

SPECIAL
POINTS OF
INTEREST:

- Statistics indicate adolescent youth would benefit from additional medical resources
- Many sports related deaths can be prevented
- The PPE is a useful tool in assisting athletes in meeting their healthcare needs

INSIDE THIS
ISSUE:

Statistics	1
PPE Goals	1-3
PPE Perspectives	3-4
Conclusion	4
References	4

The Pre-Participation Physical Exam

NMAA SPORTS MEDICINE ADVISORY COMMITTEE

Dr. Ruben Torrez, MD David Gallegos, ATC, Cert. MDT

Sobering Statistics

Since August 2008, at least 12 high school football, 2 youth league football and 2 soccer players have died during or as a result of athletic participation. Questions about medical coverage and injury prevention methods have risen to the forefront as a direct result. With over 7 million high school athletes sustaining greater than 2 million injuries annually, the focus no longer needs to be aimed at increasing participation, but reducing injury through improved pre-participation screening. Of the half-million doctor visits and 30,000 hospitalizations annually due to sports injuries, 3.5% are considered rare and serious. Falling into category are neck and head injuries and heart and heat-related conditions.

Many of these injuries can be prevented. In the case of heat-

related deaths, all can be prevented. Annual medical check-ups and onsite medical coverage are the most common methods of injury prevention. Unfortu-



nately, national averages indicate high school students only spend 11.6 minutes per year with their primary care physician and only 40% of high schools have a certified athletic trainer. Coupled with the facts that the 15-24 year-old age group is the only age group with an increasing mortal-

ity rate due to risky behavior and limiting medical access factors like socioeconomic status, highlight the need for widespread healthcare promotion efforts.

The most practical and cost efficient method of injury and risk prevention for adolescent athletes is the pre-participation physical exam (PPE). With goals of ensuring safe participation, meeting legal and insurance requirements and improving preventative health, the PPE is critical to injury and illness prevention in sports.

Goal #1: Safe Participation

A thorough medical history can reveal up to 75% of conditions that would limit or alter sports participation. Conditions such as the missing of a paired organ will often prevent participation in collision sports but not affect participation in non-contact activities. Whereas clinical signs of congenital heart conditions, like

Marfan's syndrome, will preclude participation in all strenuous activity, regardless of physical contact levels. A strong history that has been reviewed by both a legal guardian and a physician should focus on prevention of the three H's, which are the most common causes of death in

athletics; Head, Heart and Heat conditions

A thorough history reviewed by a health care provider, in conjunction with basic musculoskeletal testing highlights the fact that the majority of athletes are healthy. Only 3 to 13 percent require further evaluation and

of limiting conditions are musculoskeletal related. Once identified, the health care professional can order additional tests and referrals as needed.

Whereas traditional physical exams often incorporate expensive lab work and imaging as part of the standard protocol, the PPE relies on specific questions and physical exam maneuvers to address issues related to participation in sports. The PPE therefore allows for a much more cost effective and specific way of reducing injuries and illness related to participation in sports.

The American Heart Association (AHA), the American Academy of



Sports Medicine (ACSM), the American Medical Association (AMA) and the National Athletic

Trainers Association (NATA) have consistent position statements and recommendations for PPE standards. Incorporation of these recommendations into a standardized physical examination form is the easiest method of ensuring thorough and up-to-date sports injury prevention efforts.

During the Fall 2008 sport season, at least 12 high school football, 2 youth league football and 2 soccer players have died.

Goal #2: Meeting Legal Requirements

Underlying forces in health care include legal and insurance requirements. Although the primary goal behind a PPE is to provide a safe sports experience, a secondary goal is to assist the school in meeting their risk prevention and liability requirements. Statistics have shown average sports injury costs between \$700.00 and \$10,000. This cost could become a direct responsibility of the school and its employees if they are found to have not met at least the minimum liability requirements. While requirements vary between school districts, most mandate that each participant have their own medical insurance and have been cleared to participate through a yearly physical exam.

Many athletes rely on yearly physicals covered by private insurance through their primary care physician. Common problems in relying on insurance approved physicals are

that the physical date does not often align with the date the state athletic association requires or expires during the involved sport



season. In addition, many standard physical forms are not inclusive of up-to-date sports specific screening recommendations. To overcome this, a thorough and cost effective pre-participation exam should be available to the student. Often the PPE is provided in addition to the insurance based physical.

From a legal standpoint, risk waivers are often required of the student-athlete and their legal guardians. Risk waivers can be incorporated into the PPE or into the series of athletic forms completed prior to the season. In addition, the PPE assists in these efforts by providing acknowledgement to the family that the school district and employees are concerned about safe participation. It also requires the family to take responsibility for providing accurate medical information and following-up any medical findings or concerns prior to participation.



