

Excerpted from THE ORTHOPAEDIC INDUSTRY ANNUAL REPORT®  
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Even with year over year market growth in the low-single digits, growth continues and is expected to do so for the foreseeable future.

#### *Patient Demographics*

The U.S., Europe and Japan account for more than 80 percent of the global orthopaedic marketplace; however, less than 20 percent of the world's 7 billion people live in these geographic regions. Clearly orthopaedic opportunities exist outside the three major markets, as most of the people in underdeveloped nations will need musculoskeletal care throughout their lives. Since many in the developing world live in poverty and have to pay for the products used in their surgeries, the purchase of orthopaedic implants remains challenged. Governments struggle to provide even the most basic of healthcare but, as infrastructures begin to improve and manufacturers seek to produce orthopaedic implants specifically for an underserved population, solid, steady growth over the next decade is expected in these markets.

Musculoskeletal conditions are the most common cause of chronic disability, the most common medical cause of long-term absence, the second most common reason for consulting a doctor and, in the U.S., the greatest cause of lost work days and medical bed days. From arthritis to osteoporosis and fractures to dislocations, musculoskeletal conditions and diseases know no age bounds. Exhibit 7 on the following page illustrates the diversity of the U.S. patient population for orthopaedic interventions.

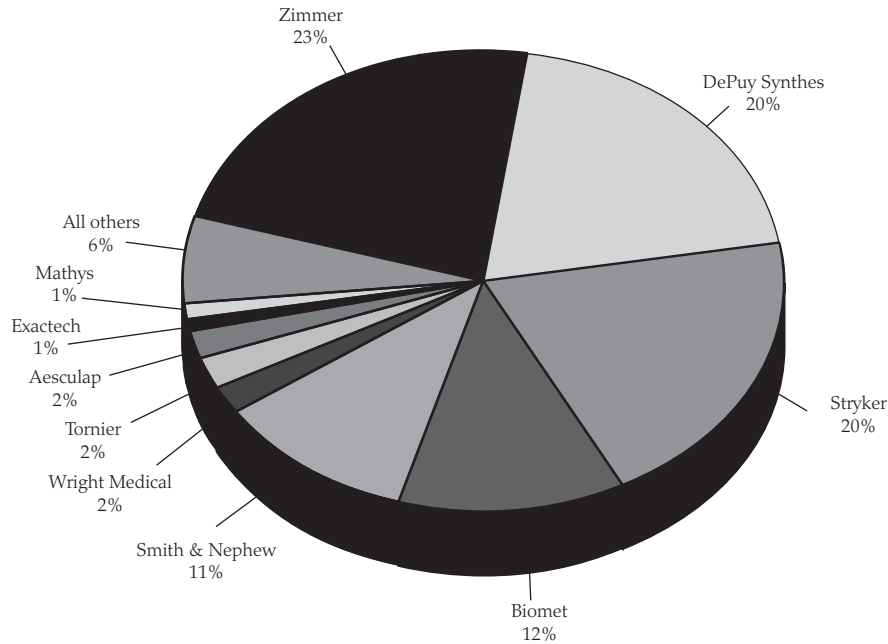
#### EXHIBIT 7 MUSCULOSKELETAL DIAGNOSES DELINEATED BY AGE

| <i>Diagnosis</i>   | <45 | 45-64 | 65+ |
|--|-----|-------|-----|
| Infective arthritis/osteomyelitis                          | 36% | 38%   | 33% |
| Rheumatoid arthritis                                       | 20% | 38%   | 41% |
| Osteoarthritis   | 2%  | 41%   | 56% |
| Osteoporosis   | 2%  | 22%   | 75% |
| Hip fracture   | 3%  | 11%   | 86% |
| Back problems (spondylosis, intervertebral disc disorders) | 21% | 45%   | 35% |
| Dislocations   | 39% | 36%   | 24% |
| Sprains/strains  | 26% | 31%   | 42% |

Source: HCUPnet.ahrq.gov, 2010 data.

