Coventus: Orthopaedic Drill Guide Docking System (2015-030)

Reduces surgical time and provides increased efficiency in arthroscopic procedures

Market Overview

Conventus is an orthopaedic drill guide accessory that allows surgeons to quickly attach and secure two bone tunnel drill guides to one unit. The American Orthopaedic Society for Sports Medicine estimates five million arthroscopic surgeries take place worldwide each year and will continue to increase. The US arthroscopic equipment market accounts for 53 percent of the global market and is estimated at $636 million. With the rise in arthroscopic procedures, surgeons need efficient solutions to reduce surgical time, costs, and number of revision procedures. Many orthopedic procedures require the surgeon to drill holes for graft fixation. Current solutions to assist the placement of drill tunnels involve single drill guides that are often difficult to use, provide limited accuracy for tunnel placement, and are limited to drilling one tunnel at a time. Clemson University Researchers have developed Conventus, which allows surgeons to manipulate each drill guide independently during arthroscopic tissue fixation in desirable planes and orientations to achieve precise tunnel angles and separation distances.

Application

Arthroscopic knee surgeries (ACL and PCL repair)

Stage of Development

Proof of concept; Prototype

Advantages

- Allows surgeon to efficiently manipulate drill guides to meet precise angles and distances, improving placement and accuracy of bone tunnels
- Allows surgeon to drill two bone tunnels at once, minimizing surgical time
- Stabilizes both drill guides and maintains alignment, providing additional stability and decreasing the chance for reduced tissue to shift or malalignment

Technical Summary

Clemson University Researchers have developed an orthopedic drill guide accessory device that allows for the adjoining and manipulation of two bone tunnel drill guides. The drill guide is adaptable to different surgical procedures, patient populations, and can be accessorized to any OEM drill guide kit. To date, no commercially available drill guide device can facilitate drilling two bone tunnels at the same time using one

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integrated device platform. This device can support two drill guides simultaneously and allows for a wide range of adjustable motion both laterally and rotationally, so a surgeon can accurately place multiple suture tunnels based on the patient's individual anatomy.

App Type	Country	Serial No.	Patent No.	CURF Ref. Number	Inventors
Provisional Utility	United States	62/117,666 15/046,697	NA	2015-030	Jeremy Mercuri, Michael Stokes, George Seignious, Alan Marionneaux, Allison Santillo, Steven Singleton, Brain Keim, Adam Marrocco

About the Inventor

Dr. Jeremy Mercuri is an Assistant Professor of Bioengineering at Clemson University. Prior to joining Clemson, he was a senior research engineer at Stryker and a research engineer at Medtronic Spinal & Biologics. Among his accomplishments, Dr. Mercuri holds two issued patents and several applications. He founded the Laboratory of Orthopaedic Tissue Regeneration and Orthobiologics at Clemson in August 2013 where he focuses on the development of regenerative medicine technologies. His research expertise lies in biomaterials development and the application of stem cells towards orthopaedic tissue engineering and regenerative medicine.

For More Information

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