

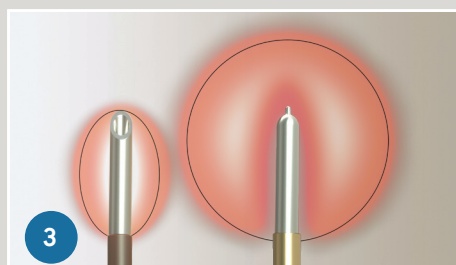
HOW COOLIEF\* Cooled Radiofrequency (RF) Works



A COOLIEF\* RF generator produces radiofrequency energy that emanates from the probe tip, heating tissues through ionic heating.



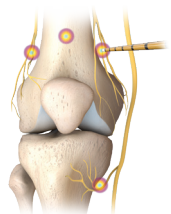
Internally cooled probes manage temperature at the tissue-tip interface, prevent charring, and enable the delivery of 3.7x more energy than standard radiofrequency probes.<sup>8</sup>



COOLIEF\* Cooled RF probes produce 5x larger, spherical lesions compared to standard radiofrequency probes.

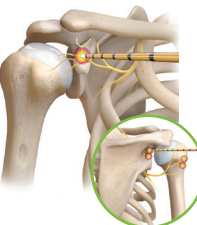
Ask about our other COOLIEF\* Cooled RF Modalities

COOLIEF\* Cooled RF Ultrasound - Guided Knee Technique



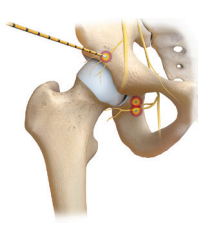
Targets the genicular nerves outside the articular capsule using real-time guidance without the need for radiation.

COOLIEF\* Cooled RF for Shoulder Pain:



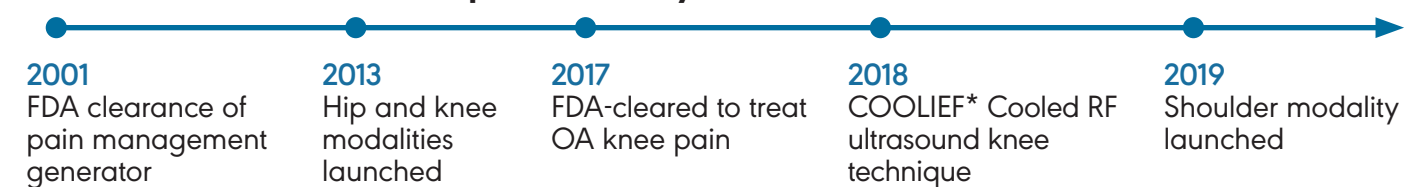
Treats chronic shoulder pain through the creation of anatomically appropriate spherical lesions.

COOLIEF\* Cooled RF for Hip Pain:



Designed to treat complicated and variable nerve courses such as the articular innervation of the hip through the creation of large volume, spherical lesions.

COOLIEF\* COOLED RF: A proud history of firsts



Learn more about how COOLIEF\* Cooled RF can bridge the gap between short-term pain relief treatments and joint replacement surgery. Visit [www.avanos.com.au](http://www.avanos.com.au) or call 1800 101 021 in Australia | 0800 525 270 in NZ.

**References:** 1. Hunter C, et al. Cooled Radiofrequency Ablation Treatment of the Genicular Nerves in the Treatment of Osteoarthritic Knee Pain: 18- and 24-Month Results. Pain Pract. 2020;20(3):238-246. 2. Lyman J, et al. Cooled Radiofrequency Ablation Provides 24 Month Durability in the Management of Osteoarthritic Knee Pain. Results from a Prospective, Multicenter, Randomized Trial. [abstract]. In: 46th Annual Regional Anesthesiology and Acute Pain Medicine Meeting; 2021 May 13-15; Lake Buena Vista, Florida (FL): ASRA; 3. Kapural L, et al. Cooled Radiofrequency Ablation Treatment of the Genicular Nerves in the Treatment of Osteoarthritic Knee Pain: 18- and 24-Month Results. Pain Pract. 2020;20(3):238-246. 4. Davis T, et al. Prospective, Multicenter, Randomized, Crossover Clinical Trial Comparing the Safety and Effectiveness of Cooled Radiofrequency Ablation With Corticosteroid Injection in the Management of Knee Pain From Osteoarthritis. Reg Anesth Pain Med. 2018;43(1):84-91. 5. Chen AF, et al. Cooled Radiofrequency Ablation Compared with a Single Injection of Hyaluronic Acid for Chronic Knee Pain: A Multicenter, Randomized Clinical Trial Demonstrating Greater Efficacy and Equivalent Safety for Cooled Radiofrequency Ablation. J Bone Joint Surg Am. 2020;102(17):1501-1510. 6. Davis T, et al. Twelve-month analgesia and rescue, by cooled radiofrequency ablation treatment of osteoarthritic knee pain: results from a prospective, multicenter, randomized, cross-over trial [published online ahead of print, 2019 Feb 16]. Reg Anesth Pain Med. 2019;rapm-2018-100051. 7. Chen AF, et al. Cooled radiofrequency ablation provides extended clinical utility in the management of knee osteoarthritis: 12-month results from a prospective, multi-center, randomized, cross-over trial comparing cooled radiofrequency ablation to a single hyaluronic acid injection. BMC Musculoskelet Disord. 2020;21(1):363. Published 2020 Jun 9. 8. Zachariah C, et al. Physiological and functional responses of water-cooled versus traditional radiofrequency ablation of peripheral nerves in rats. Reg Anesth Pain Med. 2020;45(10):792-798.

