DOWNLOAD PDF COMPREHENSIVE SPORTS INJURY MANAGEMENT

Chapter 1 : COMPREHENSIVE ASSESSMENT AND MANAGEMENT OF ATHLETES WITH SPORT CON

Comprehensive Sports Injury Management addresses three influential areas in terms of their effects on day-to-day and long-term injury management: (1) physical issues that the patient will encounter, including injury-specific information such as the nature of the damage, pain, and rehabilitation, in addition to more general physical concerns.

As strong as their bodies are, however, they also can sustain injuries because of the repetitive and stressful motions of their chosen activities. You can stay fit and enjoy your favorite sport or exercise by knowing how to recognize and prevent common sports injuries. Common Athletic and Exercise-Related Injuries Any part of your body can become injured while you are playing sports or working out. For instance, your legs, ankles, and even your toes can be injured while you are running or kicking. Running and kicking invites direct impact to these parts of your body. Whether you are kicking a football or pounding your feet on hard pavement while running, you could suffer from damages like a sprain, strain, or fracture, leaving you unable to compete or work out for weeks or months. Some activities require that you lift heavy objects. Sports like the discus or shot put, for example, put strain on your arms, shoulders, hands, and upper back. Weightlifting and wrestling can likewise damage your elbows, shoulders, and lower back because of the resistance and duration required for these athletic activities. When you want to continue your favorite exercises and sports but want to minimize the negative impact they can have on your body, it is important that you know what steps to take to prevent such common injuries. The precautions you take before working out or competing could save you from pain and suffering that could last for weeks, months, or even years. Preventing and Healing from Sports Injuries The old adage of an ounce of prevention being worth a pound of cure definitely applies when you exercise or play sports. By preventing sports injuries now, you save yourself the time and distress of healing from them. Before you engage in your favorite sports or exercises, you should first stretch out to make sure you are limber and warmed up properly. When your body is flexible and ready to go, you prevent damages like strains and sprains to your joints, ligaments, and tendons. You may be encouraged to stretch and warm up a half hour or sooner before playing. You should wear proper gear when playing your favorite sports. Wearing a helmet while playing football or batting during a baseball game can prevent sports injuries that come from a direct blow to your head. Supportive athletic shoes, gloves, shin guards, and other gear also have a role in keeping your body safe from injuries that could take you out of play for the rest of the season. If you do suffer from a sports injury, however, it is imperative that you have it professionally diagnosed and treated so that you can heal from it faster. Medical professionals who can diagnose, treat, and monitor your healing can address issues like pain and limited mobility, helping you get back on the court, field, or track quicker. Playing your favorite sports should be fun and worry-free. When you suffer a sports-related injury, however, your enjoyment may be cut short, forcing you to sit on the sidelines for weeks or longer. Only needs to be added once unless you change your username.

Chapter 2 : Sports Injuries - Comprehensive Pain Management Center

Recognizing and Preventing Athletic Damages to Your Body. Athletes are some of the fittest individuals in the world. As strong as their bodies are, however, they also can sustain injuries because of the repetitive and stressful motions of their chosen activities.

