

SPC DIPLOMA OBJECTIVES AND REFERENCES

Diploma Program Objectives

Upon completion of the Diploma in Sport Physiotherapy, the physiotherapist will be able to:

1. *Understand the role, responsibilities and accountabilities required to work in key leadership positions in sport in Canada.*
2. *Manage the complete therapy needs of an athlete or athletic team in their daily training environment, at home & away, over the course of an entire season (training & competition cycle).*
3. *Assess, determine a differential diagnosis and provide immediate care for acute athletic injuries to guide return to play decision making in a time limited capacity.*
4. *Demonstrate the ability to tape, wrap, brace and/or pad injuries for all body parts in a proficient and timely manner, as well as alter basic taping & wrapping techniques to support athlete needs, as appropriate.*
5. *Demonstrate advanced clinical reasoning skills in the comprehensive management of injuries within a sport framework.*
6. *Be able to understand, select and apply appropriate conditioning and exercise physiology principles to meet training goals and adapt rehabilitation plans while overcoming injury to ensure safe return to training & competition.*
7. *Be familiar with basic sport nutrition concepts and principles to facilitate optimal athlete health, performance & recovery while recognizing the need for referral and collaboration, as appropriate.*
8. *Be familiar with key components of the Canadian Anti Doping Program, including the True Sport Clean module and Global Drug Reference Online (DRO) resources, to foster the integrity of clean sport.*
9. *Understand the difference between sport psychology & mental performance training and the relationship between psychological factors, athletic performance and recovery from injury, recognizing the need for referral, when appropriate.*
10. *Identify strengths and weaknesses of the Long-Term Athlete Development Model, and be able to recognize key components of each stage and their implications on athletes in that stage.*
11. *Understand the biomechanics of a variety of sports and fundamental movement patterns, while effectively evaluating and modifying biomechanical aspects, along with associated risk factors, which may contribute to injury.*
12. *Consider physiological, psychological and environmental factors when managing athletes from across the lifespan and from diverse backgrounds.*
13. *Understand the impact systemic illness & environmental factors have on athlete wellbeing, coordinate care with the Integrated Support Team, and recognize the need for referral, when appropriate.*

Diploma Exam Application Prerequisites

Please refer to the SPC Credential Program Handbook for full details regarding prerequisites for Diploma exam applicants.

References

The following references act as key resources in preparation for Sport Physiotherapy Canada's **Diploma examination** and supplement the **Advanced Core Competency Course** with specific page numbers indicated in the table below, where possible, to facilitate self-directed learning.

Texts:

1. Brukner, P., & Khan, K. (2018). *Brukner & Khan's clinical sports medicine volume 1: Injuries* (5th ed.). McGraw-Hill.
2. Beam, J. W. (2017). *Orthopedic taping, wrapping, bracing, & padding* (3rd ed.). FA Davis.
3. Haff, G. G., & Triplett, N. T. (2016). *Essentials of strength training and conditioning* (4th ed.). Human Kinetics.
4. Magee, D. J., Manske, R. C., Zachazewski, J. E., & Quillen, W. S. (2011). *Athletic and sport issues in musculoskeletal rehabilitation*. Elsevier Saunders.
5. The Professional Responder. (2018). In *Emergency Care for Professional Responders*. The Canadian Red Cross Society.

Scholarly Articles, Position and Consensus Statements:

