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Orthopaedic Surgery Robots Market Assessment, By Components [Robotic Systems, Accessories and Consumables, Software and Services], By Anatomy [Lower Extremity, Upper Extremity], By End-user [Hospitals, Specialty Clinics, Ambulatory Surgical Centers, Others], By Region, Opportunities and Forecast, 2017-2031F

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Abstracts

Global orthopaedic surgery robots market is projected to witness a CAGR of 21.35% during the forecast period 2024-2031, growing from USD 1548 million in 2023 to USD 7279.29 million in 2031. Growth in the global orthopaedic surgery robots market is driven by various factors such as growing number of orthopaedics surgical procedures globally, technological advancements in the industry, growing demand for minimally invasive surgeries, and increasing awareness and acceptance among healthcare providers and patients regarding robotic-assisted surgeries. The growing healthcare industry increased public and private organizations' investments in the orthopedic surgery robots market, the presence of several top players, and the implementation of developmental strategies like mergers, acquisitions, collaborations, and new product launches have accelerated the growth of the global orthopedic surgery robots market.

The global orthopaedic surgery robots market is further undergoing robust growth due to a significant rise in number of orthopaedics surgeries worldwide. Increasing aging population leads to vulnerability towards several health conditions, such as arthritis, fractures, knee joint pain, and back pain, due to which, there is a growing demand for orthopaedics surgeries. To meet this growing demand, orthopaedic surgery robots play a crucial role by assisting the surgeons during surgical procedures, leading to faster surgical procedures, improved decision making, and faster recovery time. Moreover,

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technological advancements, such as the integration of AI in the robotic systems, have enhanced the efficiency and potential of these systems to provide quality treatment, which, in turn, is acting as a growth-inducing factor.

In line with this, increased investments by public and private organizations and rising government initiatives, such as granting funds for enhancing research and development and bringing innovation in orthopaedic surgery robots market, are influencing the market growth. The increasing awareness regarding the benefits of robotic-assisted surgeries further supports this. Moreover, frequent mergers and acquisitions, partnerships and collaborations between different players, favorable regulatory frameworks, and increased innovative product launches by key market players are some of the factors propelling the global orthopaedic surgery robots market.

For instance, in April 2023, Perlove Medical, which is the first domestic provider of both 3D imaging and orthopedic surgery robotic full process solutions, launched a new product “orthopedic surgery robot” in its product matrix to improve its orthopaedic surgery robots product portfolio and expand its global reach in this market.

Increase in number of Orthopaedic Surgeries

There has been a surge in demand for orthopaedic surgery robots due to the rising number of orthopaedics surgeries such as total joint arthroplasty, total hip arthroplasty, and total knee arthroplasty. Aging population, rising prevalence of chronic conditions such as osteoarthritis and rheumatoid arthritis, and technological advancements in surgical procedures has led to growing demand for orthopaedic surgeries. Moreover, improved accessibility to healthcare facilities and growing awareness regarding the potential benefits of orthopaedic surgeries are accelerating the demand for orthopaedics surgical procedures.

According to American Academy of Orthopaedic Surgeons (AAOS), which is the world’s largest medical association of musculoskeletal specialists, stated that by the year 2050, there is going to be a huge demand for orthopaedic surgeons as the number of orthopaedic surgeries, such as total joint arthroplasty, is growing year by year. To meet this growing demand for surgeons, increasing the number of surgeons by 10% every five years will be crucial. As there is a surge in orthopaedic surgeries and surgeons are over burden by this, orthopaedic surgery robots are expected to show tremendous growth in the surgical industry. Due to this, the global orthopaedic surgery robots market is expected to flourish in the coming years.

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Technological Advancements

In recent years, orthopaedic surgery robots have been experiencing technological advancements in the surgical devices market. These technological developments include improved and highly efficient robotic-assisted surgical systems with enhanced precision, incredible navigation capabilities, and haptic feedback. Increased research and development by key market players for engineering highly advanced robotic-assisted surgical devices integrated with artificial intelligence are further accelerating the market growth. These devices assist surgeons in decision making during surgical procedures and offer improved surgical outcomes. For instance, in March 2023, Stryker, which is one of the world's leading medical technology companies, announced the launch of Mako Total Knee 2.0, which is an advancement of Mako Smart Robotics. This latest innovative system is composed of digital tensioner that provides surgeons to gain stability of the knee intraoperatively during a total knee arthroplasty without any additional instruments support. Mako Total Knee 2.0 is composed of three key components, 3D CT-based planning, AccuStop haptic technology, and insightful data analytics, which is responsible for better surgical outcomes. These innovations in orthopaedic surgery robots are escalating the growth of the global orthopaedic surgery robots market.