Issues relating to dancers, S75â€”S78, Copyright , with permission from Elsevier. In another study, these researchers determined that ballet dancers who are taught general psychological coping skills experienced fewer injuries and less time injured. Women portray a tougher personality than their male colleagues in the face of the demands of a professional dance career, along with generally having fewer negative psychological traits. Technical intricacies required for success in particular dance genres may predispose dancers to injury. That is, aesthetic demands that are part of any given style of dance are typically not alterable. But, many dancers force this position beyond their normal limits, a practice that may result in conditions such as foot pronation, 35 low back pain associated with anterior pelvic tilt, , and pain and injury in joints of the lower extremity. However, poor teaching may be a difficult factor for health care providers to assuage unless they have both a dance background and unusually good access to the teachers of dancers under their care or in their community. Injury prevention factors in dance Physical training As previously described in light of a substantial body of research, dancers sustain many injuries. Research about preventive strategies to mitigate the incidence of dance injuries is less voluminous. Malkogeorgos et al offer five main areas of attention for preventing dance injuries: Of these, training is the most expansive area, and one that perhaps holds the most promise for success in reducing the incidence of dance injuries. Participation in dance is not sufficiently intense across long durations to substantially improve aerobic capacity, 31 , , and low cardiorespiratory endurance has been associated with dance injuries. Further, they noted that ballet classes offered less time for physical activity than did jazz and tap classes. Overall, the dance students they studied were moderately to vigorously active for only 10 minutes per hour of dance classes. In a study of modern dancers, Wyon et al 31 found, not surprisingly, that participating in dance performances resulted in significantly higher heart rates and greater mean oxygen uptakes than either dance classes or rehearsals. Activity heart rates in their cohort of dancers were only rarely at a level consistent with that needed for aerobic improvement. An investigation of ballet dancers suggested that inadequate physical training was a primary contributor to dance injuries. Injury incidence for females declined from 4. As one possibility, physical regimens already popular with dancers, such as Pilates, 30 should be encouraged and greater intensity and training volume across a general fitness program are advisable. In elite professional ballet dancers, smaller cross-sectional area of the multifidus muscles have been correlated with lower back pain. Low levels of muscular strength and power also have been suggested as predictive of dance injuries. In support of the need for physical training by dancers, a 6-week program of circuit and vibration training of contemporary dancers led to improvement in lower body muscular power, upper body muscular endurance, aerobic fitness, and aesthetic competence. In a sample of female professional ballet dancers compared to a control group, Koutedakis and Sharp reported significant improvements in quadriceps and hamstring torque output, as well as improvement in thigh muscle fatigability during dance, as a result of 12 weeks of strength training for these muscles. The improvements were particularly noteworthy in dancers who were weaker at the beginning of the study. As the control group dancers did not exhibit strength increases, the authors suggested that dance technical training alone is incapable of eliciting strength gains. Undesirable increases in muscle bulk are a concern for many female dancers because of the importance of anatomical aesthetic contours in dance. However, importantly for females, the increases in thigh strength seen in this study occurred without a concomitant alteration of thigh circumference, a finding the researchers offer as an indicator that the aesthetic characteristics of the lower extremities can be preserved when female ballet dancers participate in weight training. Nutrition and rest Suboptimal nutrition has been associated with injury in dancers. Many dancers may not follow sound research-based nutritional practices; thus, health care practitioners should utilize well-documented advice in encouraging dancers toward a healthy energy and fluid intake. Excellent resources for this purpose include the

joint position statement on nutrition for sports performance developed by the American Dietetic Association, Dietitians of Canada, and the American College of Sports Medicine. Also, dance seasons may not incorporate as much off-season recovery time as most sports seasons do. University dance students especially might be at risk of not receiving necessary rest because of the combination of their dance practice, the requirements of their non-dance academic work, and, often, their need to maintain employment to cover their personal expenses. Ninety percent of the dancers took less than 60 consecutive minutes of rest, and one-third took less than 20 minutes rest during the day. In a 5-year prospective study of both ballet and modern dancers, more injuries tended to occur in the evening, toward the end of the season, and during performances; these all suggest fatigue as a contributing factor. Sprung floors are typically manufactured from wood and are set on a subfloor by means of a framework of dense foam blocks or other resilient material that effectively suspends the wood floor above the hard subfloor. The suspended, or sprung, nature of the floor allows it to disperse some of the forces associated with dance, particularly in jumping and landing. Hopper et al found great variability in force reduction capability amongst different professional ballet venues, concluding that none of the floors met suggested standards for force reduction and that the floor with the greatest intra-surface variability in force reduction was the floor on which the most injuries occurred. The shock absorptive quality of the surface may not be the only floor-related hazard associated with dance injuries, however. Wanke et al attributed In response to these data, optimal maintenance practices are essential to ensuring a surface properly prepared for the type of dance to be performed on the floor and the footwear to be worn or the lack of footwear for some genres. However, this responsibility rests with the dance facility and, therefore, hazardous conditions may be outside the influence of a health care provider unless he or she is employed by the responsible dance company or university. Unshod dancers are especially challenging when foot orthotics are indicated for treatment or prevention of injury. Dance shoes in genres that require them eg, ballet, jazz, tap, flamenco, Irish are minimally force dispersive by nature of their construction. Ballet slippers, jazz shoes, and Irish dance shoes are little more than a layer or two of leather or microfiber material. Flamenco shoes have high heels suggested to be a cause of injuries to the feet and lower back. Pointe shoes in ballet are supportive of the foot, having been shown to provide stiffness with compromise of the midfoot ligaments. Dancing en pointe Dancing en pointe is a specific type of ballet that can give rise to numerous injuries in young dancers if proper care is not exercised in deciding when a dancer is ready to begin pointe training. The dancer stands on one leg while bending over at the waist and extending the other leg backward such that it and the trunk are parallel to the floor. In this position, then, the dancer is facing downward at the floor. The upper extremities are extended outward from the shoulders, also parallel to the floor. The dancer then lowers herself by flexing the knee of the support leg, simultaneously keeping the trunk and nonsupport leg parallel to the floor and bringing the fingertips of both hands downward, while maintaining extended elbows, to touch the floor in front of the face. The dancer then extends the knee and upper extremities to return to the starting position. Four out of five consecutive trials performed with good balance and without valgus or varus motion of the support knee are required to pass the test.

