

Amblyopia: Recognition, Screening, and Treatment in the Well-Child Care Setting

Amblyopia is by far the most common cause of unilateral vision loss in children, affecting 2 to 4 percent of the population. Screening for amblyopia is an important component of well-child pediatric care.

Join Children's Mercy pediatric ophthalmologist Dr. Atkinson and Transformational Pediatrics, as we discuss the three generally-recognized types of amblyopia, available screening techniques, and treatments of the disease.



Featured Speaker:

C. Scott Atkinson, MD

C. Scott Atkinson, MD is a pediatric ophthalmologist with Children's Mercy Kansas City. He completed his medical degree and an internship at the University of California, San Diego in La Jolla, CA, a residency in Ophthalmology at The Eye and Ear Institute, University of Pittsburgh, and a fellowship in Pediatric Ophthalmology at the Children's Hospital of Pittsburgh.

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Transcription:

Dr. Michael Smith (Host): Our topic today is "Amblyopia: Recognition, Screening, and Treatment in the Well Child Care Setting". My guest is Dr. Scott Atkinson. He is a pediatric ophthalmologist with Children's Mercy Kansas City. Dr. Atkinson, welcome to the show.

Dr. Scott Atkinson (Guest): Thank you very much. Thanks for having me.

Dr. Michael: I'm curious, what percent of children are actually affected by amblyopia?

Dr. Atkinson: The incidence in the population is said to be between two and four percent.

Dr. Michael: And that's been pretty consistent. We're not seeing any changes in that?

Dr. Atkinson: That's correct. Those are consistent with the historical averages.

Dr. Michael: For this interview, Dr. Atkinson I'd like to talk a little bit about the different types, maybe we can review that and then we'll get into some screening techniques that are available. Then, we can get into some treatment. So, why don't you tell us what are the three main types of amblyopia?

Dr. Atkinson: There are three main types of amblyopia are, the first one is called "deprivation amblyopia". In deprivation amblyopia, there is something that's blocking the passage of light from the front of the eye to the back. So, that could be a very droopy eyelid which, of course, is opaque or a

cataract which might be dense enough to block the flow of light to the back of the eye. There are a host of other things, too, but deprivation is number one. This is the hardest to treat and most important to try to treat very early in life. The second type is called "Strabismus" and strabismus is a misalignment of the eyes. The people who have an eye that crosses in or maybe goes outward, or even up and down. In that case, we have suppression, usually, of one of the eyes to prevent somebody from having double vision because the eyes aren't looking in the same direction. The third type is called "refractive amblyopia". In refractive amblyopia, the eyes have a different set of focal points. One eye is out of focus compared to the other, so the image that's presented to all of the neurologic structures of the affected eye is fuzzy. So, the brain does not develop the visual connections as well in that case. Those are the three types of amblyopia.

Dr. Michael: So, speaking of the community physician and the community pediatrician, what are the screening techniques that are available to them?

Dr. Atkinson: I think of about four screening techniques. Others might be able to think of more, but the first one is the one that people have been doing for a long time and we sure appreciate pediatricians, and family doctors, and nurses practitioners who do a good job to try to check visual acuity in each eye separately in their office. This is the typical thing with the eye chart, the letters, the E's that point in different directions or even pictures for kids who are too young to understand those. So, visual acuity measurement is number one. Another thing that could be done is to look at the red reflex in each eye at the same time and this provides good information. If the red reflex is asymmetric, you might be able to catch, say, a cataract or even a refractive error because red reflex has different qualities. So, it's good to look at it simultaneously. The third thing that you could do is check for strabismus. The classic way to do this is to shine a pen light and to look for the reflection of the pen made either in the center of the pupil in each eye or maybe it's in the center of the pupil in one eye and off center in the other, and that could give you a clue to strabismus. The fourth thing is something that's come along more recently--a photo screening. There are a bunch of different devices on the market. A lot of pediatrician's offices have these and we find these to be very accurate. So, a person who does not pass the photo screening exam frequently has a problem that, if it doesn't need treatment right away, at least it needs to be followed. So, those are the four different things that I think of that can be done.

Dr. Michael: When it comes to treating amblyopia in that community setting, what are some of the treatment options? Then, I guess, also, at what point should a general practitioner refer to a specialist?

Dr. Atkinson: Generally, amblyopia is treated by eye care professionals and not primary care doctors. It would be a tough task for a family doctor to learn all the nuances of amblyopia, although it could certainly be done but, of course, optometrist and ophthalmologist have the tools to examine, to do the full eye exam that aren't generally available in pediatricians and nurse practitioners offices. The things that we do as ophthalmologist and optometrist are, usually, these are the kids who wear the eye patch, so that's usually our first line of treatment. It's an ancient therapy for this and, generally, for most kids it's what we do. We patch either part time or full-time the eye with the better vision to make them use the eye with the weaker vision. If that's not working, some patients are amenable to treatment with atropine drops which is another ancient drug. In this case, we use it to dilate the pupil of the stronger eye and that makes the vision blurrier. In some patients, that can cause them to start using their weak eye and you can take the place of patching by just using eye drop once or twice a week. There are some things out on the horizon that people might have heard of using video games with presenting variable

aspects of images to each eye separately so that the brain force to put them together to make a whole picture. These therapies are not ready for primetime quite yet but they're being intensely studied, and at Children's Mercy were involved in some randomized control trials with it.

Dr. Michael: When you look at what's on the horizon and the research that Children's Mercy is doing, and I know these are in the future but are we looking at a couple years down the line? I mean, where are we at with that research?

Dr. Atkinson: I think we'll have an answer in a year or two and we'll know. Sometimes things that get a lot of media play don't hold up under rigorous scientific study but we're doing our best to be optimistic about this. If there is a possibility of using something more fun than an eye patch to treat amblyopia, all of us would be all ears for that for sure.

Dr. Michael: Dr. Atkinson, I want to thank you for coming on the show today and thank you for the work that you are doing. You're listening to Transformational Pediatrics at Children's Mercy Kansas City. For more information you can go to www.childrensmercy.org. That's www.childrensmercy.org. I'm Dr. Mike Smith. Thanks for listening.

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