6. Ljungqvist, A., Jenoure, P., Engebretsen, L., Alonso, J. M., Bahr, R., Clough, A., De Bondt, G., Dvorak, J., Maloley, R., Matheson, G., Meeuwisse, W., Meijboom, E., Mountjoy, M., Pelliccia, A., Schweltnus, M., Sprumont, D. (2009). The International Olympic Committee (IOC) consensus statement on periodic health evaluation of elite athletes. International Olympic Committee.
https://www.triathlon.org/uploads/docs/The_IOC_Consensus_Statement_on_Periodic_Health_Evaluation_of_Elite_Athletes.pdf
7. Dubon, M.E., Abbott, K., Carl, R.L. (2019). Care of the transgender athlete. *Current Sports Medicine Reports*, 17(12), 410-418. https://journals.lww.com/acsm-csmr/FullText/2018/12000/Care_of_the_Transgender_Athlete.4.aspx#pdf-link
8. Canadian Women and Sport. 2022. Leading the way: Working with LGBT athletes and coaches.
<https://womenandsport.ca/resources/publications/leading-the-way/>
9. Samuels, C., H. & Alexander, B., N. (2013). Sleep, recovery, and human performance: A comprehensive strategy for long-term athlete development. Canadian Sport for Life.
<http://sportforlife.ca/wp-content/uploads/2016/11/Sleep-Recovery-Jan2013-EN.pdf>
10. Mountjoy, M., Sundgot-Borgen, J., Burke, L., Carter, S., Constantini, N., Lebrun, C., Meyer, N., Sherman, R., Steffen, K., Budgett, R., Ljungqvist, A. (2014). The IOC consensus statement: Beyond the female athlete triad—Relative Energy Deficiency in Sport (RED-S). *British Journal of Sports Medicine*, 48(7), 491-497. <https://aqmse.org/wp-content/uploads/2014/09/br-j-sports-med-2014-mountjoy-491-7.pdf>
11. Mountjoy, M., Sundgot-Borgen, J.K., Burke, L.M., Ackerman, K.E., Blauwet, C., Constantini, N., Lebrun, C., Lundy, B., Melin, A.K., Meyer, N.L., Sherman, R.T., Tenforde, A.S., Torstveit, M.K., Budgett, R. (2018). IOC consensus statement on relative energy deficiency in sport (RED-S): 2018 update. *British Journal of Sports Medicine*. 52: 687–697. doi:10.1136/bjsports-2018-099193
<https://bjsm.bmj.com/content/bjsports/52/11/687.full.pdf>

12. Maughan, R.J., Burke, L.M., Dvorak, J., Larson-Meyer, D.E., Peeling, P., Phillips, S.M., Rawson, E.S., Walsh, N.P., Garthe, I., Geyer, H., Meeusen, R., van Loon, L.J.C., Shirreffs, S.M., Spriet, L.L., Stuart, M., Verne, A., Currell, K., Ali, V.M., Budgett, R.G.M., Ljungqvist, A., Mountjoy, M., Pitsiladis, Y.P., Soligard, T., Erdener, U., Engebretsen, L. (2018). IOC consensus statement: dietary supplements and the high-performance athlete. *British Journal of Sports Medicine*. 52: 439–455. doi:10.1136/bjsports-2018-099027. <https://bjsm.bmj.com/content/bjsports/52/7/439.full.pdf>
13. Billea, K., Figueiras, D., Schamasch, P., Kappenberger, L., Brenner, J. I., Meijboom F. J., Meijboom, E. J.. (2006). Sudden cardiac death in athletes: the Lausanne recommendations. *European Journal of Cardiovascular Prevention and Rehabilitation*. 13(6): 859-75.
<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.861.7968&rep=rep1&type=pdf>

Other (Online learning modules & courses):

14. Canadian Centre for Ethics in Sport. 2022. True Sport Clean. <https://education.cces.ca/> .
15. Boutin, G., Seguin, C., Renaud, S., Mathieu, P., Renaud, G., Buttle, M., Joaquim, A., Stacey, D., Smoljanic, J., Ng, R., Ferguson, L., CCES. 2022. Advanced Core Competency Course. Sport Physiotherapy Canada. <https://physiotherapy.ca/divisions/sport/corecourses/> .

Other recommended (but not required) resources for the Sport Diploma candidate:

16. McCrory, P., Meeuwisse, W., Dvorak, J., Aubry, M., Bailes, J., Broglio, S., et al. (2018). Consensus statement on concussion in sport—the 5th international conference on concussion in sport held in Berlin, October 2016. *British Journal of Sports Medicine*. 51:838–847. <https://bjsm.bmj.com/content/bjsports/51/11/838.full.pdf>
17. Davis, G.A., et al. (2017). Sport concussion assessment tool- 5th edition. *British Journal of Sports Medicine*, 0, 1–8.
<https://bjsm.bmj.com/content/bjsports/early/2017/04/26/bjsports-2017-097506SCAT5.full.pdf>
18. Concussion in Sport Group. (2017). Child sport concussion assessment tool- 5th edition. *British Journal of Sports Medicine*, 1-9. <http://www.sportphysio.ca/wp-content/uploads/bjsports-2017-097492childscat5.full-2.pdf>

Diploma Curriculum Objectives & References

AREA OF STUDY	REFERENCES (PAGE NUMBERS)
ADVANCED TOPICS IN SPORT PHYSIOTHERAPY	
1. Understand the role and accountabilities required to work with athletes and teams at National & International levels, including: <ol style="list-style-type: none"> a. Identifying and organizing therapy supplies for an athlete or athletic team, for an entire training and competition cycle (or season) at home or away. b. The nuisances of traveling as a Sports Physiotherapist. c. Recognizing injury patterns within a team and/or individual athlete. d. Communicating injury trends to Integrated Support Team (IST) members, and assisting with adaptation of programming, as needed. 	15 1(p1017-1024)