Chapter 3 : Douglass Drozdow-St Christian (Author of Comprehensive Sports Injury Management)

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Find articles by Gregory W. Bell Find articles by Roberta A. Abstract Currently, the popular approach to post-concussion management of the athlete relies upon the use of a multidisciplinary team of healthcare providers, all typically coordinated by a physician. That core team is often supplemented by nurses, psychotherapists, coaches, teachers, the athletic director, and, of course, family members. However, access to such a model is frequently limited by financial, geographical, and numerous other factors. In the absence of such resources, a thorough clinical evaluation and management by an available, ongoing healthcare provider, quite often the sports physical therapist, becomes necessary. Successful specialized interventions that address the multi-faceted impairments of sport related concussion frequently require knowledge of resources in a variety of other healthcare professions, in order to facilitate appropriate and necessary treatment referrals. Many athletes with concussions never make it to the emergency room, but are treated on the sideline and in the clinic. For example, the symptoms occur frequently in day to day life among healthy individuals and persons with other conditions such as chronic pain or depression. For example, the outcome measure s for PCS are often symptom checklists 18 rather than uniform, criterion based diagnoses. Researchers remain inconsistent in their efforts to define the point in time at which initial concussion symptoms become post-concussive syndrome. For purposes of the current concussion management recommendations contained in this clinical commentary, the authors discourage the use of post-concussion syndrome as a diagnosis. Rather, the clinician s should identify and document the unique patterns of persistent post-concussion symptoms defined as the cluster of symptoms persisting beyond the first ten days post-injury exhibited during physical, psychological, and neuropsychological examinations and focus on amelioration of the symptoms. Evidence is evolving toward establishing the efficacy of medical and behavioral interventions for post-concussive symptoms. Concussion management is moving toward an individualized, patient centered approach to assessment and treatment. One of the most critical and controversial questions within the medical community is when an athlete should be allowed to safely return to sport after a concussion. Specific dilemmas in the context of return to play and return to play decision making and resource allocation are also explored. Recognizing that this analysis is restricted, the authors hope to encourage future dialogue regarding comprehensive management of athletes with sport concussion s. Preseason Baseline Testing Baseline concussion testing is often mandated for participation in many sports, including football and hockey, from elementary school to the professional level. Such testing is intended to be brief and to measure selected brain processes such as balance, somatic and neurobehavioral symptoms, attention span, working memory, and reaction time. Typically, the patient is not allowed to return to participation until the score returns to baseline. However, the reliability, validity, and feasibility of baseline testing remain questionable. Bailey and colleagues 31 suggest that athletes may perform below their highest potential during pre-season baseline neuropsychological testing, creating a low threshold for comparison if they are then re-evaluated for return to play, post-concussion. In addition, testing environment, for example, distracted, isolated, or supportive settings, may also affect baseline scores. However, many leagues may not have access to the appropriate resources to conduct baseline testing; hence, concussion management protocols should be employable without baseline data. Schmidt and colleagues 39 have reported on the clinical utility of standardized normative scores when baseline data is unavailable. The brain, head, and neck are the involved body structures in a concussion, and should all be evaluated. The medical team that is first to assess the injured athlete should always remember that the unconscious athlete must be treated as having a possible cervical spine injury. The suspected diagnosis of concussion may include one or more of the five clinical domains, a somatic e. A contemporary approach to sport concussion management is the use of a multi-disciplinary network of medical professionals with skills in assessment and rehabilitation of individuals with head injury, coordinated by a

