REFERENCE CODE **GDME206MAR** | PUBLICATION DATE **MARCH 2014**

GlobalData
MediPoint

SPORTS MEDICINE – GLOBAL ANALYSIS AND MARKET FORECASTS

Executive Summary

Arthroscopy Devices, Key Metrics in the Major Markets, 2013–2020	
(2013) Arthroscopic Procedure Volume Globally	
2013 Global Market Sales for Arthroscopic Implants Market ($m)	
2013 Global Market Sales for Arthroscopic Capital Equipment Market ($m)	
US (implants)	
US (capital equipment)	
5EU (implants)	
5EU (capital equipment)	
Asia-Pacific (implants)	
Asia-Pacific (capital equipment)	
Brazil (implants)	
Brazil (capital equipment)	
Key Events (2013–2020)	
(2013) Smith & Nephew acquires ArthroCare for $1.7bn.	
(2013) Smith & Nephew launches several suture anchor products in 2013, such as Healicoil.	
(2013) Arthrex ordered to stop selling patent-infringing suture anchors.	
(2013) Stryker launches Iconix all-suture anchor systems.	
(2014) Wright Medical sheds its large joint reconstruction business and snaps up two extremity players, expanding its ankle business.	
Competitive Assessment	
Number of Devices in Marketing Phase	
2020 Global Market Sales for Arthroscopic Implants Market ($m)	
2020 Global Market Sales for Arthroscopic Capital Equipment Market ($m)	
US (implants)	
US (capital equipment)	
5EU (implants)	
5EU (capital equipment)	
Asia-Pacific (implants)	
Asia-Pacific (capital equipment)	
Brazil (implants)	
Brazil (capital equipment)	

Source: GlobalData, based on primary research interviews with leading orthopedic sports medicine surgeons in 10 markets (US, France, Germany, Italy, Spain, UK, Japan, Brazil, China, and India)

5EU = France, Germany, Italy, Spain, and UK; Asia-Pacific = Japan, China, and India

Sales for the Arthroscopy Device Market

The arthroscopy device market consists of implants and capital equipment. The total arthroscopic implants market in 2013 was estimated to be $XXm across the XX major markets (XXMM) covered in this report: the US, France, Germany, Italy, Spain, the UK, Japan, Brazil, China, and India. Likewise, in 2013, the total arthroscopic capital equipment market was estimated to be $XXm across the XXMM. By the end of the forecast period in 2020, implant sales will grow to over $XXm at a Compound Annual Growth Rate (CAGR) of XX%. Capital equipment sales will grow to over $XXm at a CAGR of XX%.

The key drivers for the arthroscopy device market during the forecast period are:

- The growing prevalence of sports injury through repetitive training and improper biomechanics
- Individuals in the aging segment of the population with osteoarthritis, who are more susceptible to sustaining injuries through recreational activity
- The growing number of individuals adopting western sports in the emerging nations
- The biologics and cell-based industry, for soft tissue repair to treat sports injuries more naturally, as opposed to metal implantations

