

The Pediatric Optician:
Dispensing for the Infant and Young Child

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Introduction:

Children often require special fitting techniques because of unique concerns associated with their age, risk factors and inability to communicate. A child's short attention span or lack of cooperation makes it quite easy to commit errors during measurement, fitting and lens choice. Measurement errors become proportionately more serious than similar errors in an adult because the child's small size exaggerates the error. Fitting errors with a child who is unable or unwilling to communicate may result in patient discomfort or even facial disfigurement. Familiarity with available lens types and materials is essential to fitting children who have disorders not commonly seen in adults.

The competent pediatric optician must have a thorough knowledge of these issues when working with the infant or child and must show patience and a special awareness to insure proper fitting. Each of the three areas above: measurement, fitting and lens choice, present a special challenge to the pediatric optician because errors will have much more profound effects than like errors in an adult. Above all, it is important to grasp the simple fact that many parents feel frustrated, helpless and even inadequate because their child needs glasses. The best pediatric optician is the one who addresses the fears of the parents at the same time he addresses the needs of the child.

Taking PD's:

Finding an accurate pupillary distance measurement (PD) is crucial to placing the optical center of the lens directly over the patient's pupil. However, a child's size and his early stage of development (i.e., inability to communicate or to follow instructions) conspire to make even this most basic task difficult for the pediatric optician.

Although the preferred method of measuring PD's is with a pupillary reflectometer, most infants and young children measure too small to result in an effective reading. Therefore, the most basic tool at the optician's fingertips is useless. However, there are several manual methods that will result in accurate PD measurements.

Often the structures of infants' and young children's faces does not develop symmetrically, therefore monocular PDs are preferable to binocular PD. The inexperienced pediatric optician will soon find that using a monocular ruler by itself will invariably fail to produce an accurate reading. However, using a piece of candy or a favorite toy as bait will make the job easier. A monocular PD measurement is taken from the center of the child's bridge out to the pupillary reflex in each eye. The most accurate way to get the measurement is for the optician to hold a penlight under her own eye to measure the monocular PD in the child's opposite eye. Quite often a

colorful pom-pom or other object on top of the penlight will cause the young child or infant to fixate properly.

Frequently, a child will feel threatened by the PD ruler, or may be more interested in looking at it than at the optician. In cases like this the pediatric optician can allow the child keep on their old frames, or the one's that the family has selected, and obtain an accurate measurement from them using the same methods as above. The only difference is that instead of sighting along the measuring ruler the optician can put a dot on the lens over the pupillary reflex and measure afterwards. The measurement should be taken from the dot to the center of the bridge on the frame. The most common error the inexperienced pediatric optician will make using this method is to overlook properly fitting the frame over the child's face before taking measurements. It is preferable to use the new frames if the family has selected them and to spend time adjusting them before taking this type of PD measurement. Unfitted frames can result in an error of as much as 2 to 4 millimeters, which can create an unwanted prism result of 1.6 diopters in a +4.00 Rx, well above the ANSI standard of two-thirds diopter.

Many young children or infants can't or will not fixate on anything, because they are too frightened or upset. Above all it is important to be patient and friendly. An impatient pediatric optician will rarely get good results from the child or the parents. The following steps may help to get the PD from an unhelpful child:

- ◆ The infant can be held over the parent's shoulder to maximize eye size.
- ◆ A young child can pretend to measure the optician's eyes first and then will submit to being measured.
- ◆ Young toddlers are fascinated by their own reflection and will look in a mirror when nothing else works.
- ◆ Feeding an upset infant a bottle will calm him or her enough to take a measurement while feeding.
- ◆ A popular child's television show can serve as a good distraction.

Unfortunately, some children will be too difficult to obtain the more accurate monocular and the pediatric optician will have to resort to the binocular anatomical measurement. A fail-proof method to obtain the correct PD in this manner is to measure from the inner canthus on one eye to the outer canthus on the other eye. This measurement must be done with both eyes open to insure accuracy.

Proper Frame Selection and Fitting:

The first thought of an inexperienced pediatric optician may be to let the child pick out frames that will make him happy based on color, appearance or even brand recognition. However, most often the age and physical development of the child will determine what type of bridge and temple he requires, so it is best to consider the child's needs before showing him glasses that would be inappropriate. Just once will an inexperienced optician try to pry the right color, but wrong fitting glasses out of a child's hand before learning the value of narrowing the selection. It will be far easier to

ask the child for his favorite color and then steer him to a frame appropriate to his needs than to let the child choose a frame and then force it to fit his needs.

Special attention must be paid to the bridge, which must be fitted well for two reasons: It must not inhibit the natural growth of the child's nose bridge and must be comfortable to ease the child's adaptation to wearing glasses. The experienced pediatric optician should also be sensitive to the needs of the high power prescription and bilateral aphakic infants. Because the bridge carries most of the weight of the frame and the lenses, it can restrict or close the nasal passages if fitted improperly.

Infants should generally be fitted with saddle bridges, in which the weight is evenly distributed around the bridge of the frame. Because infants and early-stage toddlers have not developed a bridge, the pediatric optician will also have to watch the cheek area for signs of excess weight and make a special adjustment to relieve the pressure points. The optician can adjust the pantoscopic tilt, use extra press-on nose pads to lift frames or even add a head strap to reduce the glasses' weight.

In addition to saddle bridges, which have a clearance between the bridge of the frame and the nose, older toddlers can also be fitted with keyhole bridges or adjustable strap bridges. Keyhole bridges have a built-in clearance at the top and may be better suited to the toddler's needs. Strap bridges fit with a clearance at the nasal crest and are also a good choice. In any case, young toddlers should never be allowed to choose frames with separate nose pads because they represent a choking hazard.