primary care sports medicine physician. Input from physiatrists, neurologists, neurosurgeons, neuropsychologists, speech-language pathologists and, of course, sports physical therapists should be accessed for specific indications. Research suggests that athletes often report dizziness, reduced balance, headache, and reduced physical activity tolerance following concussion, any of which can interfere with participation in a myriad of activities. Sports physical therapists who manage athletes post-concussion should be competent in assessment and intervention techniques associated with vestibular function, headache management, postural stability, balance, and physical activity, not only to support return to play, but also to facilitate return to life participation. Postural Stability and Balance Assessment Impaired postural control is common among athletes with post-concussion symptoms. One possible etiology of postural dysfunction is disruption of the ability to utilize and process vestibular information. Intervention techniques that may improve postural stability across activities include sensory integration exercises, balance training, oculomotor training, eye-head coordination training, visual motion sensitivity training, neuromuscular control, and body mechanics and posture. Post-Concussion Dizziness More than 23 percent of patients with acute sport concussion present with the complaint of dizziness. Thus, in order to identify appropriate intervention modalities, it is essential to determine the primary cause of dizziness. Physical therapists can assist in differential diagnosis by performing thorough neuromusculoskeletal and vestibular assessments. Activities that can be affected by dizziness include ambulation safety and endurance, academic performance, ability to socialize, work tolerance, and sport participation. Vestibulo-ocular reflex training gaze stability training and various canalith repositioning maneuvers are among the interventions used in treatment of dizziness. Headache Post-traumatic headache is the most common post-concussive symptom of sport-related concussion. However, confirmatory studies of specific guidelines for post-traumatic headache management among athletes are lacking. Physical Activity Tolerance Managing athletes with post-concussive symptoms in order to achieve and maintain optimal physical function presents a considerable challenge due to sparse scientific evidence to guide clinical practice. Current international guidelines indicate physical activity should be avoided until an athlete is asymptomatic at rest. First and foremost the injured athlete should be removed from play and examined for the presence of life threatening injuries, such as bleeding in the brain. There appears to be a 7â€”10 day period of a heightened susceptibility to re-injury. No sport participation should occur during this time; however, general physical activity deserves further consideration. Recently, the utility of the universal recommendation for complete rest until asymptomatic after concussion has been questioned. Research suggests that sub-symptom threshold cardiovascular exercise and gradual progression of exertion with heart rate monitoring may be effective interventions in order to rehabilitate an athlete with persistent concussion symptoms. What follows is a summary of the current literature for the assessment and progression of physical activity among athletes post-concussion and clinical application. Physical Activity Tolerance Assessment Prior to initiation of any physical activity walking, biking, jogging, running, etc. In all cases the managing physician should medically clear physical activity participation before any initiation of activity is started. In the situation where the patient has demonstrated recovery from symptoms, and the goal is to return to play, the authors have found previously published gradual return to play protocols to be effective. The authors recommend that clinicians who treat those with persistent post-concussive symptoms consider a physical activity assessment and intervention approximately one month post-injury. The suggested protocol for the activity tolerance assessment includes the use of the Balke treadmill test with ratings of perceived exertion the Borg 15 point scale. The Balke treadmill protocol differs for males and females and is as follows. For males, the treadmill is set at 3. Females begin with the treadmill set at 3. The grade is increased 2. For both sexes the grade is increased until the patient is unable to continue activity due to symptom exacerbation or fatigue, at which point the test is terminated. Realistically, the Balke protocol may not be a feasible option due to equipment limitations. For example, the authors have initiated pilot investigations of the feasibility of using the Balke protocol with concussed athletes in a clinical setting. Subsequently, the clinician modified the Balke protocol by increasing the walking speed by 0. Physical Activity Tolerance Intervention After medical clearance is obtained, and using the HRT determined from the steps above, a cardiovascular exercise prescription can be formulated. These are general guidelines. The most important principle is to tailor the exercise to the individual and