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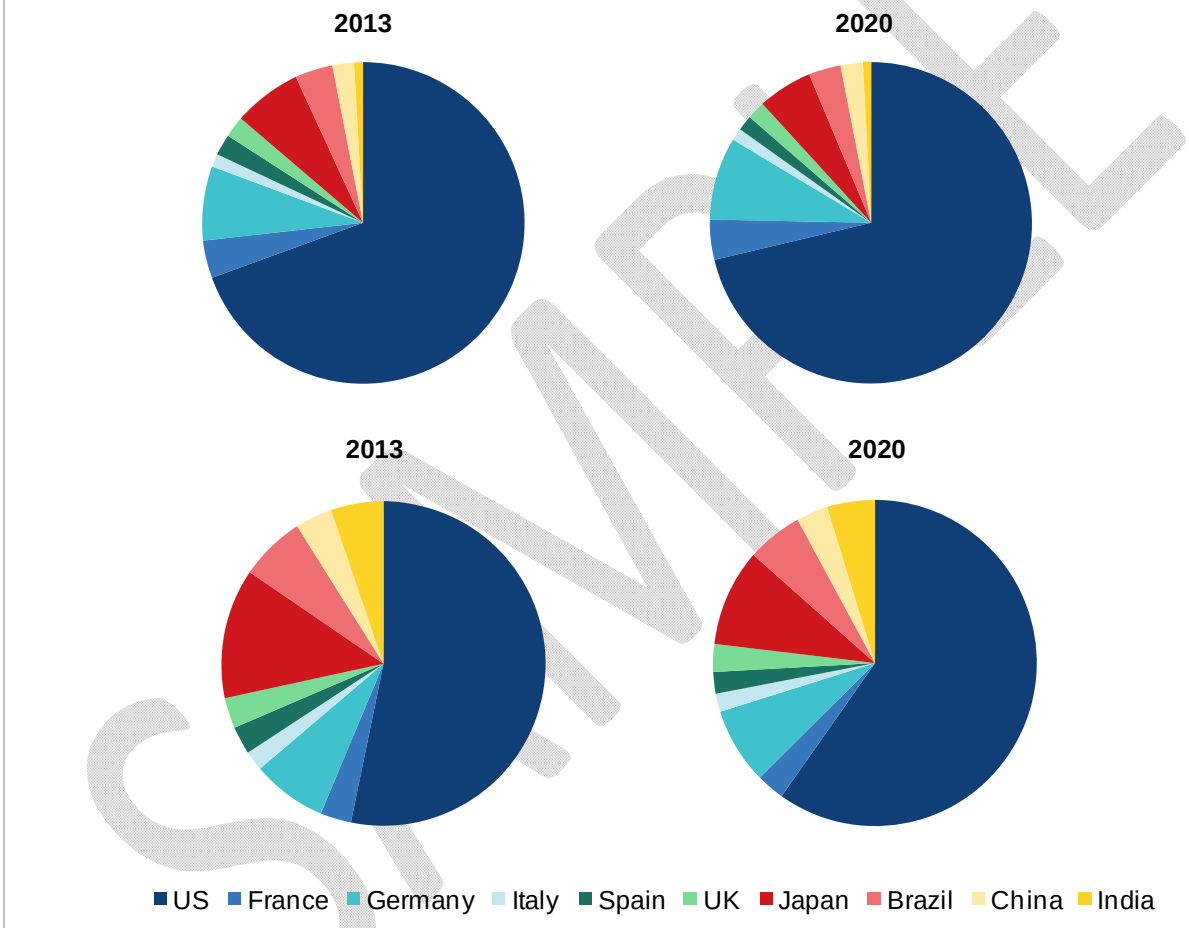
- The movement towards more minimally-invasive techniques, where patients and physicians prefer arthroscopic treatment to reduce costs for practices and reduce recovery time for patients

Figure below presents the arthroscopy device revenue by the percent share in each major market during the forecast period.

Arthroscopy Device Revenue by Major Market, 2013–2020



Source: GlobalData, based on primary research interviews and surveys with leading orthopedic sports medicine surgeons in 10 markets (US, France, Germany, Italy, Spain, UK, Japan, Brazil, China, and India)

Top: 2013 Implants Market: $XXn and 2020 Implants Market: $XXbn

Bottom: 2013 Capital Equipment Market: $XXn and 2020 Capital Equipment Market: $XXbn

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1.2 List of Figures

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2 Introduction

Sports injury is a very common occurrence in orthopedics that, depending on its severity, can be treated either surgically or medically without any open intervention. It is also something that is not limited to professional athletes, but is also seen in young children and teenagers and the elderly. The aging population, as they keep to their recreational activities, are also more susceptible to bone and tissue damage due to osteoarthritis. As the emerging markets are also experiencing healthy growth in orthopedics, there is continued adoption of minimally-invasive technology.

