

Global Prosthetics Market: Analysis By Technology Type (Electric Powered Technology, Hybrid Prosthetics and Conventional Technology), By User Type (Prosthetic Clinics, Hospitals, Rehabilitation Centers and Others), By Region, Size and Trends with Impact of COVID-19 and Forecast up to 2027

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Abstracts

The global prosthetics market was valued at US\$2.05 billion in 2021, and is expected to be worth US\$2.89 billion in 2027. Prosthetics refer to the use of artificial limbs, also known as prostheses for enhancing the function and lifestyle of individuals with limb loss. Prosthetic implant is an artificial device that is used to replace a missing body part, which is lost due to any trauma, disease, accident or a condition present at birth. People can lose all or multiple parts of an arm or leg for various reasons like circulation problems from atherosclerosis or diabetes; traumatic injuries, including traffic accidents or military combat; cancer; and birth defects. Prostheses are intended to restore the normal functions of the missing body part.

It should be a unique combination of appropriate materials, design, construction and alignment for matching the functional requirements of an individual. These needs of the individuals are complex and vary for upper and lower extremities. Lower limb prostheses addresses stability in walking, standing, shock absorption, cosmetic appearance and energy storage. Upper limb prosthesis helps in addressing issues like reaching and grasping, other occupational challenges like hammering, weight lifting or painting, and activities of daily living like dressing, writing and eating. The global prosthetics market is determined to grow at a CAGR of 5.90% over the forecasted period of 2022-2027.

Market Segmentation Analysis:

By Technology Type: The report identifies three segments on the basis of technology type: Electric Powered Technology, Hybrid Prosthetics and Conventional Technology. Electric powered technology segment dominated the market in 2021 with a share of around 67%. Electric prostheses, also known as myoelectric prostheses, are controlled by electrical signals generated by the body's muscles. During the historical years, growth in the global electric powered technology prosthesis was driven by increased cases of traffic accidents causing severe injuries. Therefore, demand for electric powered prostheses increased as they provide a natural appearance in the form of artificial limb. Moreover, undertaking of various technological advancements in electric prosthesis would support market growth during the forecasted years.

By User Type: The report identifies four segments on the basis of user type: Prosthetic Clinics, Hospitals, Rehabilitation Centers and Others. Among the user type, hospital segment is expected to grow at a highest CAGR of around 7% during the forecasted period. Growing incidences of medical ailments such as diabetes which leads to several problems in lower part of the human body, and other ankle & feet related disorders require surgical interventions, which have supported the growth of the segment throughout the years. And, the rising incorporation of digitalization and newer product launches are expected to propel the growth of the market in coming years.

By Region: In the report, the global prosthetics market is divided into four regions: North America, Europe, Asia Pacific, and ROW. North America dominated the prosthetics market, accounting for more than 55% of revenue in 2021. Rapid urbanization, population growth, and rising consumer disposable income have all contributed to the region's phenomenal growth over the years. Moreover, factors such as increasing prevalence of orthopedic injuries, growing incidences of trauma cases, increase in sports related injuries and rise in obesity leading to diabetes also aided the market growth in the region.

Europe offers strong growth potential to the prosthetics market. Rising life expectancy is changing the shape of the European nations age pyramid, the most significant change will be a notable shift toward a much older demographic structure, a trend that is expected to continue. Increasing cases of road injuries, technological advancements in designing & manufacturing of prosthetic devices and rising geriatric population are all expected to propel growth of the market in Europe during the forecasted period.

Market Dynamics:

Growth Drivers: One of the key drivers of the market's expansion is the increasing use of robotics prosthesis. Robotics integration in the prosthetic and orthotic industry, as well as in the field of assistive technology, has proven to be a boon for people with disabilities. The neural network concept has been used by leading manufacturers of rehabilitation aids to simulate various anatomical and biomechanical functions of lost human body parts. Human interaction with various agents, such as electronic circuitry, software, robotics, and so on, has had a revolutionary impact in the rehabilitation field, leading to the development of devices such as bionic legs, mind or thought control prosthesis, and exoskeletons. The use of robotics technology has significantly driven the adoption of prosthetics. Other significant growth factors of the market include, increasing prevalence of diabetes, rapid urbanization, surging geriatric population, rising incidence of road injuries, growing prevalence of bone cancer, and 3D printed prosthetics.

Challenges: However, some challenges are impeding the growth of the market such as potential of low cost and limited function prostheses and barriers to entry. Growth in the global prosthetics market was restrained by barriers to entry because of the guidelines imposed by the FDA's regulatory control over these devices based on the risks associated with them. All these devices belong to the class III category according to the FDA, including devices involving high risk associated with their usage.

Trends: The market is projected to grow at a fast pace during the forecast period, due to use of artificial intelligence in robotic prosthetics, escalating healthcare spending, surge in middle class population and increasing use of myoelectric prosthetics. From patient care, diagnostic accuracy to drug development, AI is revolutionizing the healthcare sector. The basic idea behind incorporating artificial intelligence in robotic prostheses is that the algorithm interprets nerve signals from the patient's muscles, allowing for more precise control of the prosthesis. University of Utah researchers developed an AI-powered prosthetic limb that adjusts to the user's hip and residual limb movements. It makes avoiding obstacles smoother and easier. The increased demand and efficacy of amputation through the integration of AI in prosthesis is expected to drive the prosthetics market growth in the coming years.

Impact Analysis of COVID-19 and Way Forward:

The unparalleled burden of the COVID-19 crisis on the global healthcare sector created substantial challenges for the major players in the prosthetics market. Redirection of the available resources by hospital administration as well as governments restricted the

scope of supply and distribution networks for prosthetics. In addition to that, various restrictions on elective medical procedures also hindered the market growth in the short term.

However, the negative impact of COVID-19 was slightly compensated with the adoption of digitalization in prostheses designing and manufacturing process. New digital technologies like 3D scanners and CAD/CAM supported the growth of the market and further technological advancements like use of artificial intelligence (AI) and myoelectric prosthetics are expected to support the market growth during the post COVID period.

Competitive Landscape:

The global prosthetics market is moderately concentrated. Market players have implemented sustainable growth techniques in the market. To strengthen their position in the market, some of the leading competitors are pursuing various growth methods such as mergers, acquisitions, collaborations, and agreements.

The key players in the global prosthetics market are:

Ossur HF

Straumann Holdings AG

Hanger, Inc.

Blatchford

Zimmer Biomet Holdings, Inc.

WillowWood

Fillauer Companies, Inc.

Proteor Group

Streifeneder

Trulife

Ottobock SE & Co. KGaA

ProtUnix

Daw Industries

There are several global and local players in this market. To gain a competitive advantage, market players prioritize research and development in order to develop technologically advanced and differentiated products. Companies are also focusing on developing products that adhere to regional regulatory norms in order to eliminate the risk of losing business due to regulatory violations. For instance, Ottobock introduced pediatric prosthetic knee joints. To increase market penetration, Ossur introduced products such as the Ossur Formfit Pro Line of 3D knitted supports at OTWorld. Blatchford launched a new sandal toe foot shell for its various products, including Linx, Elan, and Echelon VAC to improve the company's product portfolio.

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