Joint Reconstruction (Hip and Knee Devices) Market to 2018

Advanced Implant Materials, Innovative Designs and Improved Longevity lead to Rise in the Number of Early Joint Replacement Surgeries
GBI Research Report Guidance

- Chapter three provides information on market size for the 2004 - 2011 historic period and the 2011 - 2018 forecast period. It also includes information on joint reconstruction (hip and knee devices) trends, dynamics and the competitive landscape. The market dynamics section covers drivers and restraints.

- Chapter four discusses the knee reconstruction device and hip reconstruction device categories, giving market size information for 2004 - 2011 and 2011 - 2018, along with market dynamics.

- Chapter five contains information on market size for 2004 - 2011 and 2011 - 2018 for the US, Canada, the UK, France, Germany, Italy, Spain, Japan, China, India, Australia and Brazil, with cross-country analysis.

- Chapter six profiles the leading joint reconstruction (hip and knee devices) companies and looks at their key products.

- Chapter seven focuses on pipeline products. Key products are listed and discussed in detail and product approval and expected launch dates are provided where available.

- Chapter eight discusses the consolidation landscape in the joint reconstruction (hip and knee devices) industry and looks at the total number of deals that took place during the 2007 - 2011 period.
Executive Summary

Global Joint Reconstruction (Hip and Knee Devices) Market is Forecast to Exceed $XX Billion by 2018

The global market for joint reconstruction (hip and knee devices) was estimated to be worth $XX billion in 2011 and is expected to reach $XX billion by 2018 at a Compound Annual Growth Rate (CAGR) of XX%. The knee reconstruction category is the largest in terms of revenue and is forecast to reach $XXm in 2018, while the hip reconstruction category is expected to grow at a CAGR of XX% to $XXm.

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<tr>
<th>Year</th>
<th>Revenue ($m)</th>
<th>CAGR (%)</th>
</tr>
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<tbody>
<tr>
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<td></td>
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<td>2018</td>
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Source: GBI Research’s proprietary database [accessed October 26, 2012]; primary research interviews with marketing managers and other industry experts

During the forecast period the market is primarily expected to be driven by the increase in the elderly population; the large patient pool suffering from osteoporosis; the rapid adoption of innovative, minimally invasive joint reconstruction procedures; and a trend towards patients aged between XX and XX years opting for replacement surgeries to maintain active and healthy lifestyles. Research into the development of minimally invasive devices and procedures is increasing and will accelerate technological innovation in the joint reconstruction devices market. Furthermore, increasing awareness of the various treatment options available to patients, improving diagnosis and treatment rates and growing demand for safe, nontoxic, and cost-effective therapies will lead to higher adoption rates for joint reconstruction devices.
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2 Introduction

The joint reconstruction (hip and knee devices) market is growing at a moderate rate due to the increasingly large elderly population; an increase in the prevalence of osteoporosis; longer life expectancies; increasing awareness of orthopedic diseases and of the treatment options available to patients; more patients aged between XX and XX years opting for joint replacement surgeries; technological advances; and an increase in R&D into innovative, minimally invasive and patient-convenient products.

The joint reconstruction (hip and knee devices) market comprises knee reconstruction and hip reconstruction devices. Although the knee reconstruction devices category is the largest in terms of revenue, the hip reconstruction devices category is expected to witness a stronger growth rate. Advances in implant materials that resist wear and tear and a decrease in failure rates are encouraging young patients to opt for early surgical intervention. The emergence of new procedures such as hip resurfacing and partial knee replacement and greater penetration of existing technologies are also contributing to market growth. Furthermore, medical tourism is gaining popularity due to high-quality medical care and lower costs in countries such as India. On the other hand, a high rate of product alerts and recalls due to device failures, primarily metal toxicity, device loosening and dislocation and infection, are hindering market growth. The dominant players in the joint reconstruction (hip and knee devices) market are Zimmer, DePuy, Stryker, Smith & Nephew and Biomet.
3 Global Joint Reconstruction (Hip and Knee Devices) Market - Market Characterization

3.1 Joint Reconstruction (Hip and Knee Devices) Market, Global, Revenue ($m), 2004 - 2011

The global market for joint reconstruction (hip and knee devices) was worth $XX billion in 2004 and grew at a Compound Annual Growth Rate (CAGR) of XX% to $XX billion in 2011. Knee reconstruction was the biggest category with revenues of $XX billion in 2011, while the hip reconstruction devices market was valued at $XX billion. The market was driven by increased demand for partial knee replacement and hip resurfacing surgeries, and a higher number of people suffering from arthritis and efforts to raise awareness of better hip and knee management.

