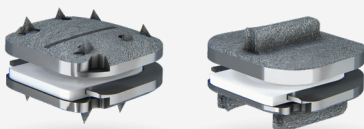


# CHOOSE prodisc®

**FOR CERVICAL** TOTAL DISC REPLACEMENT



THE MOST PROVEN  
DISC REPLACEMENT  
TECHNOLOGY IN THE  
WORLD<sup>1,2</sup>



**JOE: After** prodisc

**275,000+**  
DEVICE IMPLANTATIONS<sup>1</sup>

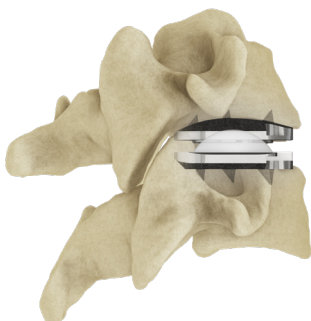
**540+**  
PUBLISHED PAPERS<sup>2</sup>

**35+**  
YEARS OF CLINICAL USE

**"I was in constant pain.  
It started to affect my daily life and I  
was unable to play golf. I knew I wanted  
a total disc replacement in order to  
maintain my range of motion and  
continue to function at a high level."**

**Brian Gay, 5-Time US PGA Tour Winner &  
prodisc Recipient**



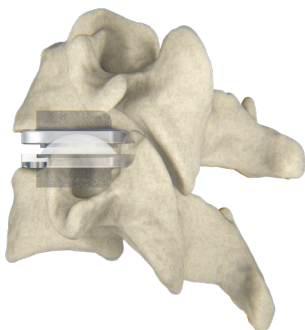


# THERE IS *hope*

- *Do you have neck or arm pain and/or a loss of function or neurological symptoms such as numbness or weakness?*
- *Have you been diagnosed with a herniated disc, osteophytes, osteoarthritis, or loss of disc height?*
- *Has your surgeon indicated that you are a candidate for cervical fusion?*

**prodisc** for cervical total disc replacement is a *potential alternative to fusion.*

This brochure is designed to provide you with answers to questions you may have about why **prodisc** may be the best option if you are considering disc replacement surgery or fusion.



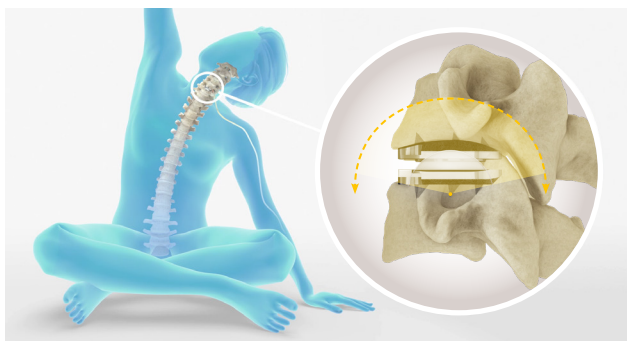
# prodisc ENABLES *motion*

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Before **prodisc** was available, surgeons surgically treated patients with spine-related pain or loss of function with a fusion. In a fusion, the disc between the vertebrae, or spinal bones, is removed and the two bones are allowed to grow into a single bone without a joint.

However, in doing so, fusion reduces overall mobility in the spine, potentially increasing stress on the spinal discs above and below the fusion—contributing to what is known as “adjacent segment disease”. This increased stress could potentially lead to a need for future surgeries to repair adjacent segments.<sup>3</sup>

**prodisc was developed as an alternative to spinal fusion, enabling controlled and predictable motion while providing stability in the spine.**

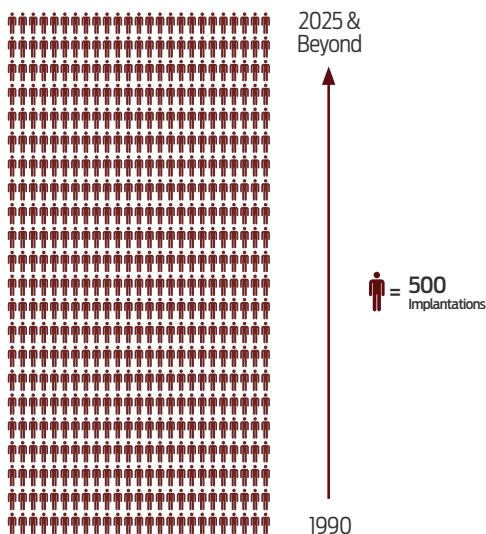


Unlike a rigid fusion, a total disc replacement allows increased mobility in the treated segment—and as studies have shown, this increased mobility may result in significantly fewer re-operations than fusion.<sup>4</sup>