Based on GlobalData's key opinion leader (KOL) research, only 10% of sports injury patients go on to have surgical intervention.

The sports injury market still consists primarily of conservative treatments, such as nutritional supplements, analgesics, corticosteroids, viscosupplementation and other medications. Based on GlobalData's key opinion leader (KOL) research, only XX% of sports injury patients go on to have surgical intervention. And of those who are treated surgically, XX–XX% undergo outpatient athroscopic procedures, as these surgeries do not require overnight stays. This minimally-invasive technique saves significant healthcare costs and also continues to bring in revenue for hospitals and practices, as several arthroscopic cases — as many as eight to nine — can be scheduled per day, with one procedure lasting only XX minutes.

From a clinical standpoint, over the past 10 years, there have been many clinical studies validating the effectiveness of various arthroscopic techniques. The early treatment methods focused more on repair, and not on reconstruction. Anatomic single-bundle reconstruction of the ligaments versus double-bundle reconstruction has been a point of contention, with debates on which has better outcomes. Some of these techniques have been debated in conference forums, with regional preferences (US versus EU) on ways to treat patients.

Biologics is another area that will rapidly change the face of sports orthopedics, particularly in the US and EU markets. Tissue banks are used to prepare tissue for ligament reconstructions, which are done arthroscopically. With the further development of better graft materials, GlobalData expects procedural volume growth. Finally, bioabsorbable implants will continue to see development, and as with the other orthopedics markets, physicians are looking for clinical data to demonstrate the controlled bioresorbability of these materials to ensure timely healing in the natural joints.

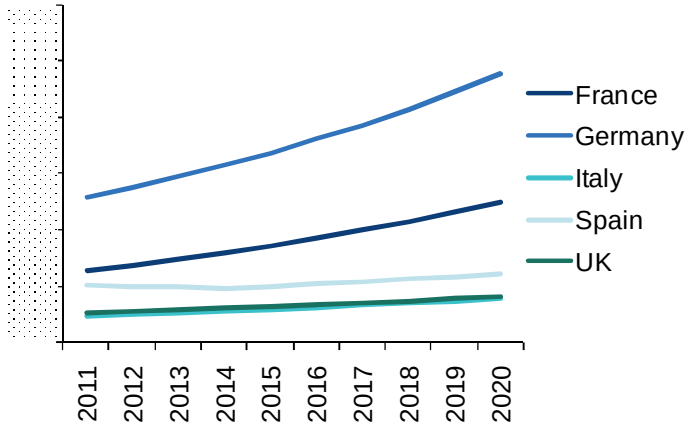
This report focuses on the sports medicine implant fixation market and capital equipment that is commonly used across sports injury procedures. Implant fixation products include suture anchors,

Industry Overview

4.2.2 EU

Figure 4 illustrates the arthroscopic procedure volumes in the EU from 2011–2020. The market that is most similar to the US in terms of the rise in the number of arthroscopic procedures and the adoption of products is Germany. France follows Germany in terms of the number of arthroscopies performed each year. As joint replacement growth rates begin to slow due to the austerity measures implemented in Europe, the number of arthroscopic surgeries is set to rise.

Figure 4: EU Arthroscopic Procedure Volumes, 2011–2020



Source: GlobalData

Figure 5 illustrates the procedure volumes for the individual joints' arthroscopy markets in the EU from 2011–2020. Knee arthroscopies are the most commonly performed procedures in the EU, with shoulder being second. The shoulder market, while seeing steady growth, is not growing at the dramatic rate as seen in the US market. The hip segment, despite its currently low numbers, is the area to watch, with new products and indications driving its growth. The volumes are still very low in hip arthroscopy which is the reason for high growth rates in the EU countries as adoption picks up.

The hip segment, despite its currently low numbers, is the area to watch, with new products and indications driving its growth.