<ul style="list-style-type: none"> e. Screening the elite athlete and performing periodic medical assessments (PMA). 2. Understand the role, accountabilities and qualifications required to act as: <ul style="list-style-type: none"> a. Chief Therapist leading Integrated Support Teams and Canadian Health Services Teams (HST). b. Site Coordinator for International Sporting Events and Multi Sport Games hosted in Canada. 3. Understand when & how to use the title Registered International Sports Physical Therapist (RISPT). 	<p>1(p1003-1015), 6</p>
<p>EMERGENCY CARE II</p>	
<ul style="list-style-type: none"> 1. Perform an effective emergency scene assessment before & during an athletic event, as required. 2. Perform a safe and effective primary and secondary evaluation of acute athletic injuries and medical emergencies, as indicated. 3. Be familiar with the management of life threatening conditions encountered in sport. 4. Demonstrate a structured approach to sideline initial appraisal and physical examination of musculoskeletal injuries. 5. Determine a logical differential diagnosis based on the collection of pertinent subjective information. 6. Establish a reasonable clinical impression based on subjective & objective evaluation. 7. Be familiar with and effectively apply clinical prediction rules commonly used in the management of musculoskeletal injuries, including Canadian Cspine, Ottawa Knee, Foot & Ankle rules. 8. Be familiar with and be able to apply the STARRT principle to guide return to sport decision making. 9. Formulate a safe return to sport decision in the acute sideline setting in a time efficient manner. 	<p>5, 15</p>
<p>SPORT ORTHOPEDICS & CLINICAL REASONING</p>	
<ul style="list-style-type: none"> 1. Examine and apply advanced clinical reasoning concepts. 2. Consider research methodologies and application of critical appraisal skills towards the literature for use in evidence-based decision making. 3. Consider research methodologies and application of critical appraisal skills towards the literature for use in evidence-based decision making. 4. Consolidate and optimize the collection of subjective information in a sport-specific context. 5. Blend evidence and experience to formulate a comprehensive and holistic list of differential diagnoses. 6. Consolidate and optimize the collection of objective information in a sport-specific context. 7. Develop a comprehensive and multi-modal plan of care that prioritizes athlete recovery and performance optimization along the continuum of care. 8. Establish an evidence-informed and context specific prognosis for sport related injuries and coordinate with members of the Integrated Support Team (IST), as needed. 9. Integrate theory and evidence to successfully navigate case studies, adapting the plan of care to various sport-specific contexts, as indicated. 	<p>15</p>

ADVANCED TAPING, WRAPPING & STRAPPING

1. Demonstrate foundational knowledge of anatomy, biomechanics, and mechanism of injury as relevant to taping techniques.
2. Use essential theoretical knowledge in clinical and field settings to make principle-directed and appropriate taping decisions to facilitate optimal athlete performance.
3. Understand the sport specific needs of the participant and the rules and regulations for taping and bracing in specific sports.
4. Demonstrate the ability to confidently tape, strap, brace or pad any of the following athletic injuries proficiently and in a timely manner:
 - a. Foot/toes: hallux valgus, turf toe, plantar fascia pain (various techniques dependent on sport/condition), navicular drop, Morton neuroma, metatarsalgia
 - b. Ankle: acute, subacute or chronic medial or lateral ankle sprain, achilles tendinopathy
 - c. Shin/Calf: shin splints (various techniques), calf strain
 - d. Knee: anterior cruciate, posterior cruciate, medial collateral & lateral collateral ligament sprains/laxity, patellar tendinopathy/tendon pain, patellar maltracking/dislocation
 - e. Thigh: contusion, strain
 - f. Groin: adductor and/or hip flexor strain
 - g. Hip: hip pointer
 - h. Shoulder: Glenohumeral joint (GHJ) laxity/hypermobility, acromioclavicular joint (ACJ) sprain (various techniques), fractured clavicle
 - i. Elbow: lateral elbow pain, hyperextension
 - j. Wrist: hyperextension, hyperflexion, triangular fibrocartilage complex (TFCC) pain/dysfunction
 - k. Hand/fingers/thumb: fractured finger, ulnar collateral ligament sprain- specifically thumb hyperabduction and/or hyperextension (variations dependent on sport/position)
5. Demonstrate the ability to confidently and effectively immobilize common athletic injuries using triangular bandages/slings (e.g. simple or tubular) or tensor bandages, such as:
 - a. ACJ sprain
 - b. Fractured clavicle
 - c. Humeral fracture
 - d. GHJ dislocation
 - e. Other upper and lower extremity injuries
6. Perform appropriate functional testing post tape application to reflect safe return to sport guidelines.
7. Alter basic taping techniques to support the needs of high level athletes in various sports.