# *why consider* TOTAL DISC REPLACEMENT WITH **prodisc?**

The **prodisc** technology is the most studied and clinically-proven total disc replacement system in the world. Beginning with clinical usage in 1990, the **prodisc** design has been validated with over 275,000 device implantations worldwide<sup>1</sup> and more than 540 published papers<sup>2</sup>.

**prodisc C** has been shown to facilitate a quicker return to active life.<sup>5</sup> It has also been shown to enable patients to retain their range of motion, enabling the spine to flex over the long-term.<sup>4</sup>



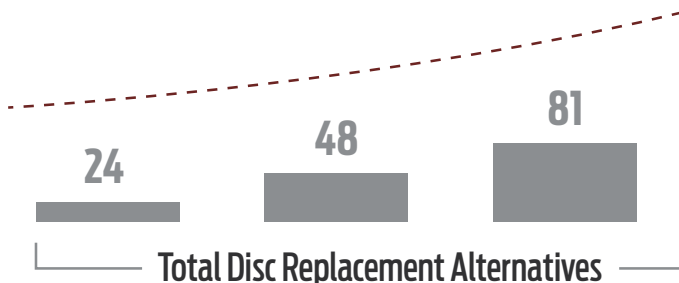
**275,000+**  
**prodisc** Implantations  
Worldwide Since 1990<sup>1</sup>



# *the most studied & clinically proven*

TOTAL DISC REPLACEMENT IN THE WORLD<sup>2</sup>

The number of published studies for other total disc replacement alternatives pale in comparison to the extensively researched and clinically proven success of the **prodisc** total disc replacement.

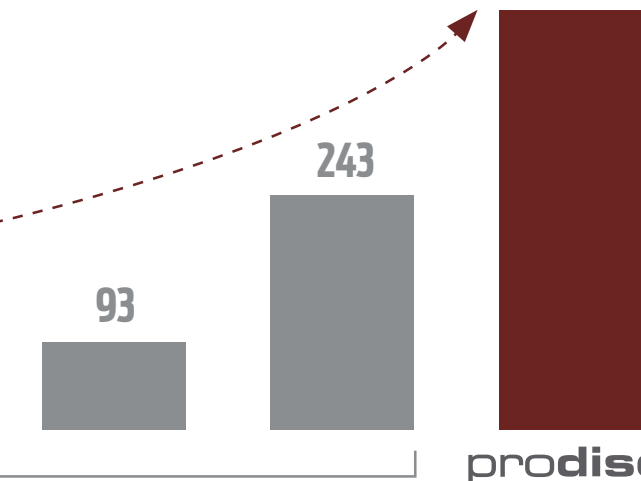


*“Before I met my spine surgeon, I didn’t know that **prodisc** was a less invasive option for me. With the total disc replacement, it’s like I’ve never had a neck problem!”*

**Andrea L., Hollywood Trainer & **prodisc** Recipient**

540+<sup>2</sup>

prodisc  
Studies





# RETURN TO *active life*

Patients consider a total disc replacement to reduce pain and to provide a means of returning to active life.

Activities appropriate for military personnel were analyzed in a study of active-duty military patients that underwent a **prodisc** total disc replacement or a fusion procedure. It was found that while all of the patients returned to active duty, **prodisc** patients returned more rapidly—on average 38% faster.<sup>5</sup>

The results of this study on young, active military personnel is indicative of the superior clinical results experienced by **prodisc** patients across many published studies.

## Results of Study of Active Duty Military Patients that Underwent a **prodisc** or a Fusion Procedure

Variable	<b>prodisc C</b>	Fusion
# of Patients	12	12
Average Age	36.5	36.1
# Returned to Full Duty	12	12
Time to Return to Full Duty (weeks)	10.3	16.5



*“Five of the 7 Navy SEALs in [the **prodisc**] group reported returning to free-fall parachute jumping and high-impact water entries.”<sup>5</sup>*



## Return to an Active Life



# *proven*

## SAFETY & EFFECTIVENESS

Many studies have determined that **prodisc** for cervical total disc replacement is safe and effective<sup>4,6,7</sup>. The study with the longest follow-up data is from the U.S. Investigational Device Exemption (IDE) study, conducted to gain FDA approval of **prodisc C** in 2007.<sup>4</sup> This IDE Study compared the use of **prodisc C** to fusion, the standard of care at the time.