Market Outlook

12.2 By Market Segment

12.2.1 Overview

According to GlobalData's estimates, in 2013, the arthroscopic implants market was valued at $XX billion, and the remaining capital equipment market was valued at $XX billion, amounting to a total market value of $XX billion. By the end of the forecast period in 2020, these markets are expected to be valued at $XX billion and $XX billion, respectively, totalling $XX billion. The implants segment will grow at a CAGR of XX% during the forecast period, and will be the only segment of capital equipment that is rising. The RF wands segment will grow the fastest, at a CAGR of XX%, with shavers and arthroscopes following at CAGRs of XX% and XX%, respectively. The remaining segments will grow at a much lower rate, signifying that fluid management and visualization systems are of less importance.

Table 89 and Figure 19 present the global sports medicine sales forecast during 2011–2020.

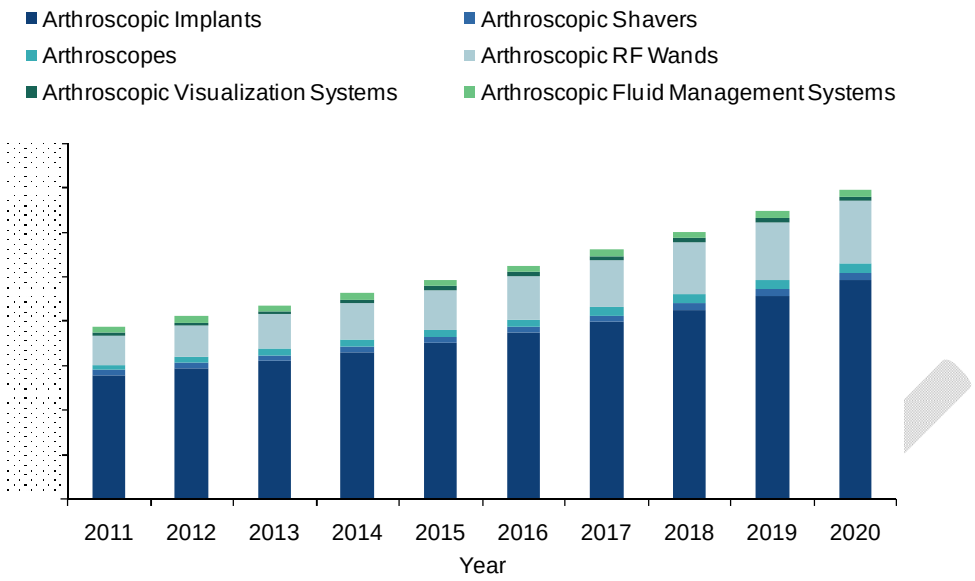
Table 89: Global Sports Medicine Sales Forecast ($m), 2011–2020

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	CAGR (%)
Arthroscopic Implants											
Shavers											
Arthroscopes											
RF Wands											
Visualization Systems											
Fluid Management Systems											
Total Sales											

Source: GlobalData

Market Outlook

Figure 19: Global Sports Medicine Sales Forecast ($m), 2011–2020



Source: GlobalData

12.2.2 Arthroscopy Implants

With the rapid growth in arthroscopic surgical intervention, as opposed to open surgery, arthroscopic implants will see rapid growth during the forecast period, with a CAGR of XX%. These implants are most often used in the shoulder and knee, and are now also increasingly being implanted in the small joints and hip. According to GlobalData's estimates, the global arthroscopic implants market was worth $XX billion in 2013, and will rise to $XX billion in 2020, at a CAGR of XX%.

With the rapid growth in arthroscopic surgical intervention, as opposed to open surgery, arthroscopic implants will see rapid growth during the forecast period, with a CAGR of XX%.

Table 90 and Figure 20 present the global sports medicine sales forecast for arthroscopy implants during 2011–2020.