Aging populations, increasing obesity and a rise in osteoporosis-related fractures will sustain a need for orthopaedic intervention. The pain of arthritis finds relief in a variety of orthopaedic products, from injections of hyaluronic acid to unicompartmental knee replacements. Plates, screws, nails and external fixators put broken bones back together, much like interference screws and suture anchors repair torn cruciate ligaments and rotator cuffs. A child with a developmental disease such as scoliosis can stand tall again thanks to rods and hooks that are part and parcel of spinal instrumentation systems worldwide.

EXHIBIT 14  
ESTIMATED JOINT REPLACEMENT COMPANY MARKET SHARES: TOP TEN AND ALL OTHERS



Nearly 200 companies sell joint replacement products worldwide. Many focus predominantly on particular geographic areas, as exemplified by Japan MDM in Japan; United Orthopedic and Tianjin Taishan Medical in Taiwan and China, respectively; Fournitures Hospitalieres (FH), JRI Orthopaedics, Lima-Lto and Waldemar Link predominantly in Europe; Baumer, Implantes Fico and Ortosintese in South America; Protetim in Eastern Europe; Sushrut and Uma Surgicals in India; etc. Certain companies have built respectable joint replacement franchises by focusing on specific types of products, such as Link and Stanmore in salvage/revision implants and Symbios in “specialized” implants manufactured for individual patients based on preoperative computed tomography (CT) scans and x-rays.

Very few of the strategic alliances that occurred in 2012 related to the reconstructive segment. Those that did are shown in Exhibit 15 on the following page.

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## ***FRACTURE REPAIR***

### *Overview*

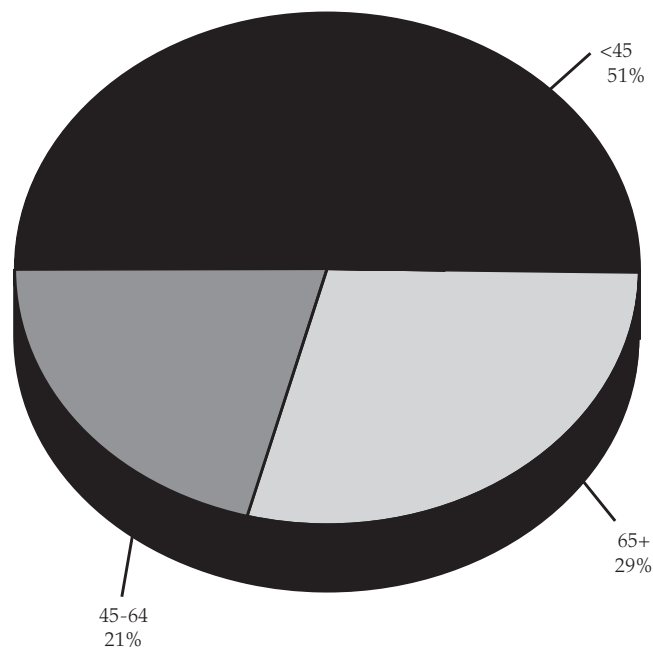
Fracture repair entails the manipulation of a fractured bone such that it is returned to its proper position and alignment. Manipulation of the bone can occur either in a closed fashion (e.g. nonsurgically) or in an open fashion using surgical incision and correction, with or without the use of fixation devices to secure the fractured bone in its proper anatomical position.

### *Patient Demographics*

More than 50 million fractures occur worldwide every year, most from accidents, falls and activity-related injuries and most occurring primarily in the under-65 population. Annually, more than eight million fracture repair procedures (open and closed reduction with and without fixation, internal fixation without reduction, application of external fixator, etc.) are performed globally, most often on the radius/ulna, wrist/hand, tibia/fibula and ankle/foot. (These figures do not include the treatment of vertebral compression fractures.)

