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2) TWO EYE DDEFECTS

Hyperopia (Farsightedness): Hyperopia, which is also known as “farsightedness,” is usually due to either an eyeball that is too short or, occasionally, a lens system that is too weak. In this condition, parallel light rays are not bent sufficiently by the relaxed lens system to come to focus by the time they reach the retina. To overcome this abnormality, the ciliary muscle must contract to increase the strength of the lens. By using the mechanism of accommodation, a farsighted person is capable of focusing distant objects on the retina. If the person has used only a small amount of strength in the ciliary muscle to accommodate for the distant objects, he or she still has much accommodative power left, and objects closer and closer to the eye can also be focused sharply until the ciliary muscle has contracted to its limit. In old age, when the lens becomes “presbyopic,” a farsighted person is often unable to accommodate the lens sufficiently to focus even distant objects, much less near objects.

Myopia (Nearsightedness): In myopia, or “nearsightedness,” when the ciliary muscle is completely relaxed, the light rays coming from distant objects are focused in front of the retina. This condition is usually due to too long an eyeball, but it also can result from too much refractive power in the lens system of the eye.

No mechanism exists by which the eye can decrease the strength of its lens to less than that which exists when the ciliary muscle is completely relaxed. A myopic person has no mechanism by which to focus distant objects sharply on the retina. However, as an object moves nearer to the person’s eye, it finally gets close enough that its image can be focused. Then, when the object comes still closer to the eye, the person can use the mechanism of accommodation to keep the image focused clearly. A myopic person has a definite limiting “far point” for clear vision.