Table 90: Global Sports Medicine Sales Forecast ($m), Arthroscopy Implants, 2011–2020

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	CAGR (%)
Arthroscopy Implants											

Source: GlobalData

Appendix

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Appendix

13.2 Abbreviations

10MM	10 major markets (US, France, Germany, Italy, Spain, UK, Brazil, China, India, South America)
AAOS	American Association of Orthopaedic Surgeons
ABOS	American Board of Orthopaedic Surgery
ACA	Affordable Care Act
ACL	anterior cruciate ligament
AIHS	Academy for International Health Studies
ANVIS	Agência Nacional de Vigilância Sanitária
AOSS	American Orthopaedic Society for Sports Medicine
APC	Ambulatory Payment Classification
BGMP	Brazilian Good Manufacturing Practice
CAGR	Compound Annual Growth Rate
CDCSO	Central Drugs Standard Control Organization
CDC	Centers for Disease Control and Prevention
CE	Conformité Européenne
CFDA	China Food and Drug Administration
CDCSO	Central Drugs Standard Control Organization
CITEC	Centro de Inovação Tecnológica em Cerâmica
CLAA	Central License Approval Authority
CMF	craniomaxillofacial
CMOS	complementary metal oxide semiconductor
CMS	Centers for Medicare & Medicaid Services
CO_2	carbon dioxide
CoCr	cobalt-chromium

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CONITEC	National Commission for Incorporation of Technologies in the Unified Healthcare System
CPT	Current Procedural Terminology
CSAW	Can Shoulder Arthroscopy Work study
CT	computed tomography
dGEMRIC	delayed gadolinium-enhanced MRO of cartilage
DPC	Diagnosis Procedure Combination
DRG	Diagnosis-Related Group
EC	European Commission
ECG	electrocardiography
ECRI	Emergency Care Research Institute
EMS	electrical muscle stimulation
ENT	ear, nose, and throat
FAI	femoroacetabular impingement
FDA	Food and Drug Administration
GDP	Gross Domestic Product
G-DRG	German Diagnosis-Related Group
GMP	Good Manufacturing Practice
HA	hydroxy apatite
HD	high-definition
HRG	Healthcare Resource Group
HTA	Health Technology Assessments
HTAC	Health Technology Assessment Committee
HSS	Hospital for Special Surgery
ICAC	Indian Conformity Assessment Certificate

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ICD-9	International Classification of Diseases, Ninth Revision
IM	intramedullary
IMDRA	Indian Medical Devices Regulatory Authority
INMETRO	Instituto Nacional de Metrologia, Normalizacao e Qualidade Industrial
ISO	International Organization for Standardization
ISPOR	International Society for Pharmacoeconomics and Outcomes Research
ITA	International Trade Administration
J&J	Johnson & Johnson
KOL	key opinion leader
LCL	lateral collateral ligament
LED	light-emitting diode
LHU	Local Health Units
LSE	London Stock Exchange
M&A	merger and acquisition
MARS	Multicenter ACL Revision Study
MCL	medial collateral ligament
MERCOSUR	Mercado Común del Sur
MHLW	Ministry of Health, Labour and Welfare
MOH	Ministry of Health
MTF	Musculoskeletal Transplant Foundation
N	Newtons
NASDAQ	National Association of Securities Dealers Automated Quotations
NDRC	National Development and Reform Commission
NHS	National Health Service

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NIAMS	National Institute of Arthritis and Musculoskeletal and Skin Diseases
NICE	National Institute for Health and Care Excellence
NSAID	non-steroidal anti-inflammatory drug
NUB	New Diagnostic and Treatment Method
NYSE	New York Stock Exchange
OB/GYN	obstetrics and gynecology
OMS	National Health Agency
ORIF	open reduction and internal fixation
OTC	over the counter
PCL	Posterior Cruciate Ligament
PCP	primary care physician
PEEK	polyether ether ketone
PGA	polyglycolic acid
PLDLA	poly-L/D-lactide
PLLA	poly-L-lactic acid
PMA	Premarket Approval
PMDA	Pharmaceutical and Medical Devices Agency
PVS	polyvinyl siloxane
PRP	platelet-rich plasma
R&D	research and development
RF	radiofrequency
SD	standard-definition
SEC	Securities and Exchange Commission
SET	sports, extremities, trauma