Goal #3: Preventative Healthcare

Unfortunately, risky behavior is common in the adolescent age group. Experimentation with supplements, steroids, drugs, alcohol and sex are increasingly more commonplace in this age group. Media coverage of sport figures behaving badly, the ever-increasing pressure to win and adolescent experimentation emphasize the need to take advantage of opportunities to counsel young athletes on preventative health. The pre-participation physical exam is an excellent opportunity for coaches and healthcare professionals to educate student-athletes on such issues.

A common format for the PPE involves screening and examination stations where individual components of the physical are completed. The stations are commonly divided into medical history review, vision screening, vital signs, orthopedic exam and physician clearance. Clearly, additional opportunities to discuss important topics such as supplements, eating disorders, sexually transmitted diseases, etc. would provide direct access to the target audience. Individual stations for these topics would allow the student-athlete to ask questions in a safe and confidential setting. Educational media such as vid-

eos, poster presentations, flyers and informational booths could be incorporated as educational stations.

Implementation of these simple modifications to the standard PPE format

could address the greater health needs of the student-athlete.



Perspectives on the PPE

Coaching Staff

The pre-participation physical establishes the basis for deciding whether a student can participate in strenuous activities, and at what level. Coaches and training staff can then feel confident that the athlete is cleared to participate and is at minimal risk to himself or the team. Should limitations be noted in the PPE, the coaching staff is provided with a strong base of support for future participation decisions. The PPE also provides the athletic staff with a communication source about the student's health status and future needs. Finally, the staff can have confidence in their role in minimizing school liability.

Medical Staff

The health care professional should realize that the 10-15 minutes they spend with student-athletes during the PPE often doubles the amount of medical attention or counseling they may receive annually. This relatively small investment in time often pays huge

dividends in terms of reducing morbidity and possibly mortality. The PPE also provides an opportunity for a health care professional to meet and introduce themselves to the community. Building medical relationships is one of the goals of the family practice physician, who is often the one to volunteer their time for the PPE sessions. Unfortunately, the short amount of time spent with each student coupled with the low rate of follow up places a liability burden on the physician. This can easily be minimized by developing strong relationship between the health care provider and on-campus medical, training and coaching staff. The health care professional then has the confidence that their recommendations will be handled appropriately and at multiple levels to ensure the best possible outcome for the student-athlete.

From an athletic trainer's perspective, the PPE is important in preventing future injuries and health concerns. Orthopedic limitations are the most common concerns identified during a PPE. Such findings on the physical exam provides an opportunity for the athletic trainer to work with the coaching staff to create strength and condi-

tioning program to address the athlete's needs. The PPE also establishes health baselines for future conditions. Often, vital signs and previous history are reviewed during emergency situations. The baselines established during the PPE can be compared to the new findings to allow for accurate emergency decisions. Finally, the pre-participation physical opens lines of communication between the athlete, athlete's family, athletic trainer and physician.

Student & Family

From the family's perspective, the PPE provides an inexpensive investment in the student-athletes' health and well being. Depending on the school and the goals of those involved, fees range from free to \$15.00. At the completion of the PPE, the family has a snapshot of the student-athletes' health and any concerns their son or daughter may have. An additional benefit is improved communication between the student, family and school officials regarding school policy as it pertains to participation in sports. This communication is essential in preventing future misunderstandings on injury liability and participation deci-

sions. Finally, the family is introduced to medical professionals in the community with whom they can build future relationships. This last point is even more important in areas of lower socioeconomic levels where the PPE might be the only opportunity for preventative health.

Conclusion

The pre-participation physical exam is the single most effective method of addressing the health concerns of the adolescent student-athlete. It promotes safe participation, identifies areas of concern, helps satisfies

legal requirements and addresses risk management issues while increasing the chance that the student-athlete will have the best possible outcome before they ever hit the field.

References

- ACSM. (2009). Pre-participation Physical Examination.
- Glover, D. W., Maron, B. J., & Matheson, G. O. (1999). The Pre-participation Physical Examination. *The Physician and Sportsmedicine* (8).
- Koester, M. C. (1995). Refocusing the Adolescent Preparticipation Physical Evaluation Toward Preventative Health Care. *Journal of Athletic Training*, 30(4), 352-360.
- Kurowski, K., & Chandran, S. (2000). The Preparticipation Athletic Evaluation. *American Family Physician*, 61(9).
- NATA. (2008). Sobering Season: Sports Fatalities Put Medical Care in Spotlight. *NATA News* (November 2008), 16-17.
- NMAA. (2009). Medical Examination For Participation In Interscholastic Athletics.