Fractures afflict all age groups. However, of the millions of fractures that occur each year worldwide, just over half afflict people under the age of 45, as shown in Exhibit 23.

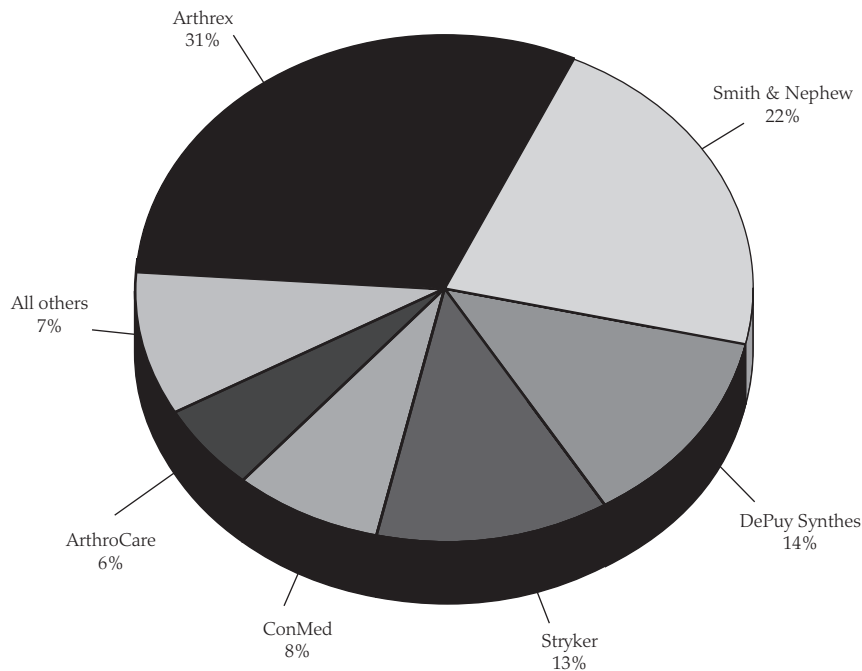
**EXHIBIT 23**  
**FRACTURES BY PATIENT AGE**



Despite a trending slowdown in growth that began in 2009 due to fewer construction projects, fewer people traveling by car, fewer people on the ski slopes and hospitals reining in inventory levels, all in all the market for fracture repair products is expected to remain healthy for the foreseeable future based solely on patient demographics, which includes not only the young and active, but also the old and osteoporotic. That is, further growth in fracture repair will come from an older population most often afflicted by osteoporosis, characterized by decreased bone mass that increases susceptibility to fracture. Worldwide, approximately nine million osteoporotic fractures occur each year. In Europe alone, one osteoporotic fracture occurs every 30 seconds.

The six largest companies in the market segment with annual sales over \$200 million (Arthrex, Smith & Nephew, DePuy Synthes, Stryker, ConMed and ArthroCare) captured an estimated 93 percent of global arthroscopy/soft tissue repair sales in 2012. Their estimated market shares are reflected in Exhibit 33.

**EXHIBIT 33**  
**ESTIMATED ARTHROSCOPY/SOFT TISSUE REPAIR COMPANY MARKET SHARES: TOP SIX AND ALL OTHERS**



A small number of strategic activity occurred in the space, during 2012. For instance, Artimplant entered into an agreement with licensee Biomet Sports Medicine to assume total responsibility for sales of Artelon Tissue Reinforcement products. The decision to terminate the agreement is part of Artimplant's strategy to focus exclusively on its own organization and own sales.

Also during 2012, Artimplant resumed responsibility for sales of the Artelon CMC Spacer that were previously handled by its licensee, Small Bone Innovations.

ConMed entered into an agreement to serve as the exclusive global marketing representative for Musculoskeletal Transplant Foundation's (MTF) sports medicine applications using tendons, ligaments and cartilage.

Corin and LARS extended through 2016 an agreement whereby Corin distributes LARS ligament products in Australia and the U.K. Corin also obtained exclusive rights to distribute LARS products in additional countries, including the U.S.