![Figure 1: Joint Reconstruction (Hip and Knee Devices) Market, Global, Revenue ($m), 2004 - 2011](image)

Source: GBI Research’s proprietary database [accessed October 26, 2012]; primary research interviews with marketing managers and other industry experts

<table>
<thead>
<tr>
<th>Year</th>
<th>Knee reconstruction</th>
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<td>2011</td>
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CAGR (%)

Market growth decreased in 2009, largely due to the global economic recession. The hip and knee implant market was affected as many patients delayed elective procedures, leading to weak demand. However, stability returned in 2010 with an increase in hip and knee replacements and in the uptake of new and advanced products.
3.3 Joint Reconstruction (Hip and Knee Devices) Market, Global, Key Company Share (%), 2011

The joint reconstruction (hip and knee devices) market is dominated by both knee reconstruction and hip reconstruction device manufacturers. The major players in the market in 2011 were Zimmer Holdings, DePuy, Stryker, Smith & Nephew and Biomet.

![Figure 3: Joint Reconstruction (Hip and Knee Devices) Market, Global, Key Company Share (%), 2011](image_url)

Source: GBI Research’s proprietary database [accessed October 26, 2012]; primary research interviews with marketing managers and other industry experts

<table>
<thead>
<tr>
<th>Company</th>
<th>Revenue ($m)</th>
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<tbody>
<tr>
<td>Zimmer Holdings, Inc.</td>
<td></td>
</tr>
<tr>
<td>DePuy, Inc.</td>
<td></td>
</tr>
<tr>
<td>Stryker Corporation</td>
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<tr>
<td>Smith &amp; Nephew Plc</td>
<td></td>
</tr>
<tr>
<td>Biomet, Inc.</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
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</tbody>
</table>

Source: GBI Research’s proprietary database [accessed October 26, 2012]; primary research interviews with marketing managers and other industry experts

Most of the major companies offer both knee reconstruction and hip reconstruction devices. Zimmer Holdings dominates the market with a share of XX% joint reconstruction (hip and knee devices) and revenues of $XX billion in 2011. DePuy and Stryker occupied second and third positions with shares of XX% and XX% joint reconstruction (hip and knee devices) respectively, followed by Smith & Nephew and Biomet with XX% and XX% joint reconstruction (hip and knee devices).
9 Appendix

9.1 Definitions

9.1.1 Hip Reconstruction

Hip reconstruction is a procedure which involves the replacement of damaged or diseased parts of the hip joint. This category includes devices (implants) used in primary and revision hip replacement procedures.

9.1.1.1 Hip Resurfacing

Hip resurfacing is an alternative intervention to total hip replacement. In hip resurfacing, the damaged surfaces of the hip joint are removed and replaced with metal parts to improve mobility and reduce pain. The device (implant) comprises a socket in the shape of a shallow cup (acetabular component) and a cap in the form of a ball head (femoral resurfacing component). One unit consists of a cap implanted over the femoral head and a cup in the acetabulum.

9.1.1.2 Partial Hip Replacement

Partial hip replacement is a surgical procedure in which the damaged portion of the hip joint is replaced. The device (implant) includes prostheses that comprise a femoral cap component made of a metal alloy, such as cobalt-chromium-molybdenum, or a ceramic material, or polymer-coated articulating surface with or without a metal surface. Both uncemented and cemented versions are covered under this segment. The articulating surface replacement for a femoral head and neck joint is an example of a device in this segment. One unit consists of an acetabular component and a femoral component.

9.1.1.3 Primary Hip Replacement

Primary hip replacement is a surgical procedure which involves the total replacement of a damaged hip joint with prostheses. During the procedure the damaged ball and socket of the hip joint are removed and replaced with artificial material. The device (implant) include prostheses that have a femoral component made of alloys, such as cobalt-chromium-molybdenum, and an acetabular resurfacing component made of ultra-high molecular weight polyethylene (in metal-on-plastic) or alloy, such as cobalt-chromium-molybdenum (in metal-on-metal). Both uncemented and cemented versions are covered under this segment. One unit consists of an acetabular component, femoral component and femoral shaft.

- Primary Cemented Hip Replacement
  During primary cemented hip replacement procedure, the replacement implant is attached to the bone with the help of cement. One unit consists of an acetabular component, femoral component and femoral shaft.

- Primary Cementless Hip Replacement
  During the primary cementless hip replacement procedure, the replacement implant is attached to the bone directly without using any kind of cement. One unit consists of an acetabular component, femoral component and femoral shaft.

9.1.1.4 Revision Hip Replacement

Revision hip replacement devices (implants) include all hip prostheses used for revision hip surgeries. This includes both total hip replacements and partial replacements. The devices (implants) have a femoral component made of alloys, such as cobalt-chromium-molybdenum, and an acetabular resurfacing component made of ultra-high molecular weight polyethylene (in metal on plastic) or alloy, such as cobalt-chromium-molybdenum (in metal on metal). Both uncemented and cemented versions are covered under this segment. It does not include primary hip replacement devices. One unit is one implant set.

9.1.2 Knee Reconstruction

Knee reconstruction is a procedure which involves replacing the damaged or diseased parts of the knee joint. This category includes devices (implants) used in primary and revision knee replacement procedures.

