
An Athlete's Eyesight:

What You Need to Know When Conducting Pre-Season Vision Tests

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Is 20/20 vision enough?

The movie *Major League* and the experience of pitcher Ricky "Wild Thing" Vaughn give us a great example of the interaction between vision and sport. A 99 mph fastball doesn't mean much when you can't see well enough to keep it in the strike zone.

When it comes to pre-season physicals, how do you test vision? Is it *Major League*-style with a simple eye chart? Every August, you dust off the big "E" chart, slap down a piece of tape at 20 feet, and a staff member dutifully writes down what line the athlete can read: 20/15, 20/20, 20/40? What do those numbers really mean? Are they good enough? Are we giving our athletes the best standard of care?

The American Optometric Association's Sports Vision Section is a firm believer that vision is a critical skill for sport performance, and like most systems in the body, visual skills are multifaceted. This article will discuss the four basic visual skills that you should consider incorporating into your pre-participation physical exam.

Visual Acuity

The notepad that the coach holds up in *Major League* to test Ricky's vision and the eye chart mentioned above are examples of static visual acuity tests. Most studies find that visual acuity in athletes tends to be better than 20/20, so there may be a need to recalibrate our thinking. 20/20 is the minimum— not the maximum — and depending on the sport or position, we may refer athletes to an eye doctor if they do not see 20/20 or better. The clearer you can see, the better you can analyze a situation and react quickly.

Visual acuity and its correction (glasses and contact lenses) are what first come to mind when we talk about vision. How clearly the athlete can see is an essential visual skill, but it is just the foundation. Like the rest of our clinical exam, we can't focus on just one measure. We need to assess other parts of the system.

Peripheral Vision [Awareness]

With contact sports, the risk of injury increases when an athlete is not aware of the hit they are about to take. As part of a normal eye exam, we should assess one's peripheral vision [awareness] to assure they have a "normal" visual field. You must check each eye individually, but it takes less than a minute per eye. This may help identify if an athlete's visual field is limited and should be further evaluated for deeper eye problems. Can we train an athlete to be more aware of the periphery? Yes, but we have to assure training is related to their sport.

Contrast Sensitivity

One of the limitations of visual acuity is that sport is rarely just black and white like the eye chart. Sport involves detecting differences between similar colors. For example, reading the green while golfing or using the stitches on a baseball to detect pitch type. Both of these are contrast tasks. Poorly fit contact lenses can hinder this visual skill. The ideal test uses specialized equipment, but a quick assessment can be done using mobile applications on smartphones and tablet devices.

Depth Perception

The ability for both eyes to fixate and focus on an object in order to determine its relative

depth is known as stereopsis. A quarterback needs both eyes to work as a team when judging how fast his receiver is running and where to throw the ball. Athletes are more likely to have better depth perception than non-athletes. Identifying athletes who may have one eye that sees better than the other could go a long way toward preventing injuries and lengthening their careers.

Download

You can download descriptions and methods for all the above tests along with a vision screening questionnaire at www.aoa.org/SVS.xml.

Where's the doc?

The AOA Doctor Locator (www.aoa.org/x5428.xml) is a great resource for finding a local optometrist if you would like to include an eye care professional in your pre-participation exams or need to refer an athlete based on your findings from the above tests. Within the locator, you can also search for doctor who specializes in sports vision.

The AOA Sports Vision Section is proud to have a relationship with NATA. We believe in the power of vision and its role in sport. In addition, we are here to assist in your role of protecting your athlete and setting them up for success. The assessments listed in this article are screenings that are quick and relatively easy. We will continue to update these resources and add any other tips that may help you with your pre-participation physicals. There is a wealth of knowledge related to vision and sport. We hope you understand the critical role of vision and look forward to continuing this relationship between the AOA and NATA.