Temple fitting also represents an unexpected challenge to the pediatric optician. Because the skin is very thin and tender around a child's ear, there is a danger of rubbing, causing blisters and even scarring if the temple is poorly fit. It is best for the pediatric practice to carry frames with silicon covering around the skull temples or cables, but in any case children should be steered away from hard plastic temples. In addition, it is necessary to take care when adjusting around the back of the ear so not to rub or press on the mastoid bone. Since infants and young children tend to have larger heads with narrower PD's it is frequently necessary to bow out the temples at the sides to avoid making unsightly and permanent ridges on the sides of the head.

In addition to silicon covering it is often best to show the child many different frames with cabled temples. Not only do cables help keep glasses from sliding down but also they make the frames more difficult to remove. The child will become frustrated with the effort involved in removing his glasses and will be more likely to leave them on. The pediatric optician who persists in offering cabled temples will be doing the child a service by making him habituate to the glasses more quickly and his parent a service by making the child less likely to lose his glasses.

Skull temples may be adapted by replacing the tips with cable tips. There are times when this may be necessary because the child can only be fit with one frame which does not have cable tips. However, changing the frame almost certainly will negate the manufacturer's warranty, so this step should only be taken with the parent's knowledge and consent.

Bifocal Fitting

As in most aspects of pediatric care, bifocals require additional consideration. The larger bifocal segment in Executive style bifocals work best for the pediatric optician for several reasons. Primarily, children's close use is not as detail-oriented as an adult. A child's close focus is centered on larger objects such as shapes and blocks, not the printed word or computer screen, therefore the child should be fit with the largest bifocal segment available. Secondly, because the child's pupillary distance is smaller than an adult, he will have to use a larger portion of the bifocal segment to look at the same object. The bifocal line should bisect the child's pupil rather than by the bottom eyelashes as in an adult.

Bifocal measurements must be precise. To assure proper bifocal placement it is particularly important to be at the child's eye level when taking the measurement. The pediatric optician should always mark the desired placement of the bifocal line on the demo lenses of actual frames the child will wear. He should then observe the child at play to make sure that the child is looking well below the line. Once the optician is satisfied that the child is looking through the bifocal segment for close-up tasks he should have the child focus on an object in the distance (usually a parent) to insure that the child is looking above the trial mark.

It is also important to explain to the parents how the bifocal works and what to look for to make sure the child is using the bifocal properly. Secondly, since parents are generally young and do not usually have first-hand knowledge of bifocals, it is a good idea to explain how the bifocal segments will alter the appearance of the child's eyes.

Lens Material

Choosing the material of the child's lens is simple for a conscientious pediatric optician. No child should ever wear anything but polycarbonate lenses. Polycarbonate lenses are by far the most impact-resistant lenses on the market today. Because children are much more active than adults, there is a much higher chance of them having an accident which could involve their glasses. This must be a major concern for any optician fitting children.

Of a secondary importance is the relative weight and appearance of the lens. Not only do polycarbonate lenses have a higher index of refraction but also it has a lower specific gravity, which makes it both thinner and lighter for equivalent prescriptions. A thinner lens also makes the lens cosmetically more appealing while a lighter lens helps the child get used to wearing the frames more quickly and easily.

Conclusion: Explaining the Child's Present, Predicting the Child's Future

Satisfying the needs of the child should be a transparent process, each part of the process must be thoroughly explained to the parents as the pediatric optician attends to

the child. With this in mind, the successful pediatric optician will consider all of the aspects of her care. It is helpful to make a mental scorecard with of the following:

- ◆ Have I accurately taken the necessary measurements to order the new glasses?
- ◆ Have the demonstration frames been pre-adjusted to assure proper fitting of the new frames?
- ◆ Have I properly educated the parents on all the aspects involved in their child's new glasses, including appearance, likelihood for frequent adjustments, how to detect when glasses are out of adjustment, proper cleaning instructions, and warranty information?
- ◆ Have I communicated with the parents the items they are purchasing and how they will benefit their child's vision, comfort and safety?
- ◆ Have I invited the parents to contact me with any questions or problems that may arise?

The parents, confronted with the uncomfortable paradox of their perfect child with imperfect vision, struggle to quell their fears when talking to the optician. The successful pediatric optician can never forget that while the child is his patient, the child's mother and father are his customers. It is best for the pediatric optician to explain the process of frame and lens selection continuously. By explaining what the optician is trying to avoid when fitting the child's glasses, it will be easier to enlist the parent's help in choosing the right frame. It is the optician's duty to the family and to his employer to educate the parents. The more transparent the process of choosing the right glasses is to the adult, the more likely he is to feel his money was well-spent, and the more likely it is he will return.

Bibliography

Drew, Ralph ,Ophthalmic Dispensing: The Present Day Realities, Butterworth Inc., Chicago, IL, 1990.

Vinger, Paul MD et al., Shatter Resistance of Spectacles, JAMA January 8, 1997 vol. 277, No. 2.

Drew, Ralph, Professional Eye Dispensing, Professional Press, Chicago IL, 1970.

Isenberg, Sherwin J., MD, The Eye In Infancy, 2nd Ed., Mosby and Yearbook Publishing, St. Louis, MO, 1994.

Nelson, Leonard B., MD et al., Pediatric Ophthalmology, 3rd Ed., W.B. Saunders Co., Philadelphia, PA 1991.