9.1.2.1 Partial Knee Replacement

Partial knee replacement is a surgical procedure which involves the replacement of a portion of the knee joint with an artificial implant. The components of this implant are made of alloys, such as cobalt-chromium-molybdenum. It can be classified as patellofemoral and femorotibial. One unit is one implant set.
9.1.2.2 Primary Knee Replacement

Primary knee replacement includes patellofemorotibial replacements for the total replacement of the knee. The device (implant) includes polymer/metal/metal or polymer/metal/polymer or metal/polymer porous coated parts. One unit consists of a knee femoral component, an articulating surface (patellar component) and a stemmed tibial plate.

- Primary Cemented Knee Replacement

During primary cemented knee replacement, the replacement implant is attached to the bone with the help of cement. One unit consists of a knee femoral component, an articulating surface (patellar component) and a stemmed tibial plate.

- Primary Cementless Knee Replacement

During primary cementless knee replacement, the replacement implant is attached to the bone directly without using any kind of cement. One unit consists of a knee femoral component, an articulating surface (patellar component) and a stemmed tibial plate.

9.1.2.3 Revision Knee Replacement

Revision knee replacement devices (implant) include patellofemorotibial replacements intended to be used for revision knee procedure, which might be custom-made. The material used can be polymer/metal/metal or polymer/metal/polymer or metal/polymer porous-coated types. One unit is one implant set.

9.2 Acronyms

AAOS: American Academy of Orthopedic Surgeons
CAGR: Compound Annual Growth Rate
CT: Computed Tomography
DCT: Direct-To-Consumer
FDA: Food and Drug Administration
MRI: Magnetic Resonance Imaging
NJR: National Joint Registry
NSAID: Non-Steroidal Anti-Inflammatory Drug
OA: Osteoarthritis
PATH: Percutaneously Assisted Total Hip
UHMWPE: Ultra-High-Molecular-Weight Polyethylene
9.3 Sources


9.4 Research Methodology

GBI Research’s dedicated research and analysis teams consist of experienced professionals in marketing and market research with consulting backgrounds in the medical devices industry and advanced statistical expertise.

GBI Research adheres to the codes of practice of the Market Research Society (www.mrs.org.uk) and the Strategic and Competitive Intelligence Professionals (www.scip.org).

All GBI Research databases are continuously updated and revised. The following research methodology is followed for all databases and reports.

9.4.1 Secondary Research

The research process begins with exhaustive secondary research on internal and external sources being carried out to source qualitative and quantitative information relating to each market.

The secondary research sources that are typically referred to include, but are not limited to:

• Company websites, annual reports, financial reports, broker reports, investor presentations and SEC filings.
• Industry trade journals, scientific journals and other technical literature.
• Internal and external proprietary databases.
• Relevant patent and regulatory databases.
• National government documents, statistical databases and market reports.
• Procedure registries.
• News articles, press releases and web-casts specific to the companies operating in the market.
9.4.2 Primary Research

GBI Research conducts hundreds of primary interviews a year with industry participants and commentators in order to validate its data and analysis. A typical research interview fulfills the following functions:

- It provides first-hand information on the market size, market trends, growth trends, competitive landscape and future outlook.
- It helps in validating and strengthening the secondary research findings.
- It further develops the analysis team’s expertise and market understanding.

Primary research involves email correspondence, telephone interviews and face-to-face interviews for each market, category, segment and sub-segment across geographies.

The participants who typically take part in such a process include, but are not limited to:

- Industry participants: CEOs, VPs, marketing/product managers, market intelligence managers and national sales managers.
- Hospital stores, laboratories, pharmacies, distributors and paramedics.
- Outside experts: investment bankers, valuation experts, research analysts specializing in specific medical equipment markets.
- Key opinion leaders: physicians and surgeons specializing in different therapeutic areas corresponding to different kinds of medical equipment.

9.4.3 Models

Where no hard data is available GBI Research uses modeling and estimates in order to produce comprehensive data sets. The following rigorous methodology is adopted:

Available hard data is cross referenced with the following data types to produce estimates:

- Demographic data: population, split by segment.
- Macro-economic indicators: Gross Domestic Product, Inflation rate.
- Healthcare Indicators: health expenditure, physicians base, healthcare infrastructure and facilities.
- Selected epidemiological and procedure statistics.

Data is then cross-checked by the expert panel.

All data and assumptions relating to modeling are stored and are available to clients on request.

9.4.4 Forecasts

GBI Research uses proprietary forecast models. The following four factors are utilized in the forecast models:

- Historic growth rates.
- Macro indicators such as population trends and healthcare spending.
- Forecast epidemiological data.
- Qualitative trend information and assumptions.

Data is then cross-checked by the expert panel.

All data and assumptions relating to modeling are stored and are available to clients on request.
9.4.5 Expert Panels

GBI Research uses a panel of experts to cross verify its databases and forecasts.

GBI Research’s expert panel comprises marketing managers, product specialists, international sales managers from medical device companies; academics from research universities, KOLs from hospitals, consultants from venture capital funds and distributors/suppliers of medical equipment and supplies.

Historic data and forecasts are relayed to GBI Research’s expert panel for feedback and adjusted in accordance with this feedback.

9.6 Disclaimer

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