Increased Demand for Lower Extremity Orthopaedic Surgery

Among the anatomy segment, lower extremity holds the highest market share in the global orthopaedic surgery robots market. Increased number of lower extremities orthopaedic surgeries, such as total knee and hip arthroplasty, technological advancements, and growing investments by key market players in this segment lead to its huge demand among orthopaedic surgery robots manufacturers. Moreover, many key market players are adding orthopaedic surgery robots for lower extremity surgeries to their product portfolio.

For instance, in October 2023, Johnson & Johnson MedTech launched the "VELYS Robotic-Assisted Solution" from DePuy Synthes for its European market. The VELYS Robotic-Assisted Solution is indicated for total knee surgeries. With this launch, DePuy Synthes has expanded its digital surgery platform to manage the growing need for total knee surgeries, which is difficult to achieve by traditional way of surgeries. Supportive regulatory systems and increased demand for orthopaedic surgeries, along with latest launch of robotic-assisted surgeries, especially for lower extremities, is further motivating orthopaedic surgery robots manufacturers to invest and bring innovative launches, thereby propelling the market growth.

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Increased demand for Robotic Systems

Among the component segment, robotic systems hold a significant market share in the overall global orthopaedic surgery robots market. Robotic systems are the main component that enhance the efficiency of orthopaedic surgeries. These are expensive and contribute as an essential part during the surgical procedures. Moreover, key market players are coming up with new, innovative, and highly efficient products in this segment, which is further accelerating the growth of this segment.

For instance, in February 2022, Smith+Nephew, the global medical technology company, announced the launch of an innovative robotic system “the CORI Surgical System”, in Japan. This innovative robotic system is more compact, consists of 3-D intraoperative imaging with an advanced robotic precision milling tool and a new camera technology that is over four times faster, helping reduce the cutting time in knee arthroplasty procedures. This system enables surgeons to perform knee surgery more efficiently. These new innovative launches by key market leaders further propel the global orthopaedic surgery robots market.

North America holds the Maximum Share; Asia-Pacific Leads the Market

North America holds the maximum share in the global orthopaedic surgery robots market, due to its well-established healthcare infrastructure, availability of advanced technological products such as surgical robots and AI integrated medical devices, and increased research and development activities in the healthcare sector. However, the Asia-Pacific region is expected to be the fastest growing region in the global orthopaedic surgery robots market. Rapidly increasing population and growing number of orthopaedic surgeries in the region accelerate the demand for highly efficient orthopaedic surgery robots in the surgical sector to improve precision and surgical outcomes. Additionally, increasing adoption rate of using surgical robots for orthopedic surgeries in Asia-Pacific is also spurring growth in this market.

For instance, in October 2023, The Indian Spinal Injuries Centre (ISIC), announced the establishment of a new department of robotic joint replacement, which is an enormous advancement in orthopaedic surgery in India. This launch was preceded after several successful knee robotics surgeries and satisfying patient outcomes. The department would use the latest and advanced navigational technology in robotic surgery to improve the health condition of people suffering from knee problems. Due to this growing adoption of robotic surgery in the Asia-Pacific, it is expected that this region will

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grow at a faster pace compared to other regions and further accelerate growth of the global orthopaedic surgery robots market.

Future Market Scenario (2024 – 2031F)

The global orthopaedic surgery robots market is expected to grow in the future, due to multiple factors. Primarily, the increasing number of orthopaedic surgeries worldwide has increased the demand for orthopaedic surgery robots in the healthcare industry. Technological advancements, such as the integration of AI in robotics systems for improved efficiency and precision and increased demand for minimally invasive surgeries, further accelerate the growth of this market. Increased healthcare expenditure, government funding, increased research and development, new innovative launches by key market players, and increased awareness regarding the potential benefits of robotic-assisted surgeries are escalating the growth of the global orthopaedic surgery robots market. Moreover, collaborative ventures involving manufacturers of medical and surgical devices have spurred innovation in the global orthopaedic surgery robots market, thus favoring its growth.

Key Players Landscape and Outlook

In the orthopaedic surgery robots market, several industry players, such as medical devices, surgical devices, and robotic manufacturers, are consistently establishing strategic partnerships and distribution agreements, which are playing a crucial role in propelling the global orthopaedic surgery robots market. These partnerships empower firms to gain insights from these mergers, take benefits from each other’s resources, markets, and technologies, and invest in research and development of technologically advanced products. Distribution agreements enable companies to broaden their market presence at a global level. These collaborative initiatives promote innovation, expertise product development, and improve surgical outcomes.

For instance, in September 2023, Globus Medical, Inc., a leading manufacturer of musculoskeletal solutions, announced that it has successfully completed its merger with NuVasive, Inc. This merger will provide surgeons and patients exclusive musculoskeletal procedural solutions and advanced technologies, such as robotics-assisted surgical systems, to improve surgical outcomes. This partnership further aims to expand the company’s existing product portfolio and global footprint in the market.

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