The IDE Study evaluated the likelihood that a patient would require a re-operation after the implantation of the **prodisc C**. Patients were followed over seven years and monitored for pain relief, mobility, and re-operation.

***“After **prodisc** my pain went from a 12/10 to a 1.5/10! I’m back to doing everything that I wanted without limitations.”***

**Joe L., Medical Device Sales &  
prodisc Recipient**

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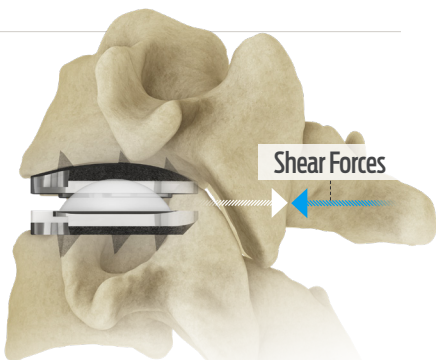
The resulting published papers showed that:

*“Overall, it appears that total disc arthroplasty with **prodisc C** has similar clinical and patient outcomes, has a higher device survival rate, and is followed by fewer secondary surgical procedures than fusion.”<sup>8</sup>*



# STABILITY & DURABILITY *at its core*

prodisc<sup>®</sup>  
**CORE**



At the heart of each **prodisc** device is **prodisc CORE** Technology, the motion design feature that has provided the predictable clinical outcomes of every **prodisc** device after 35+ years and 275,000+ implantations.

**prodisc CORE** provides each **prodisc** device with a fixed center of rotation that is intended to stabilize the spinal bones surrounding the implant while resisting forces on the device.<sup>9</sup>

Further, the radius of the **prodisc CORE** was engineered with intention, to provide stable and coupled motion—controlled translation with flexion-extension—protecting the facet complex and resisting shear.<sup>10</sup>

## Controlled Translation Coupled With Flexion-Extension

Facet Complex

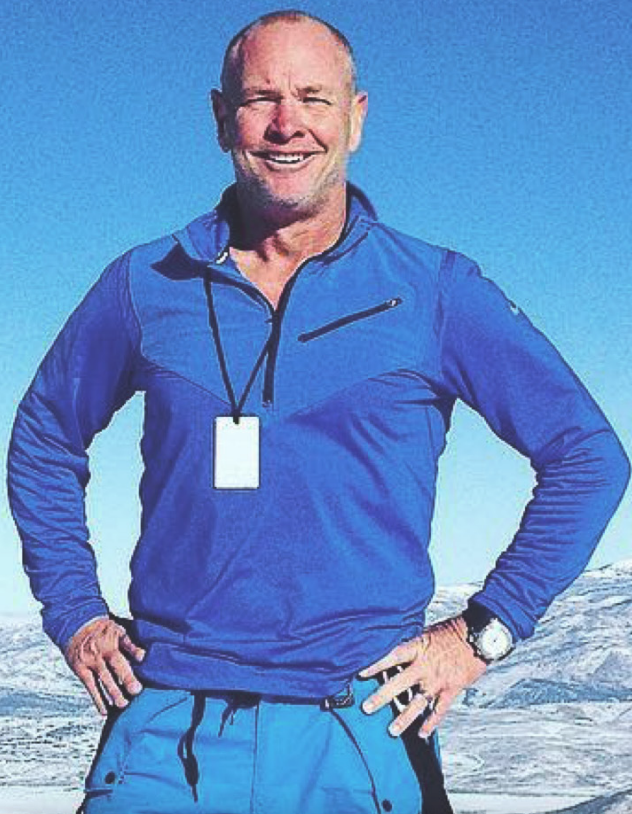


**SCAN TO**



**LEARN MORE**



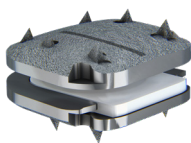


***“I’ve been an advocate of  
pro**disc** from the very beginning.  
Being a patient myself, I understand  
what the journey is like. This  
procedure allows my patients to  
return to their lives.”***