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**COOLIEF\***  
Cooled Radiofrequency Treatment

**BRIDGE THE GAP**  
**BETWEEN SHORT-TERM PAIN**  
**RELIEF TREATMENTS AND JOINT**  
**REPLACEMENT SURGERY**

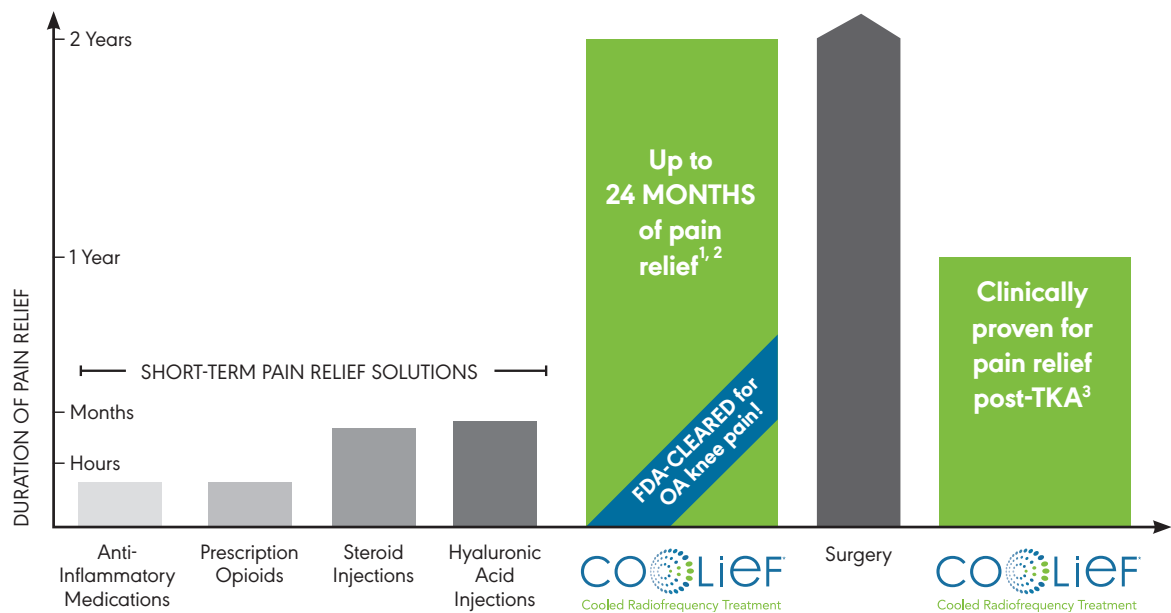
**COOLIEF\***  
**Cooled Radiofrequency:**  
**A Minimally Invasive, Non-Opioid Procedure**

**AVANOS**



# Bridge The Gap To Joint Replacement Surgery With COOLIEF\* Cooled RF

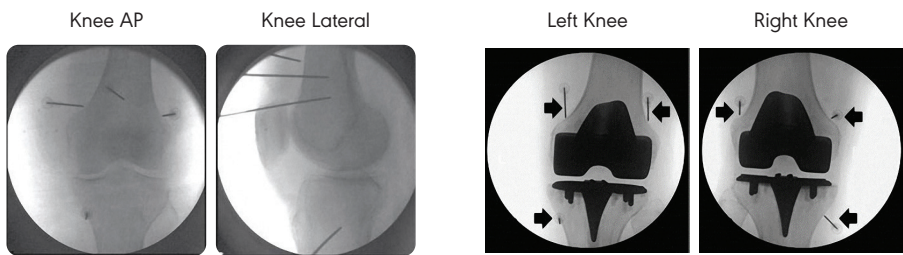
Chronic pain patients now have a clinically proven, minimally invasive, non-opioid procedure with extended durability compared to existing treatment options. Additionally, many patients are not suited for joint replacement due to age, BMI, or other comorbidities who would benefit from COOLIEF\* Cooled RF.