Summit Medical entered into a distribution agreement with Mosaic International covering Summit's products, including Orthomed soft tissue repair products, in Oman, Saudi Arabia. Orthomed's line includes interference screws for knee ligament repair, staples, titanium and resorbable anchors, etc.

EXHIBIT 63  
 CELL-BASED PRODUCTS AND SERVICES FOR TISSUE REPAIR LANDSCAPE  
 (Continued)

| <i>Company</i>           | <i>Product(s)</i>  | <i>Application(s)</i>                                    | <i>Availability</i>                               |
|--------------------------|--|--|---|
| Biomet                   | Cellentra Viable Cell Bone Matrix viable osteogenic cells + verified osteoinductivity + osteoconductive scaffold | Spine  | Global  |
| Biorestorative Therapies | brtxDISC stem cell treatment   | Bulging/herniated discs                                  | In development                                    |
| BioTissue Technologies   | BioSeed-Oral Bone autologous bone technology   | Jaw replacement  | EU  |
| Bone Therapeutics        | PREOB differentiated osteoblastic cells  | Osteonecrosis, non-union fractures, orphan bone diseases | Phase III clinical, EU                            |
| Carmell Therapeutics     | REPAIR, putty form of plasma-based plastics  | Bone defect filling                                      | In development                                    |
| Celling Technologies     | Point of care adipose tissue-derived adult stem cells  | Spine, orthopaedics, other medical areas                 | In development                                    |
| co.don                   | chondrotransplant autologous bone cell transplant  | Fractures, tumors, pseudoarthrosis, etc.                 | EU  |
| co.don                   | osteotransplantBONE  | Bone loss/nonunions                                      | EU  |
| DiscGenics               | Discosphere therapeutic cell populations   | Degenerative disc disease                                | In development; could have product to market 2017 |
| Histogenics              | CartiMate Scaffold (FGF reagent)   | Microfracture/small defect repair                        | In development                                    |
| Mesoblast                | RepliCart adult stem cells   | Knee OA after ACL reconstruction                         | Phase II clinical, Australia                      |
| Mesoblast                | NeoFuse off-the-shelf adult stem cells   | Spinal fusion  | Phase II clinical, US                             |
| MI4 Spine                | Developing “stem-cell enabling method”   | Spinal applications                                      | In development                                    |
| NeoStem                  | Stem-cell based procedure  | Single-side ad bilateral arthroscopic procedure          | China   |
| NuVasive                 | Osteocel MSCs  | Spinal fusion  | US  |
| NuVasive                 | Progentix/AttraX bioreactor system for expanding bone marrow derived adult MSCs                                  | Bone regeneration  | EU (as AttraX)                                    |
| OrthoCyte                | Stem cell treatments   | Regeneration of bone, cartilage, tendons, ligaments      | In development                                    |