Appendix

SHI	Statutory Health Insurance
SSN	Servizio Sanitario Nazionale
SUS	Sistema Único de Saúde
SWOT	strengths, weaknesses, opportunities, threats
TCM	Traditional Chinese Medicine
TCP	beta tricalcium phosphate
Ti	titanium
UCL	ulnar collateral ligament
UHMWPE	ultra-high-molecular-weight polyethylene
USCF	University of California, San Francisco
VEO	valgus extension overload
VHI	Voluntary Health Insurance

Appendix

13.3 Research Methodology

13.3.1 Overview

GlobalData's dedicated research and analysis teams consist of experienced professionals with extensive experience in marketing and market research, consulting backgrounds in the medical device industry, and advanced statistical expertise.

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

13.3.2 Coverage

GlobalData's coverage is designed to ensure that it represents the most up-to-date vision of the industry possible. Changes to industry taxonomy are based on extensive research of companies, associations, and competitors. Company coverage is based on three key factors: revenues, products, and media attention/innovation/market potential.

- The estimated revenues of all major companies, including private and governmental, are gathered and used to prioritize coverage.
- Companies that are making the news, or that are of particular interest due to their innovative approach, are prioritized.

GlobalData aims to provide coverage on all major news events and deals in the medical device industry, updated on a daily basis. The coverage is further streamlined and strengthened with additional input from GlobalData's panel of experts (see below).

13.3.3 Secondary Research

The research process begins with exhaustive secondary research into internal and external sources to gather qualitative and quantitative information relating to each market.

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

- Reports and databases published by national and international agencies, such as the American Academy of Orthopaedic Surgeons, International Trade Administration, Orthopaedic Trauma Association, Orthopedic News Network ,and World Health Organization.

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- National government documents and databases from the Centers for Disease Control and Prevention, Centers for Medicare & Medicaid Services, US Food and Drug Administration, National Institute for Health and Care Excellence, and National Health Service. Population figures were attained through the US Census Bureau database.
- Scientific journals, such as Journal of Bone and Joint Surgery, The Burden of Musculoskeletal Diseases in the United States, Open Orthopaedic Journal, and other technical literature.
- Company websites, annual reports, financial reports, investor presentations, and SEC filings.
- Relevant regulatory and device approval databases, such as the FDA 510(k) and Premarket Approval databases.
- News articles, press releases, and webcasts relating to companies operating in the market.

Appendix

13.4 Physicians and Specialists Included in this Study

13.4.1 Dr. Henry D.E. Atkinson

Orthopedic Surgeon

Department of Trauma and Orthopaedics and North London Sports Orthopaedics

North Middlesex University Hospital, London, UK

13.4.2 Dr. Joshua Alpert

Orthopedic Surgeon

Midwest Bone and Joint Institute, Chicago Suburbs, Illinois, US

13.4.3 Dr. Andrea Ferretti

Professor and Chairman of Orthpaedics

Department of Orthopaedics and Traumatology, Kirk Kilgour Sports Injury Center

Sant' Andrea Hospital

Sapienza University of Rome, Rome, Italy

13.4.4 Dr. Alejandro Gonzalez Della Valle

Associate Attending Orthopedic Surgeon, Hospital for Special Surgery

Associate Professor of Orthopedic Surgery, Weill Cornell Medical College, NY, US

13.4.5 Dr. Andreas Imhoff

Professor

Sports Orthopaedics Department and Clinic, Rechts der Isar Hospital

Technical University of Munich, Munich, Germany

13.4.6 Dr. Marcello Zaia Oliveira

Orthopedic Surgeon

Hospital Universitario do Parana

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13.4.7 Dr. Vidhya Ravi

Orthopedic Surgeon

Maruti Hospital, Tiruchirappalli, Tamil Nadu, India

13.4.8 Dr. Elvire Servien

Professor of Department of Orthopaedic Surgery

Centre Albert Trillat, Groupe Hospitalier Nord, Hospices Civils de Lyon, France

13.4.9 Dr. Yotaro Yamakado

Orthopedic Surgeon

Department of Sports Medicine and Orthopaedics, Fukui General Hospital, Fukui, Japan

