

Knee Cartilage Repair Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

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Report description:

The Knee Cartilage Repair Market is projected to register a CAGR of 6.2% during the forecast period (2022- 2027).

During the COVID-19 pandemic, the studied market was adversely affected due to supply chain issues and long waiting times. For instance, in August 2021, a research study titled "Impact of the COVID-19 Outbreak on Orthopedic Surgery: A Nationwide Analysis of the First Pandemic Year" stated that the number of orthopedic surgeries fell by 22.8% during the first year of the pandemic in Chile. All surgical procedures were adversely affected, with fracture and trauma surgeries being the least affected. The maximum adverse impact was seen in knee arthroplasty (-64%), followed by hip arthroplasty (-41%) and knee ligament reconstruction (-44%). The COVID-19 outbreak reduced the number of orthopedic procedures during 2020, as public health networks did have a more significant adverse impact on elective surgeries due to a slower recovery than private institutions. An increase in the waiting list should be expected, which will widen the access gap to orthopedic surgery, ultimately impacting the market growth rate over the coming years.

Factors such as the increasing geriatric population coupled with increasing road and sports-related injuries and a rising preference for minimally invasive surgeries are driving the market growth. For instance, an article published by the World Health Organization titled "Age and Health" in October 2021 stated that by 2030, 1 in 6 people worldwide would be 60 years or older. The share of the population aged 60 years and over will increase from 1 billion in 2020 to 1.4 billion. By 2050, the world's population of people aged 60 years and older will double (to 2.1 billion). The number of people aged 80 years or older is expected to triple between 2020 and 2050 to reach 426 million. Aging may hurt knee health, and thus, there will be an increased chance of knee cartilage damage and thus it will require treatment. Hence, growth in the geriatric population, thereby drive the demand for knee surgeries, in turn boosting the market's growth.

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Similarly, rising road accidents are another factor augmenting the market's growth. For instance, in October 2021, the National Road Safety Authority (ANSR) stated that there was a worsening in the evolution of the indicators, with a growth of 42.5% in fatalities, in contrast to the reductions of the two previous months, and an increase of 9.1% in the number of accidents, from 2.4% for serious injuries and 11.6% for minor injuries, compared to August 2020. According to the same document, in August 2021, there were 2,996 road accidents on Portuguese roads, which caused 57 deaths, 217 serious injuries, and 3,644 minor injuries. As a result, rising injuries will increase the demand for knee cartilage treatment, driving market growth in the coming years.

Similarly, a rising preference for minimally invasive surgeries would increase market growth. For instance, in January 2021, a research study published titled "Augmented reality navigation for minimally invasive knee surgery using enhanced arthroscopy" stated that during minimally invasive knee surgery, surgeons insert surgical instruments and arthroscopy through small incisions and implement treatment assisted by 2D arthroscopic images. Compared with 2D arthroscopic navigation, the proposed augmented reality navigation reduced the targeting errors by 2.10 mm and 2.70 mm for knee phantom and in vitro swine knee experiments, respectively. Thus, with technological advancements, the preference for minimally invasive surgeries will increase and support the market's growth.

Additionally, in July 2021, the HYALEX Cartilage System by Hyalex Orthopaedics, Inc. was granted Breakthrough Device Designation by the United States Food and Drug Administration (FDA). The HYALEX Cartilage System is intended to repair cartilage defects and restore function for patients with loss of knee articular cartilage and bone requiring surgery.

Thus, the abovementioned factors will increase the market's growth in the upcoming period. However, the high cost of treatment may hinder the market's growth over the forecast period.

Knee Cartilage Repair Market Trends

Arthroscopic Chondroplasty Segment is Expected to Hold a Significant Market Share Over the Forecast Period

Chondroplasty is performed to smooth damaged cartilage in the knee to lessen friction in the joint. Factors such as increasing research studies are driving the segment's growth. Various research studies have been published to provide insight into the studied segment. For instance, in August 2021, a published research paper titled "Post-arthroscopic Subchondral Insufficiency Fractures of the Knee Yield High Rate of Conversion to Arthroplasty" stated that post-arthroscopic subchondral insufficiency fracture of the knee (SIFK) most commonly occurs in the medial compartment. Meniscal root and radial tears in these patients are notable (75%). Ultimately, there is a high rate of progression of arthrosis (33%) and eventual conversion to arthroplasty.

Similarly, another research study published in January 2022, titled "The Arthroscopic Application of Radiofrequency in Treatment of Articular Cartilage Lesions," stated that knee arthroscopy partial-thickness cartilage defects can be detected in more than 60% of the cases that received knee arthroscopy, with Outerbridge Grade III lesions of the patella being the dominant one. The study investigated 15 patients who underwent knee arthroscopic radiofrequency chondroplasty. The clinical results of these patients were significantly improved compared with their preoperative status.

Additionally, the launch of products is also augmenting the market's growth. For instance, in February 2021, the United States Food and Drug Administration granted Chondro-Gide articular cartilage cover by Geistlich Pharma a Breakthrough Device (BDD). Chondro-Gide is a collagen membrane used in a single-step cartilage repair technique.

Thus, owing to the abovementioned factors, the market segment is expected to show growth over the forecast period.

North America is Expected to Dominate the Market Over the Forecast Period

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The North American market is dominating the knee cartilage repair market. Factors such as the increasing incidence of diseases, technological advancements, research studies, and grants are increasing the market's growth. Various new technologies have been considered to provide better care. For instance, in October 2021, a research study published titled "3D Bioprinted Implants for Cartilage Repair in Intervertebral Discs and Knee Menisci" stated that there had been increasing interest in the past two decades in the area of cartilage tissue engineering where methods like 3D bioprinting may be implemented to generate functional constructs using a combination of cells, growth factors (GF), and biocompatible materials. 3D bioprinting allows for the modulation of the mechanical properties of the developed constructs to maintain the required flexibility following implantation while also providing the stiffness needed to support body weight.

Similarly, another research study published in December 2021 titled "Automatic knee cartilage and bone segmentation using multi-stage convolutional neural networks: data from the osteoarthritis initiative" stated that the framework learns to automatically segment knee cartilage tissues and bones from MR images acquired with two sequences, producing efficient, accurate quantifications at varying disease severities. The study received a grant from Canada's Natural Sciences and Engineering Research Council.

Furthermore, product launches are another factor in the growth of the region. For instance, in December 2020, Arthrex, a global leader in minimally invasive orthopedic technology, announced the launch of the SwiveLock ACL Repair Kit, following clearance by the United States Food and Drug Administration of the SwiveLock anchor for ACL repair. It is one of the first FDA-cleared kits for the primary repair of anterior cruciate ligament (ACL) tears. Such launches would increase the market's growth.

Hence, with such advancements, the market's growth would increase due to more efficient products in the future.

Knee Cartilage Repair Market Competitor Analysis

The market is partially fragmented and consists of several major players. In terms of market share, a few major players dominate the market. Some of the companies which are currently dominating the market are B. Braun Melsungen AG, ISTO Technologies, Inc., Smith & Nephew, Stryker, and Zimmer Biomet Holdings, Inc., among others.

Additional Benefits:

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

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