APPENDIX A  
RECONSTRUCTIVE DEVICE COMPANIES

| <i>Company</i>   | <i>Hip</i> | <i>Knee</i> | <i>Shoulder</i> | <i>Hand/<br/>Wrist</i> | <i>Elbow/<br/>Radial<br/>Head</i> | <i>Subtalar/<br/>Great<br/>Toe</i> | <i>Ankle</i> |
|--|------------|-------------|-----------------|------------------------|-----------------------------------|------------------------------------|--------------|
| aap Implantate AG  | x          | x           | x               |                        |                                   |                                    |              |
| Active Implants Corp   | x          |             |                 |                        |                                   |                                    |              |
| Acumed LLC   |            |             | x               |                        | x                                 |                                    |              |
| Adler Ortho S R L  | x          | x           |                 |                        |                                   |                                    |              |
| Advanced Bio-surfaces  | x          | x           |                 |                        |                                   |                                    |              |
| Advanced Surgical Design and<br>Manufacture Ltd                    |            | x           |                 |                        |                                   |                                    |              |
| Aequos Endoprothetik GmbH  |            | x           |                 |                        |                                   |                                    |              |
| Aesculap AG  | x          | x           |                 |                        |                                   |                                    |              |
| Ai-Medic Co Ltd  | x          |             |                 |                        |                                   |                                    |              |
| Alphamed Medizintechnik<br>Fischer GmbH                            |            | x           |                 | x                      |                                   |                                    |              |
| Altimed JSC  | x          |             |                 |                        |                                   |                                    |              |
| Ananta Ortho System PVT LTD  | x          |             |                 |                        |                                   |                                    |              |
| ANOVA Orthopaedic Solutions LLC                                    |            | x           |                 |                        |                                   |                                    |              |
| Apax   | x          | x           |                 |                        |                                   |                                    |              |
| Aptis Medical  |            |             |                 | x                      |                                   |                                    |              |
| ARGE Medizintechnik GmbH and<br>Co KG                              | x          | x           |                 |                        |                                   |                                    |              |
| Argomedical AG   | x          |             |                 | x                      | x                                 |                                    | x            |
| Arrowhead Medical Device<br>Technologies LLC                       |            |             |                 |                        |                                   | x                                  | x            |
| Arthrex Inc  |            | x           | x               |                        |                                   |                                    |              |
| ArthroSurface  |            | x           | x               |                        |                                   |                                    | x            |
| Articulinx Inc   |            |             |                 | x                      |                                   |                                    |              |
| Arzzt  | x          |             |                 |                        |                                   |                                    |              |
| Aston Medical  | x          | x           | x               |                        | x                                 |                                    |              |
| Aston Medical France S A   | x          |             | x               |                        | x                                 |                                    |              |
| Baumer SA  | x          | x           | x               |                        |                                   |                                    |              |
| Beijing AKEC Medical Co Ltd  | x          | x           |                 |                        |                                   |                                    |              |
| Beznoska sro   | x          | x           | x               |                        |                                   |                                    |              |
| Bio Hip  | x          |             |                 |                        |                                   |                                    |              |
| Bioimplant Scandinavia AB  |            |             |                 | x                      |                                   |                                    |              |
| Biomechanica Industria e Comerico de<br>Productos Ortopedicos Ltda | x          | x           | x               |                        | x                                 |                                    |              |
| Biomet Inc   | x          | x           | x               | x                      | x                                 | x                                  | x            |
| BioPro Inc   | x          | x           |                 |                        |                                   | x                                  | x            |

DIRECTORY OF COMPANIES  
 (Continued)