progress only when appropriate. The challenge to clinicians is determining the point when progression is appropriate, especially when symptoms may be present. The authors suggest that exercise may be continued and progressed as long that there is no symptom increase above baseline. Clinicians should also keep in mind alternative exercise protocols and not simply continuous cardiovascular exercise. There may be times when individuals tolerate interval training better than continuous exercise. This would allow for a rest period or decreased activity rather than simply exercising through symptoms, which may not increase during exercise, but interfere with the patients exercise adherence. The individual undergoing physical rehabilitation needs to be supervised and monitored during and after activity for the development of neurobehavioral and somatic symptoms. If symptoms develop during the exercise, the clinician should guide the athlete to immediately decrease the demands of the exercise until symptoms resolve. When symptoms persist with a decrease in activity intensity, the activity should be terminated. The exercising heart rate and the duration of exercise when symptoms develop should be recorded, and used to tailor future exercise prescriptions. Future exercise should be modified so who has the HRT and the time of exercise is lowered, or divided into intervals. While exercise in general is suggested as a treatment modality, 92 , 96 , 97 there is sparse evidence to support the use of resistance training. Clearly, cardiovascular exercise can be helpful in the treatment of many of the comorbidities associated with concussion. Resistance training may also support recovery; however, current guidelines do not exist and are beyond the scope of this article. Currently, the authors recommend cardiovascular exercise rather than resistance training, with the acknowledgement that future research may find a benefit of resistance training. Moreover, investigations of the effects of resistive training on the recovery rate of an athlete after sustaining con-cussion s are warranted in order to guide effective, comprehensive medical management. Cognitive Activity Assessment Cognitive symptoms typical of mTBI include difficulty with concentration and attention, memory problems, executive dysfunction, and slowed mental processing. The Zurich guidelines state that trained neuropsychologists are in the best position to interpret neuropsychological tests, but stress that this may not always be possible. Therefore, the involvement of sports physical therapists is critically important to recognize and address cognitive and motor impairments associated with sport related concussion. One method of examining cognitive function involves conducting a structured interview with the athlete, in order to elicit a list of cognitively based problems that may be interfering with everyday function. Hence, goals can be tailored to functional terms that are mutually discussed and agreed upon. Dual-task paradigms also share theoretical principles with the divided attention clinical model. A structured approach to monitoring errors in performance of motor and cognitive tasks can guide decision making regarding when to increase task difficulty. For example, the authors initiated a pilot investigation of the dual-task cost or divided attention function among high school and collegiate athletes who suffered one or repeated concussions. Outcome measures included balance errors using the Balance Error Scoring System 17 , 19 and correct number of subtractions. Preliminary results suggest that the student-athletes demonstrated an increase in the number of balance and cognitive errors with slower processing speed during dual-task compared to single-task performance. During the dual-task assessment, the student-athletes also provided subjective reports of significant difficulty attending to class lectures and to assignments. The necessary equipment to complete the dual-task paradigm assessment includes a structured interview and ratings of attention function, 4 neurobehavioral and somatic graded symptom checklist, 18 , 25 , 40 , , two copies of functional reading material selected by the athlete e. The dual-task design could be defined as a functional reading task articles and books from enrolled classes for comprehension and simultaneously scanning for a target word and. Baseline symptoms were recorded prior to initiating the reading task for comprehension and simultaneously scanning for a target word e. Single-task was defined as reading comprehension in a quiet clinical setting. Outcome measures for the single and dual task included efficiency and accuracy measures. Specifically, the number of pages read, tolerance duration e.

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Chapter 9 : Comprehensive Sports Injury Management : Jim Taylor :

A second source of trepidation reported among high performance athletes relates to uncertainties about the ability to reach pre-injury levels and achieve future aspirations.