Spectacles

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Refractive errors are a frequent issue of the eyes where light cannot focus straight on the back of the eye due to the shape of the eye, causing symptoms such as hazy vision. The term "refractive errors" refers to four conditions: a) Astigmatism, b) Hyperopia (far-sightedness), c) Myopia (near-sightedness) and d) Presbyopia. Refractive errors are generally corrected by the use of eyeglasses and contact lenses. Sometimes, laser surgery is also used for correction of refractive errors.

Salvino D'Armate, also known as Salvino degliArmati, is sometimes credited with the invention of eyeglasses in the 13th century.The first eyeglassesare believed to be produced in 1284 in Italy by Salvino D'Armate.So, the use of glasses is traced back to the 13th century.He was born in Florence, Italy, around 1258. However, there is some disagreement and doubt regarding this assertion.

The earliest pictorial evidence for the use of eyeglasses is Tommaso da Modena's 1352 portrait of the cardinal Hugh de Saint-Cher reading in a scriptorium.Tomaso Barisiniwas an Italian painter of the mid-14th century.The portrait of renowned biblical commentator Cardinal Hugh of Saint-Cher is the earliest known depiction of a person wearing spectacles. The initial spectacle design featured a frame that supported the right and left spectacle cells, with a rivet that allowed for a swivel motion connected to a tiny strut that held the two lenses together. They made a space to glide over each other's noses. The lenses, which showed some ability to enlarge an object of regard due to their curved surface, were most likely formed of transparent quartz, also known as pebble quartz, or beryl, also known as sea green stone of beryllium aluminium silicate.It would take until the 1600s to produce polished optical quality glass from hardened molten silicate with lead or flint added for clarity.This early spectacle lenses' magnification was, at the best, hazy speculation, and it is very likely that the two lenses had differing dioptric powers.The single-lens monocular had become the go-to reading aid in Europe by the 17th century, and it was typically carried around the neck or tucked into a coat pocket. Till that time, the only population eligible for refractive correction were those who were mainly presbyopia, providedthe peoplehad lived long enough and rarely hyperopia.

By the 18th century the use of steel,leather, or bronze,introduced a new way to connect twoframed lenses. Pince-nez were a nineteenth century innovation that literally translates as 'pinching the nose'.A steel bridge pieceenabled eyeglasses to be held in placeby the forces associated with pinching the nose between the lens frames.The wearer occasionally found it difficult to breathe because this clip was excessively tight. Because they could fall off if they were too loose, pince-nez were frequently fastened to the wearer's clothing with a chain or string for safety and security to prevent them from being misplaced or dropped.

"Astigmatism" and "myopia" were the two refractive errors that the early manufacturers of these spectacles could not address.The discovery of the process of accommodation was quantified by Franciscus Cornelius Donders in the mid-19th century.Franciscus Cornelius Donders was a Dutch ophthalmologist.Along with Graefe and Helmholtz, he was one of the primary founders of scientific ophthalmology. Until they reach early middle age, the majority of farsighted young adults still have a significant amplitude of accommodation and may require glasses for near or distant vision. However, by the late 1700's eyeglasses were also being worn in the United States and Benjamin Franklin created bifocal lenses in 1784, using to separate lens segments held in the rimmed frame, these correcting for both myopia and presbyopia. He is generally credited with the invention of bifocals. However, some historians have produced evidence at different times to suggest that others may have preceded him in this invention. By the 1800s, wearing glasses as fashion accessories was becoming increasingly common, and the first monocle—the eye ring—was created in England.These were popular with the upper classes of the 1800's.It is known that Sir George Airy was the first to use cylindrical lenses for astigmatism. George Biddell Airy was an English scientist, who was astronomer royal from 1835 to 1881.Airy graduated from Trinity Col-

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lege, Cambridge, in 1823. While holding the Lticasian professorship at Cambridge (1826–28), he had his own eyesight repaired with a set of cylindrical lenses.However, the full general theory may be attributed to a later Lucasian professor, Sir George Stokes (1849–1903), who was the first to demonstrate mathematically that astigmatism (along with these other defects) can be corrected for in any eye (long-sighted or short-sighted) by using a lens with one spherical and one cylindrical face.

In the 20th century, eyeglasses became more affordable due to mass production.Gradually, the lenses developed over time, the quality as well as the material of the lens. Spectacles were supplied to the troops in First World War. With the introduction of frames in a variety of designs, materials, and colours during the second half of the 20th century, eyewear began to seem more sophisticated and attractive. In example, plastic frames offered a wider selection of colours and textured textures. A resurgence of interest in rimless designs was sparked by the fact that plastic lenses were lighter, thinner, and more durable than glass. In the mid-20th century, the invention of contact lenses provided an alternative to traditional eyeglasses.

Over the past few decades, advancements in technology and materials, including as lightweight polymers and progressive lenses, as well as anti-reflective coatings, have enhanced the comfort and usability of eyeglasses.

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Portrait of Hugh of Saint-Cher, 1352

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