicine Foundations 1.3 - Internal Medicine as it relates to Physical Activity 1.3.15 - Nutrition for Exercise and Sport 1.3.13 - Exercise Prescription for Health (Physical Fitness Profile)</p> |
| <p><i>Applied Physiotherapy and Other Therapies</i></p> <p><i>Sessions 23-29</i></p> | <p>One session on each of the following:</p> <ul style="list-style-type: none"> • Rehabilitation of the Shoulder and Upper Limb • Rehabilitation of the Spine • Hip, Groin and Lower Limb • Manual Therapy techniques, including muscle energy techniques, and Postural muscles: physiology, location, approaches to rehabilitation • Other Therapies: Osteopathy, Chiropractic, Pilates etc. Podiatry • Assessment of gait and lower limb biomechanics relating to injury • Orthotic prescription and production, footwear | <p>Section 1 Sport and Exercise Medicine Foundations 1.2 - Injury Assessment, Management and Rehabilitation 1.2.2 - Assessment and Management of Sport Related Injuries (refer to injury lists) 1.2.4 - Applied Physiotherapy and Other Therapies</p> <p><i>Podiatry (appropriate outcomes from):</i> 1.1 - Injury and Illness Prevention 1.1.4 - Biomechanics and 1.1.5 - Supportive Techniques and Protective Equipment</p> |

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| <p><i>Sports Specific Biomechanics</i></p> <p><i>Sessions 30-40</i></p> | <p>Sports specific biomechanics, technique and common injuries - one session on each of the following:</p> <ul style="list-style-type: none"> • Throwing and overhead sports e.g. baseball, volleyball, tennis • Swimming • Running, jumping sports • Cricket with an emphasis on bowling • Rowing, Kayaking, Canoeing • Athletics, particularly field sports like pole vault, long jump, high jump, discus, hammer throw etc • Ballet • Winter Sports including skiing and snowboarding • Cycling • Gymnastics • Golf | <p>Section 1 Sport and Exercise Medicine Foundations</p> <p>1.2 - Injury and Illness Prevention 1.1.4 - Biomechanics</p> |
| <p><i>Care of Athletes and Teams</i></p> <p><i>Sessions 41-44</i></p> | <p>One session on each of the following:</p> <ul style="list-style-type: none"> • The Team Physician - travel Issues, the doctor's bag • Medical Coverage of an Endurance Event • Doping and the Athlete - WADA banned list, testing procedures and sanctions, classes of drugs and techniques of doping • Sport Psychology | <p>Section 4 Care of Athletes and Teams</p> <p>4.2 General Medicine for Care of Athletes</p> <p>4.3 - Care of Teams</p> <p>4.4 - Events</p> <p>4.5 - The Travelling Athlete</p> <p>4.6 - Doping and the Athlete</p> <p>4.7 - Sport Psychology</p> |

YEAR TWO

| Session | Detail | Selected outcomes from the following sections of the curriculum: |
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| <p><i>Assessment of Sports Related Injuries</i></p> <p><i>Sessions 1-10</i></p> | <p>The first ten sessions will relate to the clinical examination of the anatomical areas below:</p> <ol style="list-style-type: none"> 1. Shoulder 2. Elbow, Upper Arm and Forearm 3. Wrist and Hand 4. Cervical and Thoracic Spine, Thoracic region 5. Lumbar Spine and Sacroiliac Joint 6. Pelvis and Hip 7. Groin and Thigh 8. Knee 9. Lower Leg and Ankle 10. Foot | <p>Section 1 Sport and Exercise Medicine Foundations 1.2 - Injury Assessment, Management and Rehabilitation 1.2.2 - Assessment and Management of Sport Related Injuries</p> <p>Section 2 Clinical Decision Making</p> |
| <p><i>Internal Medicine as it Relates to Physical Activity</i></p> <p><i>Sessions 11-26</i></p> | <ul style="list-style-type: none"> • Cardiovascular Medicine (2 sessions) • Respiratory (1 session) • Rheumatology (3 sessions) • Endocrinology (2 sessions) • Neurology (1 session) • Haematology including other causes of the tired athlete (1 session) • Immunology, Infections and Allergic Diseases and Gastrointestinal Medicine (1 session) • Dermatology and Ear, Nose, Throat and Dental Problems (1 session) • Mental Health (1 session) • Exercise in the Management and Prevention of Disease/Exercise Prescription for Health (2 sessions) • Sports Pharmacology and Pain Management (1 session) | <p>Section 1 Sport and Exercise Medicine Foundations 1.3 - Internal Medicine as it relates to Physical Activity 1.3.1 - 1.3.11 All subject areas 1.3.12 - Mental Health 1.3.13 - Exercise Prescription for Health (appropriate outcomes relating to exercise in the management and prevention of disease and also for cardiovascular medicine, endocrinology and respiratory). 1.3.14 - Sports Pharmacology</p> |
| <p><i>Environment Related Injury and</i></p> | <p>One session on each of the following:</p> | <p>Section 1 Sport and Exercise Medicine Foundations</p> |

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| <p><i>Illness and the Collapsed Athlete</i></p> <p><i>Sessions 27-28</i></p> | <ul style="list-style-type: none"> • Altitude medicine, Hypothermia, Underwater Medicine • Hyperthermia, Dehydration, Hyponatremia and Collapsed Athlete, Acclimatisation | <p>1.3 - Internal Medicine as it relates to Physical Activity</p> <p>1.3.5 - Renal Medicine</p> <p>1.3.16 - Environment Related Injury and Illness</p> |
| <p><i>Physical Activity in Specific Populations</i></p> <p><i>Sessions 29-35</i></p> | <ul style="list-style-type: none"> • The Female Athlete - including menstrual cycle, female athlete triad, contraception etc (1 session) • Exercise and Pregnancy (1 session) • Older People (1 session) • Children (3 sessions) • Athletes with a Disability (1 sessions) | <p>Section 1</p> <p>Sport and Exercise Medicine Foundations</p> <p>1.4 - Physical Activity in Specific Populations</p> <p>1.4.1 - Female Athletes</p> <p>1.4.2 - Children</p> <p>1.4.3 - Older People</p> <p>1.4.4 - Athletes with a Disability</p> |
| <p><i>Orthopaedic Surgery</i></p> <p><i>Sessions 36-40</i></p> | <p>One session on each of the following:</p> <ul style="list-style-type: none"> • Updates in knee and foot and ankle surgery • Updates in hip surgery • Updates in shoulder surgery • Updates in spinal surgery and minimally invasive techniques • Bone Tumours and Osteomyelitis | <p>Section 1</p> <p>Sport and Exercise Medicine Foundations</p> <p>1.2 - Injury Assessment, Management and Rehabilitation</p> <p>1.2.5 - Sports Related Orthopaedic Surgery</p> |
| <p><i>Trauma</i></p> <p><i>Sessions 41-42</i></p> | <p>Two sessions on Trauma in Sports Medicine</p> | <p>Section 1</p> <p>Sport and Exercise Medicine Foundations</p> <p>1.2 - Injury Assessment, Management and Rehabilitation</p> <p>1.2.1 - Trauma</p> <p>Section 4</p> <p>Care of Athletes and Teams</p> <p>4.1 - Emergency and Acute Trauma in Sports Medicine</p> |
| <p><i>Fundamental Competencies</i></p> <p><i>Session 43-44</i></p> | <p>One session on:</p> <ul style="list-style-type: none"> • Ethics and Medicolegal aspects • Select from Communication, Collaboration, Leadership and Management or Cultural Awareness and Safety | <p>Section 3</p> <p>Fundamental Competencies</p> |