Appendix

13.5 Primary Research

13.5.1 Primary Research – Key Opinion Leader Interviews

GlobalData 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:

- Provides first-hand information on factors such as market size, market trends, growth trends, competitive landscape, and future outlook
- Helps in validating and strengthening the secondary research findings.
- Further develops the analysis team's expertise and market understanding.
- Primary research involves e-mail interactions and telephone interviews for each market, category, segment, and sub-segment across different geographies.

The participants who typically take part in interviews include, but are not limited to:

- Key opinion leaders (KOLs): Trauma and sports orthopedic surgeons who specialize in treating patients with sports injuries. Some of the surgeons are also often extremity specialists.
- Industry participants: CEOs, VPs, marketing/product managers, market intelligence managers, and national sales managers.

13.5.2 Primary Research – Physician and Industry Interviews

A total of 224 interviews with orthopedic surgeons and the supply side (companies and distributors) have been completed for the markets included in this report. The physicians targeted for these interviews are orthopedic surgeons with a subspecialty in sports medicine. And the supply side interviews consisted of product managers, marketing professionals, sales professionals, and other industry participants from the sports medicine market. The interviews involved contributed in validating market forecast, unmet needs and other trends in the sports medicine market. Table 108 provides a complete breakdown of the primary research interview participants in this study.

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Table 108: Primary Research Interviews Completed in Sports Medicine			
Arthroscopy Unique Model	**Overall**		
	Physicians	**Companies/Distributors**	**Overall**
Arthroscopy Implants	23	19	42
Arthroscopic Shavers	22	14	36
Arthroscopes	20	16	36
Arthroscopy Fluid Management Systems	12	20	32
Arthroscopy Visualization Systems	15	25	40
Arthroscopy Radiofrequency Systems	23	15	38
Total Count	**115**	**109**	**224**
Source: GlobalData			

13.5.3 Expert Panel Validation

GlobalData uses a panel of experts to cross-verify its databases and forecasts. GlobalData's expert panel consists of 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 pharmaceuticals and related supplies. Historic data and forecasts undergo scrutiny from GlobalData's expert panel and are adjusted in accordance with their feedback.

13.6 Forecasting Methodology

GlobalData uses a patient-based forecasting model to determine the market size for therapeutic indications. Estimates are based on a number of sources, including primary research – KOL interviews and physician surveys – and secondary research, such as company reports, press releases, published articles, proprietary databases, and general news media. The base year and the forecast years of the model are grounded in the market parameters listed below.

Procedural Data

The total number of arthroscopic procedures in the primary joints of interest were estimated and forecast across the 10 markets. This procedural data was validated by both physician and industry input through interviews. The procedure population represents the total number of cases during a given year. The procedural numbers were obtained through medical literature, government sources, disease foundations, and other recently published GlobalData reports.

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Product Volume Sales

Once the procedure volume in a given country is established, GlobalData's analysts carve out the portion of that population that receives fixation devices and then determines the number of implants per procedure. Likewise, for all the capital equipment forecast, the number of procedures done per equipment was estimated from interviews, and the market value was determined using the average selling price from the primary and secondary sources listed above.

Average selling price (ASP)

The average selling price of the products for arthroscopy were obtained from secondary research articles from technical journals as well as Key Opinion Leaders and industry participants. Product price breakdowns used in the forecast include implants for bony and soft tissue repair and various instruments used during arthroscopy procedures. The ASP for the US, EU and APAC regions were obtained through primary research interviews.

Market share

For the base year market, GlobalData's analysts forecast volumes of arthroscopy implants, shavers, arthroscopes, radiofrequency wands, advanced visualization systems, and fluid management systems, which are all products used in the sports medicine surgical setting. Company market share was then estimated based on revenue for the regional markets within this report.

