

## Ask the Doctor: Seeing and Playing

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### INTRODUCTION

Most of the previous topics presented in this column have been directly related to the process of making music. Even my essay on hearing difficulties described some physical conditions that can be caused by musical performance. This issue's topic is somewhat different; although its proper function is crucial to practice, performance and reedmaking, its associated problems are rarely caused by them. This will be the second and last of the "special senses" to be discussed—vision, or sight—a somewhat complicated subject, but one with very specific applications to any musician. In the following paragraphs, I'll present some useful information to those who might need it, now or in the future.

We all depend on our eyes, for myriad reasons beyond reading music, making reeds and looking at the conductor. Just like our hearing, vision has no substitute; we can make do with artificial teeth, hip joints, or even legs, but with our eyes and ears, it's "one pair to a customer." For this reason, it's crucial to know something about our eyes and the ways they work, how to recognize problems that may occur, and what to do about them.

### REFRACTION PROBLEMS

This term is medical lingo for eye conditions that are not diseases, but which result in less than perfect ("20-20") vision. We know these *refractive errors* by the lay terms *nearsightedness*, *farsightedness*, and *astigmatism*. The first two are related to the length of the eyeball, relative to the lens in front of it. The lens focuses the incoming light onto a spot deep inside the eyeball. In a perfect situation, this spot lies on the *retina*, or inside back wall of the eye—an area full of specialized nerve endings that transform the pattern of light into electrical signals that are sent to the brain for processing into what we experience as sight. If the eyeball is too long and the focus point falls in front of the retina, that person is said to be *nearsighted*. Conversely, if the focus point falls behind the retina, we describe the condition as *farsightedness*. In each case the retina picks up blurred, out-of-focus images. Both problems can occur in youngsters as well as adults and do not necessarily signify or predict any future eye problems.

Astigmatism is a condition resulting from an

irregularity in the eye's outer window, or *cornea*, and it also produces alterations in clarity of vision. Normally the cornea is spherical in shape, with an even curvature throughout. When this curvature becomes uneven, for whatever reason, visual changes arise. Unlike the two previous problems I've mentioned, which cause blurred vision at various distances, astigmatism produces an irregularity for linear objects (like the vertical or horizontal lines that make up many of the letters of the alphabet). These irregularities may affect vertical lines, horizontal ones, or any angle in between, and are present at all distances.

Treatment of these refraction problems can be achieved with corrective lenses (glasses). Nearsightedness (*myopia*) and farsightedness (*hyperopia*) also can be corrected rather easily in most people by contact lenses, but astigmatism requires a special type of contact that is not always suitable for everyone. For a person with both astigmatism and either near- or farsightedness, combination correction by contact lenses may be difficult, and many would prefer standard lenses.

In the past decade, surgical correction of these refractive errors has made great strides, and with the use of computer-guided surgical lasers, even some cases of astigmatism are amenable to operative treatment. In most people, surgery replaces the need for further external correction. Since these procedures are still new and evolving, I must caution anyone who may consider this type of treatment to first consult with an eye surgeon (ophthalmologist) to learn all about the procedure and how it may apply in his or her case. Indeed, for any visual problem, I feel it is wise to consult a vision professional and not attempt to purchase glasses over-the-counter.

### VISION IN MATURITY

Most people will develop a condition called *presbyopia*, or aging of their vision, sometime during their lives. The first warning signal may be a gradual decrease in the clarity of near vision (up to 24 inches away from the eyes), and the majority of those affected will experience it in their early 40s. In presbyopia, the small muscles within the eyeball become weaker and cannot adjust the shape of the lens to accommodate seeing objects (including the printed note) at

relatively close range. This explains why many people over age 40 must wear reading glasses or “bifocals” to see clearly at distances of 18 to 24 inches.

A second age-related change is a decrease in the acuity of mid-range vision. This condition becomes apparent when one looks at objects in the 24- to 36-inch range, approximately the distance from the eyes to the music stand. An additional lens correction may be necessary to allow clear vision at these distances, thus giving rise to the term “trifocals” for those spectacles that incorporate all three levels of visual correction: near, midrange and distance.

Not all presbyopic people will require this complex combination of lens corrections; many who have not developed any loss of distance acuity can manage quite well with only reading glasses for near vision. Others will need mid-range and/or near vision correction, and some people will require help in all three visual ranges. Many optical technicians are skilled at crafting spectacles for people with special visual needs—including lenses having a large near- or mid-range segment at the bottom for reading music and a smaller segment at the top to correct distance vision (enabling them to see the conductor clearly).

Some eyes may develop a cloudiness in the lens, the crystalline structure that collects and focuses the light as it enters the eye. This condition is called a *cataract* and is another source of decreased visual acuity. The cause of cataracts generally is unknown, although a few specific diseases are known to produce this change. Studies have shown that by age 75, almost every person will have developed some clouding of the lens in at least one eye. The decrease in vision produced by a cataract usually gets worse gradually and often requires no treatment for many months or years. However, when visual loss becomes significant, surgical removal of the cloudy lens (often accompanied by immediate replacement with an artificial substitute lens) may be necessary to help regain better vision.

Yet another eye condition associated with increasing age is *glaucoma*. The eye contains a clear fluid in the chamber located between the cornea at the front of the eyeball and the lens in the middle. When, for one of a variety of reasons, the pressure of this fluid increases abnormally, a person will see objects less clearly and often may be aware of a “halo” around lights or other bright objects. Like a cataract, this condition usually is painless and often is first diagnosed during an eye

examination. Medicated eye drops can help most glaucoma patients control the progression of their disease, and surgery to correct the cause of the increased pressure usually is not necessary. However, most glaucoma patients require daily medication throughout their lives, and regular eye examinations also are mandatory to assure that the condition is kept under good control.

#### **ENVIRONMENTAL CONCERNS**

It would be ideal if we all could play with adequate light directed onto our music, with both the music and the conductor situated directly in front of us, and with adequate visual acuity to see everything clearly. In many cases this is not possible, and for a variety of reasons; some of these may be applicable to many of us.

Playing in pit orchestras can present special visual difficulties. Not only is the light level often unacceptably low, but stand lights may not illuminate the entire printed page evenly or adequately. In addition, music and conductor often are not within the same sight line, causing a constant adjustment of eye position and, frequently, head/body posture to see both objects effectively. Although this unfortunate combination is more common with string players who often must share a music stand, other instrumentalists also can be affected. Realigning one’s chair and stand, or obtaining a stand light bulb with a higher wattage, may be very beneficial in avoiding strain of both the eyes and the head/neck/shoulder regions.

Not all auditoriums or recital halls balance the brightness of the spotlights with the illumination on the music. In most cases, the former is excessively bright, aimed at the eyes and interfering with seeing the notes. When possible, this discrepancy must be brought to the attention of a stage manager or similar person, and a proper light balance arranged. I have found this situation especially prevalent in school auditoriums, which often do not have limited capacity or flexibility in their lighting setup.

#### **CONCLUSION**

An instrumentalist’s eyes are precious, to both life and career. Learn to recognize and admit when difficulties arise, and seek skilled professional help for their treatment. Prevention is not usually possible, so early awareness and care will afford the best chance for years of playing. ❖