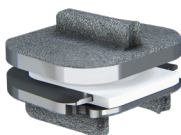
**Dr. Robert Masson, Neurosurgeon &  
pro**disc** Recipient**

# prodisc *summary*

prodisc for cervical disc replacement has been proven to be an effective solution for some individuals suffering from upper extremity or neck pain, loss of function, or neurological symptoms. Results from prodisc studies over the last 30 years indicate a lower re-operation rate<sup>4</sup>, quicker return to active life<sup>4</sup>, and continued mobility at the operated level of the spine<sup>11</sup>. Studies have also demonstrated high levels of patient satisfaction after the use of prodisc.<sup>5</sup>



prodisc. C Vivo



prodisc. C Nova

*\* Not all devices are available in all markets.*

## REFERENCES:

<sup>1</sup> Data on file at Centinel Spine. <sup>2</sup> Search performed on Pubmed, Embase, Ovid Medline® covering 1988 – 2024. <sup>3</sup> Biomechanical Evaluation of Primary Implant-to-Bone Fixation of Four Design Configurations of the prodisc® C Total Disc Replacement Prosthesis: Resistance to Shear Force Expulsion. *Neurosurg Focus*. 2004 Sep 15;17(3):E7. <sup>4</sup> Janssen ME, et al, ProDisc-C Total Disc Replacement Versus ACDF for Single-Level Symptomatic Cervical Disc Disease, *JBJS*, 2015, 97:1738-47. <sup>5</sup> Tumialan, L.M., et al., Arthroplasty in the military: a preliminary experience with ProDisc-C and ProDisc-L. *Neurosurgical focus*, 2010. 28(5): p. E18. <sup>6</sup> Cao S, Zhao Y, et al. Single-Level Cervical Arthroplasty with Prodisc-C Vivo Artificial Disc: Five-Year Follow-Up Results from One Center, *Spine (Phila Pa 1976)*, 2022 Jan 15;47(2):122-127. <sup>7</sup> Pehlivanoglu, T et al, Clinical and Radiographic Outcome of Patients With Cervical Spondylotic Myelopathy Undergoing Total Disc Replacement, *Spine*, Oct. 2019, Vol 44; 20 pp 1403-1411. <sup>8</sup> Murrey D, et al, Results of the prospective, randomized, controlled multicenter Food and Drug Administration investigational device exemption study of the ProDisc-C total disc replacement versus anterior discectomy and fusion for the treatment of 1-level symptomatic cervical disc disease, *The Spine Journal*, 9 (2009), 275-286. <sup>9</sup> Sears W, McCombe P, Sasso R. Kinematics of cervical and lumbar total disc replacement. *Semin Spine Surg*. 2006;18:117-129. <sup>10</sup> Bertagnoli, R., Marnay, T., Mayer, H.M., *The PRODISC Book*, 2003. <sup>11</sup> Zigler JE, Delamarter R, Murrey D, Spivak J, Janssen M. ProDisc-C and anterior cervical discectomy and fusion as surgical treatment for single-level cervical symptomatic degenerative disc disease: five-year results of a Food and Drug Administration study, *Spine (Phila Pa 1976)*, 2013 Feb 1;38(3):203-9.

*“This surgery changed my life significantly... I would say I’m a huge advocate for a disc replacement because my outcome has been so positive in so many ways.”*

**Loren Vandergriff, Orthopedic Nurse Practitioner  
& prodisc Recipient**



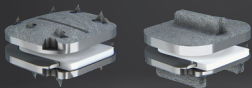




**THE MOST STUDIED & CLINICALLY PROVEN  
DISC REPLACEMENT IN THE WORLD<sup>1,2</sup>**

If you have further questions, speak  
to your doctor or to learn more about  
cervical total disc replacement with  
**prodisc:**

Visit **prodiscinfo.com**



## ABOUT

# CENTINEL<sup>®</sup> SPINE<sup>®</sup>

**CENTINEL SPINE** is a leading global medical device company addressing cervical and lumbar spinal disease by providing the most complete and clinically-proven total disc replacement (TDR) technology platform in the world (**prodisc**).

Learn more at:

**[www.centinelspine.com](http://www.centinelspine.com)**

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