Appendix

13.7 About the Authors

13.7.1 Analysts

13.7.1.1 Priya Radhakrishnan, MS, MBA, Senior Analyst, Medical Devices

Priya Radhakrishnan is a Senior Analyst and covers the Orthopedic Devices market at GlobalData in Boston. Prior to GlobalData, she worked in the non-profit sector and has experience as a consultant advising French life science firms on assessing business development opportunities in the US. She has led consulting engagements and created biotech market research reports, as well as worked at Boston Scientific in a marketing function. Prior to that, she worked as a product development engineer at an NIH-funded SBIR firm working on gastrointestinal biopsy and orthopedic devices. Through this experience she developed experience working on animal studies. And during her Master's research, she developed an understanding of the mechanical properties of bone and tissue.

Priya received a B.S. in Biomedical Engineering from Boston University and an M.S. in Bioengineering with a focus in Biomechanics from the University of Illinois at Chicago. She also holds an MBA from Boston University's Graduate School of Management.

13.7.1.2 Derek Archila, MBA, Head of Medical Devices

Derek Archila currently serves as the Head of the Medical Devices team at GlobalData in Boston. His primary responsibilities include managing the production and quality of the medical databases and reports, liaising with clients to identify their satisfaction with existing database offerings and prioritizing critical unmet needs, and supporting GlobalData teams with consulting opportunities. He is a Board-Certified Medical Technologist with the American Society of Clinical Pathology and spent the last seven years in the healthcare and medical device industries. Prior to joining GlobalData, Derek worked as a Senior Medical Technologist at Brigham and Women's Hospital in Boston, Massachusetts, where he focused on hematological malignancies and blood disorders. Derek has worked in various market research and sales roles at DePuy Mitek, Bayer Diagnostics, LabCorp, and Mettler Toledo. Derek holds a B.S. in Medical Technology and an MBA from Northeastern's D'Amore-McKim School of Business.

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13.7.2 Global Head of Healthcare

13.7.2.1 Bonnie Bain, Ph.D.

Bonnie Bain, PhD, is Global Head of Healthcare for GlobalData in Boston, managing the Medical and Pharmaceutical arms of the business. Prior to this role, she was Vice President and Global Research & Analysis Director for Informa, where she oversaw the global strategy and operations for Datamonitor Healthcare's syndicated business. Bonnie has over 15 years of experience in the healthcare sector and a proven track record of developing innovative solutions on both the client and vendor sides of the business. Prior to joining Informa, she was Director of Product Development at Wood Mackenzie, where she oversaw the development and management of two product lines. Bonnie also worked for several years at Decision Resources as an Analyst and Project Manager. On the client side of the industry, she worked for several years as a Senior Manager in Marketing Strategy and Analytics at Boston Scientific, where her work contributed to the successful commercialization of the first-ever Access and Visualization Platform at the company. She has a PhD in Biochemistry and Molecular Biology from Purdue University, and was a postdoctoral fellow in molecular pharmacology at the University of Miami School of Medicine.

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13.8 About MediPoint

MediPoint is the flagship product for GlobalData's Medical team. Each MediPoint report is built from the ground up by our team of healthcare analysts in the US and UK. Each report includes input from experienced physicians and leading Key Opinion Leaders (KOL). Running throughout each report in the series, "What Do Physicians Think?" quotes provide a unique insight into how healthcare professionals are reacting to events within the industry, and what their responses could mean for industry strategists.

13.9 About GlobalData

GlobalData is a leading global provider of business intelligence in the healthcare industry. GlobalData provides its clients with up-to-date information and analysis on the latest developments in drug research, disease analysis, and clinical research and development. Our integrated business intelligence solutions include a range of interactive online databases, analytical tools, reports, and forecasts. Our analysis is supported by a 24/7 client support and analyst team.

GlobalData has offices in New York, San Francisco, Boston, London, India, Korea, Japan, Singapore, and Australia.

13.10 Disclaimer