



AMBLYOPIA

Why can't an infant run, speak, or play checkers? In part it is because the infant's muscles and nerves have not fully developed, but it is also because the brain and its connections with the body have not fully developed.

Brain and brain-body development are very dependent upon information being received by the brain. For example, a child who is deaf from birth and never hears speech has a lot more trouble speaking "normally" than a person who has become deaf in adulthood. A significant part of the reason for this difference is that if the person never hears, the part of the brain responsible for hearing and language never develops "normally."

The same is true for sight. If a newborn kitten has an eye covered in the first six weeks of its life, then connections between the eye and the brain don't develop during the *critical* phase of brain development, and when the eye is uncovered, it never sees well, because the part of the brain responsible for processing information from that eye did not develop as the brain was maturing. If a monkey has an eye covered during the first six months of its life, even after the eye is uncovered, it will never see well out of that eye. The eye *appears* completely normal, and the brain *appears* completely normal, but the connections between the eye and the brain never developed.

If a human child's eye is covered during the first six years of life, eye-brain connections will not fully develop, and the eye will not see properly. Glasses will not help. This is called amblyopia (am-blee-oh-pee-ah). The earlier in life that the eye is covered, the greater the duration of eye coverage, and the more the other eye is used, the more likely amblyopia will occur in the unused eye.

Oddly enough, the eye does not need to be fully covered for amblyopia to develop. Several conditions may lead to amblyopia. Essentially anything that decreases vision in an eye may lead to amblyopia. Children with atypical face development often have conditions which decrease vision in one or both eyes such as a very droopy upper eyelid, inability to fully blink or close an eye while sleeping, eyes that are turned in or out, a "lazy" eye, or failure to wear glasses that are needed.

In children with atypical facial development, changes in vision may happen rather quickly between regular eye visits and there are several things that parents can do to recognize signs of a problem that could lead to the development of amblyopia. An eye doctor should be visited in a timely fashion if any of the following are noted:

- An eye is often red or is often tearing.
- An eye appears “dull” having lost its glassy shine.
- The eyes don't point in the same direction with one or both eyes turned in towards the nose or out towards the ear.
- The child cries or objects to an eye being covered, but doesn't mind the other eye being covered.
- The child won't wear prescribed eyeglasses.
- One or both eyes appear to be bulging.

The child often has a consistent head tilt or a face turn while looking at things or in photographs.