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APPLIED EXERCISE SCIENCE

1. Understand the principles of energy transfer in the human body and how the three energy systems are involved in exercise.
2. Understand the many demands of exercise and sport; how to identify, measure and analyze.
3. Understand the effect of event duration and intensity on the primary energy

3(p44-62)

3(p54, 89, Tables

<p>system used in various sports.</p> <ol style="list-style-type: none"> 4. Understand the use of interval training to train specific energy systems. Understand the importance of Periodization in sport for optimizing performance and recovery. 5. Be familiar with the periodization cycles, phases and transitions and programming in terms of intensity and volume. 6. Understand the importance of resistance training in sport/rehab and the proper way to develop muscular endurance, hypertrophy, strength, power and flexibility programs. 7. Be familiar with the physiological adaptations to resistance training. 8. Be able to determine exercises and resistance training frequency based on sport specificity, technique experience, training status, sport season and training objectives. 9. Understand the principles of plyometric training and its application in a training program for various populations/sports. 10. Be able to analyze, train, monitor and progress speed and agility aptitudes. 11. Understand the importance of cardiorespiratory training in sport/rehab and the proper way to develop anaerobic and aerobic programs. 12. Be familiar with the acute responses of the cardiovascular and respiratory systems to aerobic exercise. 13. Be able monitor the athlete's cardiovascular capacity through understanding Vo2max, heart rate reserve and maximum heart rate and perform target heart rate calculations. 14. Differentiate between aerobic training adaptations and the anatomical, physiological, and performance adaptations following anaerobic training. 15. Be familiar with the impact of chronic aerobic endurance training on the physiological adaptation to aerobic endurance training. 16. Be able to determine endurance training frequency based on training status, sport season and recovery requirements. 17. Understand the art and science of recovery from exercise/training. 18. Be able to identify the markers of aerobic overtraining. 19. Understand the influence of environmental factors on exercise, training and performance including: <ol style="list-style-type: none"> a. Exercise in the heat. b. Exercise in extreme cold and altitude. c. Training in pollution. 20. Understand populations which require special considerations as it pertains to exercise, training, and performance including: <ol style="list-style-type: none"> a. Youth athletes; b. Masters athletes; c. Female athletes; d. LGBTQ+ athletes; e. Para athletes; f. Military, Tactical and Police Personnel 	<p>3,2, 5.1) 3(p60, Table 3.6)</p> <p>3(p584-595, Table 21.1 and 21.2) 3(p443, 452, 457-468)</p> <p>3(p90, table 5.2) 3(p440-468)</p> <p>3(472-520) 3(522-547, Tables 9.2, 19.4-19.6) 3(p90, table 5.2)</p> <p>3(p116-132)</p> <p>3(p563-564)</p> <p>3(p88-111)</p> <p>3(p116-132, p121, Table 6.1) 3(p129-132, 131 Table) 3(p560-573)</p> <p>4(p98-109) 4(p109-122) 4(p123-132)</p> <p>1(p974-989), 4(p40-56) 4(p704-723) 4(p631-646) 7, 8 4(p681-702) 1(p991-1001)</p>
<p>ATHLETE MENTAL WELLNESS & PERFORMANCE</p>	
<ol style="list-style-type: none"> 1. Define mental performance training. 2. List and describe basic mental performance skills that athletes can apply in various sport settings (training, practice, competition, rehabilitation). 3. Identify and describe the psychological challenges associated with athletic injury. 	<p>15</p>

