Smart Contact Lenses Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

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Report description:

The Smart Contact Lenses Market is expected to register a CAGR of 9.8% over the forecast period, 2022-2027.

The impact of COVID-19 on the smart contact lenses market's growth was adverse in 2020 due to fewer eye care consultations. For instance, according to data published in August 2020 by the Centers for Disease Control and Prevention and the American Academy of Ophthalmology, there was a nearly 80% initial decrease in ophthalmology visits. As of mid-June, there was still a 40% cumulative decrease in ophthalmology visits in the United States. However, owing to the recommencement of ophthalmology practices and procedures worldwide, the market may soon prevail with a normal growth rate. For instance, according to the article "Tele-consultations in the wake of COVID-19 - Suggested guidelines for clinical ophthalmology," published in June 2020 in India, the Ministry of Health and Family Welfare proposed guidelines for safe ophthalmology practices in the COVID-19 scenario, such as eye care facilities should ensure that telecounseling and teleconsultation should be encouraged to reduce patient visits and appointment systems can be followed to call patients needing examinations, eye investigations, or procedures. Likewise, in March 2020, the American Academy of Ophthalmology (AAO) released practice guidelines advising ophthalmologists to cease providing any treatment other than urgent and emergent care. Such factors are projected to boost the demand for smart contact lenses among the patient population, thereby leading to market growth over the coming years.

Furthermore, the major factors fuelling the market's growth are the rising burden of eye disorders, the growing prevalence of presbyopia in the geriatric population, the surge in advancements in glaucoma treatment technologies, and the increasing research and development activities by key market players for smart contact lens manufacturing.

Smart contact lenses diagnose diabetes and glaucoma by measuring the glucose level in tears and monitoring intraocular pressure within the eyes. The rising burden of diabetes, leading to eye disorders, is thus expected to drive the demand for smart contact lenses, thereby significantly contributing to the market growth, for instance, as per a November 2021 published article titled, "Global Prevalence of Diabetic Retinopathy and Projection of Burden through 2045: Systematic Review and Meta-analysis", among individuals with diabetes, the global prevalence was 22.27% for diabetic retinopathy, 6.17% for vision-threatening DR (VTDR), and 4.07% for clinically significant macular edema. In addition, as per a July 2021 published article titled, "Prevalence of primary open-angle glaucoma in the last 20 years: a meta-analysis and systematic review", the study provided the most updated worldwide prevalence of primary open-angle glaucoma (POAG) for the last 20 years. As per the study results, the overall global prevalence of POAG in the population over 40 years old is 2.4%. Moreover, according to a March 2022 update, in South Korea, a POSTECH research team led by Professor Sei Kwang Hahn and Ph.D. candidate Geon-Hui Lee, in collaboration with Dr. Sangbaie Shin of PHI BIOMED Co., developed a smart contact lens-type wearable device to prevent diabetic retinopathy and treat it in its early stages by irradiating 120 µW far-red/LED light to the retina. This technology for smart LED contact lenses has attracted great attention for various ophthalmologic diseases.

Thus, the abovementioned factors indicate that the growing burden of eye disorders and advancements in smart contact lens technology will drive the demand for smart contact lenses over the forecast period.

However, the high cost of smart contact lenses and lack of awareness about these lenses are the major factors restraining the market's growth.

Smart Contact Lenses Market Trends

Continuous Glucose Monitoring Segment is Expected to Hold a Significant Market Share in the Smart Contact Lenses Market

By application, the continuous glucose monitoring segment is expected to hold a significant share in the market. The smart contact lens aims to help diabetes patients by continuously measuring the glucose level in their tears. Miniaturized sensors and wireless chips are built into these lenses to track physiological factors such as intraocular pressure in people with diabetes. Sensors are embedded in the two layers of soft lenses. A small opening in the outer layer allows tears to flow into the sensor, which detects blood sugar levels and transmits the data to the wireless device for storage. Thus, monitoring glucose levels in real-time aids in making informed daily decisions about balancing food, physical activity, and medicine.

The major factors fuelling the segment's growth are an increase in research and development activities, technological advancements in the field of ophthalmology, and the growing adoption of smart contact lenses among the diabetic population, for instance, as per an article titled "Continuous Non-Invasive Glucose Monitoring via Contact Lenses: Current Approaches and Future Perspectives" published in June 2021, recent advances in the development of smart contact lenses for biomedical purposes combine both continuous glucose monitoring with an on-demand flexible drug delivery system for the treatment of diabetic retinopathy.

In addition, increasing research and development activities contribute to the segment's growth. For instance, as per an April 2020 published article titled "Wireless smart contact lens for diabetic diagnosis and therapy," the researchers developed smart contact lenses for continuous glucose monitoring and treating diabetic retinopathy. As per the study, the smart contact lens device, built on a biocompatible polymer, contains ultrathin, flexible electrical circuits, and a microcontroller chip for real-time electrochemical biosensing, on-demand controlled drug delivery, wireless power management, and data communication. Additionally, the study states that the device could measure tear glucose levels to be validated by conventional invasive blood glucose tests. Such studies highlight the significance of smart contact lenses in continuous glucose monitoring. Thus, more studies with positive outcomes are leading to product approvals, which, in turn, contribute to the segment's growth over the coming period.

Thus, due to the abovementioned developments, the segment is expected to witness significant growth over the forecast period.

North America is Expected to Hold the Largest Share in the Global Market

North America is expected to hold a significant share of the market. It can be attributed to factors such as the increasing number of patient visits seeking eye care treatment, a surge in awareness regarding the commercial availability of products, a rising number of research and development activities, and the strong presence of market players in the region.

For instance, as per a July 2021 update by the BrightFocus Foundation, more than three million Americans are living with glaucoma, 2.7 million of whom aged 40 and older are affected by its most common form, open-angle glaucoma. As per the same source, glaucoma is a leading cause of blindness among African Americans and Hispanics in the United States. Thus, the high number of people suffering from glaucoma will likely increase the demand for smart contact lenses within the region, ultimately contributing to market growth.

Additionally, several strategic initiatives undertaken by prominent players are contributing to the market's growth. For instance, in January 2021, InWith, a corporation that specializes in the embedding of microelectronic technology in hydrogel devices, demonstrated its incredible smart contact lenses at the CES event 2021, opening a new door for the future of computerized applications for augmented reality (AR) in soft contact lenses.

Thus, owing to the abovementioned factors, the market is expected to witness significant growth over the forecast period.

Smart Contact Lenses Market Competitor Analysis

The smart contact lenses market is competitive with several global and international players. The key players are adopting different growth strategies to enhance their market presence, such as partnerships, agreements, collaborations, new product launches, geographical expansions, mergers, and acquisitions. Some of the key players in the market are Sensimed, Mojo Vision, Innovega Inc., InWith Corporation, and Johnson & Johnson, among other market players.

Additional Benefits:

  The market estimate (ME) sheet in Excel format
 3 months of analyst support

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