| <i>Company/Entity</i>                 | <i>HQ Country</i> | <i>URL</i>   | <i>Revenue (Actual or Range), \$MM</i> | <i>Revenue Estimate or Actual</i> |
|---------------------------------------|-------------------|--|--|-----------------------------------|
| Nimbic Systems                        | USA               | <a href="http://www.nimbicsystems.com">www.nimbicsystems.com</a>     |  |                                   |
| Nippon Sigmax Co Ltd                  | Japan             | <a href="http://www.sigmax.co.jp">www.sigmax.co.jp</a>               |  |                                   |
| NLT Spine Ltd                         | Israel            | <a href="http://www.nlt-spine.com">www.nlt-spine.com</a>             | 0-1MM                                  | Estimated                         |
| NociMed LLC                           | USA               | <a href="http://www.nocimed.com">www.nocimed.com</a>                 |  |                                   |
| Nordson Micromedics Inc               | USA               | <a href="http://www.nordson.com">www.nordson.com</a>                 |  |                                   |
| Norm Spinal Products                  | Turkey            | <a href="http://www.normltd.net">www.normltd.net</a>                 | 0-5MM                                  | Estimated                         |
| Normed Medizin Technik GmbH           | Germany           | <a href="http://www.normed-online.com">www.normed-online.com</a>     | 0-5MM                                  | Estimated                         |
| North Coast Medical Inc               | USA               | <a href="http://www.ncmedical.com">www.ncmedical.com</a>             |  |                                   |
| Northern Digital Inc                  | Canada            | <a href="http://www.ndigital.com">www.ndigital.com</a>               |  |                                   |
| NovaBone Products LLC                 | USA               | <a href="http://www.novabone.com">www.novabone.com</a>               | 20-25MM                                | Estimated                         |
| NovaRad Corporation                   | USA               | <a href="http://www.novapacs.com">www.novapacs.com</a>               |  |                                   |
| NovaSpine                             | France            | <a href="http://www.novaspine.fr">www.novaspine.fr</a>               | 0-5MM                                  | Estimated                         |
| Novid Surgical LLC                    | USA               | <a href="http://www.novidsurgical.com">www.novidsurgical.com</a>     |  |                                   |
| NovoSource LLC                        | USA               | <a href="http://www.novosource.net">www.novosource.net</a>           |  |                                   |
| Novozymes                             | Denmark           | <a href="http://www.novozymes.com">www.novozymes.com</a>             |  |                                   |
| NSI Inc                               | USA               | <a href="http://www.nsi-us.com">www.nsi-us.com</a>                   |  |                                   |
| NuBone LLC                            | USA               |  |  |                                   |
| NuOrtho Surgical Inc                  | USA               | <a href="http://www.nuorthosurgical.com">www.nuorthosurgical.com</a> |  |                                   |
| Nutech Medical                        | USA               | <a href="http://www.nutechmedical.com">www.nutechmedical.com</a>     |  |                                   |
| Nutek Orthopaedics LLC                | USA               | <a href="http://www.nutekortho.com">www.nutekortho.com</a>           | 0-5MM                                  | Estimated                         |
| NuVasive Inc                          | USA               | <a href="http://www.nuvasive.com">www.nuvasive.com</a>               | 620MM                                  | Actual                            |
| Ocean Surgical Systems                | USA               | <a href="http://www.oceansurgical.com">www.oceansurgical.com</a>     |  |                                   |
| Octane Medical Group                  | Canada            | <a href="http://www.octaneco.com">www.octaneco.com</a>               |  |                                   |
| OI Medical LLC                        | USA               | <a href="http://www.oimedical.com">www.oimedical.com</a>             |  |                                   |
| Olive Medical Corp                    | USA               | <a href="http://www.olivemedical.com">www.olivemedical.com</a>       |  |                                   |
| Olympus Biotech International Limited | Ireland           | <a href="http://www.olympusbiotech.eu">www.olympusbiotech.eu</a>     |  |                                   |
| Olympus Medical Systems Corp          | Japan             | <a href="http://www.olympus.co.jp">www.olympus.co.jp</a>             | 40-50MM                                | Estimated                         |
| Olympus Terumo Biomaterials Corp      | Japan             | <a href="http://www.biomaterial.co.jp">www.biomaterial.co.jp</a>     | 5-10MM                                 | Estimated                         |
| Omega Surgical Instruments Inc        | USA               | <a href="http://www.omegasurgical.com">www.omegasurgical.com</a>     |  |                                   |
| OMNIlife science Inc                  | USA               | <a href="http://www.omnils.com">www.omnils.com</a>                   | 15-20MM                                | Estimated                         |
| OMRIX Biopharmaceuticals Inc          | USA               | <a href="http://www.omrix.com">www.omrix.com</a>                     |  |                                   |
| Operativ                              | USA               | <a href="http://www.operativ.com">www.operativ.com</a>               |  |                                   |
| OPK Biotech                           | USA               | <a href="http://www.opkbiotech.com">www.opkbiotech.com</a>           |  |                                   |
| Optasia Medical Ltd                   | United Kingdom    | <a href="http://www.optasiamedical.com">www.optasiamedical.com</a>   |  |                                   |
| OPTEC USA Inc                         | USA               | <a href="http://www.optecusa.com">www.optecusa.com</a>               |  |                                   |