<ol style="list-style-type: none"> 4. Identify the benefits of applying mental performance skills to utilize during injury recovery. 5. Recognize the differences between mental performance training and clinical/counseling (and licensed!) sport psychology. 6. Identify the need for referral to mental performance consultants, sport psychologists, or other health professionals. 7. Support the application of specific mental performance skills for athletes in and out of a rehabilitation setting to facilitate optimal wellness. 	
<h2>SPORT BIOMECHANICS</h2>	
<ol style="list-style-type: none"> 1. Understand running biomechanics including abnormalities commonly observed in running. 2. Identify faulty biomechanics during the running cycle with an effective means to evaluate and correct it, as needed. 3. Understand the correlation between injury, associated risk factors and running retraining considerations 4. Understand the biomechanics of throwing in baseball as they relate to: <ol style="list-style-type: none"> a. The 4 phases of throwing. b. Injuries resulting from scapular function alteration. c. Common biomechanical abnormalities specific to pitching. 2. Understand the biomechanics of swimming and those which specifically relate to the phases of the freestyle swimming stroke. 3. Identify common technical errors in specific swimming strokes that predisposes to injury. 4. Understand the biomechanics of cycling and its associated injuries. 5. Understand the biomechanics of golfing and its associated injuries. 6. Understand the biomechanics of rowing and its associated injuries. 7. Understand the biomechanics of tennis and its associated injuries. 8. Understand the biomechanics of common weight training exercises. 9. Understand the dance or performing arts athlete and their associated injuries. 	<p>4(p307-327)</p> <p>1(p90-95)</p> <p>1(p101, table 8.2)</p> <p>1(p107, 109, table 8.5 & 8.6) 4(p350-382) 1(p114-119, Table 8.9) 1(p120) 4(p331-348)</p> <p>1(p133-136)</p> <p>1(p135, Table 9.2) 1(p121-124) 1(p128-130) 1(p130-133) 1(p136-137) 4(p385-417); 3(p352-407) 4(p651-674)</p>
<h2>PERFORMANCE NUTRITION & REHABILITATION</h2>	
<ol style="list-style-type: none"> 1. Be familiar with basic sport nutrition concepts & principles to facilitate optimal athlete health, performance & recovery, including: <ol style="list-style-type: none"> a. The kinds, sources and roles of carbohydrates, protein and lipids and their recommended intake. b. The function and source of vitamins and minerals. c. Appropriate fluid and electrolyte intake at rest, pre-competition, during and post-competition. d. Nutrition that favors performance & recovery for aerobic endurance, strength, hypertrophy and muscular endurance activities. e. Nutrition strategies that favor weight gain and weight loss. f. The effects of a low-carbohydrate diet. 	<p>3(p175-224), 4 (p58-96), 15 3(p181-190, Macro Table) 3(p191, Tables 9.8 & 9.9) 3(p196-199), 1(197) 3(p215-216), 1(197-199) 3(p217-218)</p>

<p>g. Factors which contribute to hyponatremia.</p> <ol style="list-style-type: none"> 2. Effectively communicate & navigate expectations [regarding athlete nutrition] to team stakeholders. 3. Enhance PT-RD collaboration & recognize the need for referral, when appropriate. 4. Deconstruct the role of nutrition on injury prevention & return to play. 5. Be familiar with concepts and evidence relating to Relative Energy Deficiency in Sport (RED-S) leading to impaired physiological function of various human systems. 6. Recognize the role of the physiotherapist in managing RED-S and the need for referral, when appropriate. 7. Navigate nutritional supplements to diminish risk of liability and expedite recovery time. 8. Translate theoretical knowledge and research into applied [nutrition] practices. 9. Be familiar with various eating disorder signs and symptoms and recognize when to refer appropriately. 	<p>3(p218) 3(p197-198), 4(p109) 15</p> <p>9, 10, 11</p> <p>9, 10, 11</p> <p>3(p221-224)</p>
<p>CLEAN SPORT</p>	
<ol style="list-style-type: none"> 1. Have improved understanding of what Clean Sport means. 2. Be informed regarding the World Anti Doping Agency's Prohibited List. 3. Understand the risks associated with supplements. 4. Understand more about appearance altering and performance enhancing drugs (AAPEDs). 5. Be familiar with the doping control process, sample collecting procedures and violations & sanctions under the Canadian Anti-Doping Program. 6. Be familiar with key components of the Global Drug Reference Online (DRO) resources. 	<p>14</p> <p>3(p226-247); 4(p 141-166, 174-185), 12 14 14</p>
<p>MANAGEMENT OF MEDICAL PROBLEMS</p>	
<ol style="list-style-type: none"> 1. Be familiar with and understand sudden cardiac death in sport. 2. Be familiar with cardiovascular symptoms encountered in sport. 3. Be familiar with possible respiratory symptoms encountered during exercise. 4. Be familiar with possible gastrointestinal symptoms encountered during exercise. 5. Be familiar with Diabetes Mellitus as it relates to exercise. 6. Be familiar with [skin, blood, gastrointestinal, respiratory-ear-nose, liver, sexual] infections encountered in sport. 7. Understand how to recognize and support the tired athlete. 	<p>13 4(p441-444) 4(p444-445) 4(p445-446) 4(p449) 4(p447-449) 4(p455-476) 9, 10, 11, 4(p450-451), 3(107-110),</p>