

(degree of resistance) with warm-up and cool-down remaining constant. In the sixth phase light weights, push-ups, and sit-ups were also implemented after physician approval. Attendance was mandatory three times a week with a 24-hour rest period between workouts. Participation was documented by a workout card. Descriptive analysis was computed on; incidence rate per year, number of participants in program per year, age, gender, and length of time in the program. During the course of this study the number of cases per year varied. In 1997-1998, 39 cases (33 men, 6 women) were diagnosed from a population of 4087; in 1998-1999, 15 cases (12 men, 3 women) from a population of 4209; in 1999-2000, 13 cases (8 men, 4 women) from a population of 4154; and in 2000-2001, 33 cases (22 men, 11 women) from a population of 4088. Complete data were available for 44/100, 30 were men (68%) and 14 were women (32%) with an average age of 19.5 years. The length of participation in the program averaged 57.70 days (men = 50.17, women = 69.57). There were no splenic ruptures but there were a few cadets per year that seemed to struggle with prolonged recovery (greater than 70 days). To this date there are no specific studies using an active program to accelerate the recovery period, nor are there any established guidelines as to a safe return to athletic participation. The literature still shows a lack of consensus and this investigation is significant because it is the first to examine such a program. This study is ongoing and a randomized clinical trial is warranted to validate the use of this protocol.

The Assessment Of First-Aid And Injury Prevention Knowledge And The Decision Making Abilities Of Youth Basketball, Soccer, And Football Coaches

Barron MJ, Powell JW, Malina RM, Nogle SE: Michigan State University, East Lansing, MI

The purpose of this study was to measure the first-aid and injury prevention knowledge of youth basketball, soccer, and football coaches, and to assess the decision-making ability of these youth coaches in determining the playing status of an injured athlete. Participants were youth coaches in Mid-Michigan. Each coach was tested using the Revised First-Aid Assessment (Ransone & Dunn-Bennett, 1999) and the Game Situation Data Sheet (Flint & Weiss, 1992). The Revised First-Aid Assessment examined the first-aid knowledge of the

coaches. The assessment contains 38 questions and was adapted from the American Red Cross Basic First-Aid Competency Examination and the Sports Injury: Emergency First-Aid Care and Prevention Final Examination. The Game Situation Data Sheet presents nine injury scenarios along with information for the coach to make the return to play decision.

Analysis of the data for the initial participants (n=30) has been conducted. The mean score on the Revised First-Aid Assessment was a score of 23 (60.79%), with the scores ranging from 15 to 30 (39.47%-78.95%). A score of 80% or higher is needed to pass the assessment, thus no coaches passed the first-aid assessment. The most frequently missed questions dealt with area of the body where contusions most frequently occur, adolescent CPR, treatment of heat exhaustion, and caring for a person with a seizure. Results of the game situation data sheet showed that coaches returned injured athletes only 20% of the time.

Most often at the youth level there are no certified athletic trainers present to examine and care for injuries. Coaches are present and in some cases these individuals have had some medical or first aid training. In the absence of an athletic trainer it is up to the coach and/or parent to decide the playing status of an injured athlete. For the coaches, it appears that there is an insufficient knowledge level regarding injuries to make these decisions. Youth coaches need to be provided with the proper tools to help prevent injuries and to decide what actions need to be taken should an athlete be injured.

◆ Blood Pressure Measurements Taken Manually Appear Inaccurate When Compared Against Two Electronic Sphygmomanometers

Wimer JW, Yates A: Wilmington College, Wilmington, OH

Learning to assess blood pressure is perhaps the most complex technique in assessing vital signs. Mastery of equipment and methods is essential, and diligent practice is necessary. Athletic training students often assess blood pressure in the clinical setting after having been taught and evaluated by an approved clinical instructor (ACI). Therefore, the purpose of this study was to determine if blood pressure measurements taken by athletic training students were accurate. In order to perform our test, we randomly selected 16 upper-division (6 men and 10 women) athletic training students (age = $20.1 \pm .7$ yrs) from an entry-level undergraduate CAAHEP-accredited athletic

training educational program. Each student had successfully passed a lab course in which they had received instruction in blood pressure assessment from an ACI, and verification of proficiency was documented in each student's file. To begin, a set procedure, including strict adherence to the manufacturer's instructions and environmental conditions (i.e., noise, room temperature, etc) was established. Students were paired; one student was the patient, the other a clinician. Appropriate cuff size was determined for each subject's left arm. The clinician then accessed the patient's blood pressure three times, first via an aneroid sphygmomanometer and stethoscope. During the first procedure, an impartial fourth-year athletic training student observed and listened for Korotkoff sounds via a double (teaching) stethoscope. In the second assessment, an electronic sphygmomanometer (Labtron, model #847) was used. In the third assessment, a second electronic sphygmomanometer (ADC, model #6008) was used. Blood pressure was reassessed on each patient after circulation had returned to normal (i.e., every 3 minutes). Results from this research indicate that diastolic blood pressure measurements taken manually with the aneroid sphygmomanometer and stethoscope doubled in variability when compared against the two electronic sphygmomanometers. The means and standard deviations were as follows: Manual systolic = 112.5 ± 13.7 mmHg; Labtron electronic systolic = 114.9 ± 12.3 mmHg; ADC electronic systolic = 113.1 ± 13.9 mmHg; Manual diastolic = 71.8 ± 13.2 mmHg; Labtron electronic diastolic = 65.1 ± 6.8 mmHg; ADC electronic diastolic = 69.5 ± 8.7 mmHg. In addition to the sizeable variance differences in diastolic standard deviations, we also found a significant difference between the manual diastolic and the Labtron electronic diastolic measurements using a paired samples t-test ($P = .024$). These findings suggest that students may be unable to discriminate the last few Korotkoff sounds, and, perhaps, educators should develop further techniques to ensure skill retention.

Incidence Of Injury In Multiple-Sport High School Athletes

Horodyski MB, Roth Craig J, Buckley B, Gearhart TN, Kaminski TW, Stopka CB: University of Florida, Gainesville, FL

Approximately 6.4 million athletes participate in high school athletics across the