## COOLIEF\* Cooled RF is:

- The **first and only** radiofrequency treatment **FDA-cleared** for the relief of **osteoarthritis knee pain**.
- The first minimally invasive, non-opioid thermal radiofrequency pain management system that uses internally cooled probes to **safely deactivate** pain-causing sensory nerves.
- Clinically proven to provide up to 24 months of pain relief.<sup>1,2</sup>

### COOLIEF\* Cooled RF Probe Placement



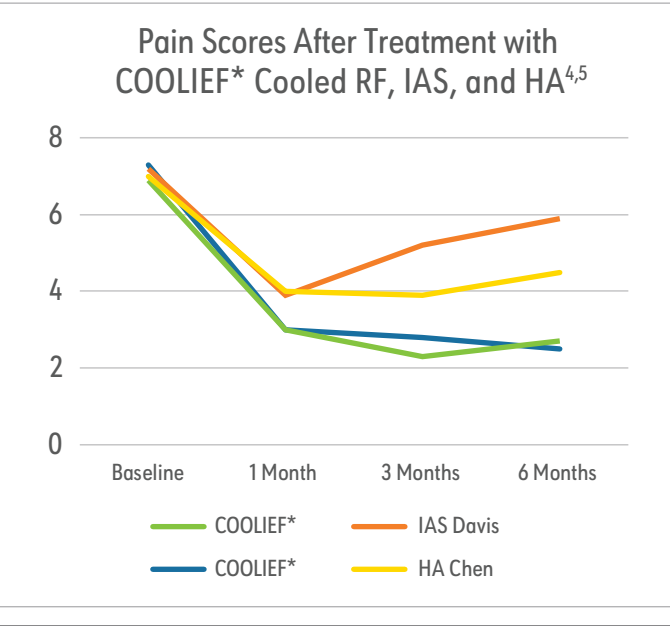
## Clinical Data Supporting the Use of COOLIEF\* Cooled RF

Two large Level I randomized clinical studies have demonstrated the extended clinical durability of COOLIEF\* Cooled RF and its superiority to intra-articular steroid injections (IAS) and hyaluronic acid (HA) in the management of knee OA. COOLIEF\* Cooled RF is a safe, effective and consistent treatment, one which fills the treatment gap between short-term pain relief treatments and total knee replacement.

### Pain

Study	Davis – Comparing COOLIEF* Cooled RF to IAS <sup>4</sup>		Chen – Comparing COOLIEF* Cooled RF to HA <sup>5</sup>	
	COOLIEF*	IAS	COOLIEF*	HA
Treatment	COOLIEF*	IAS	COOLIEF*	HA
Percent of Patients Receiving >50% pain Relief at 6 Months	74.10%	16.20%	71.10%	37.80%
Mean Decrease in Pain Score at 6 Months	4.9	1.3	4.1	2.5

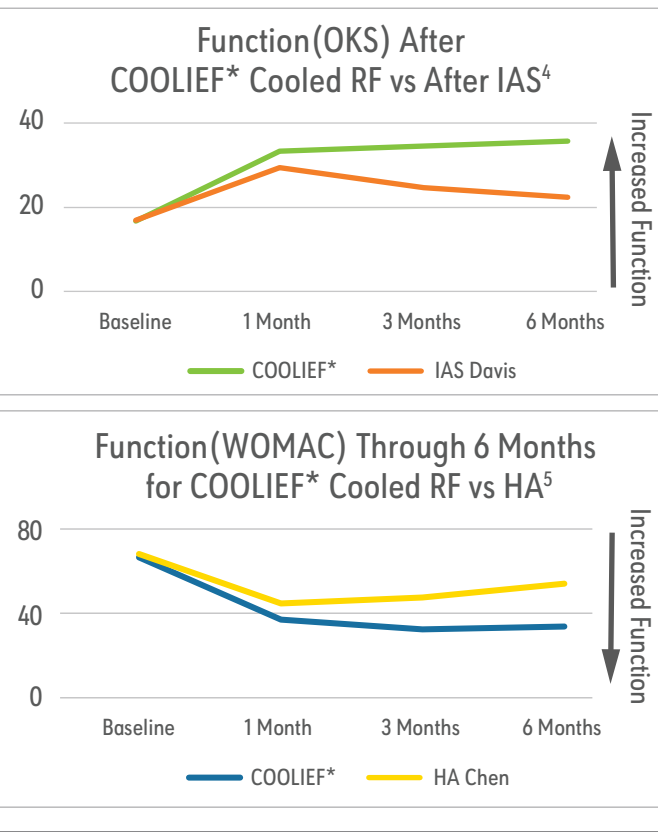
At 6 months, a greater percentage of subjects who received COOLIEF\* Cooled RF saw sustained relief than subjects who received other treatments. They also saw a greater mean decrease in pain score<sup>4,5</sup>



### Function

Study	Davis – Comparing COOLIEF* Cooled RF to IAS <sup>4</sup>		Chen – Comparing COOLIEF* Cooled RF to HA <sup>5</sup>	
	COOLIEF*	IAS	COOLIEF*	HA
Treatment	COOLIEF*	IAS	COOLIEF*	HA
Percent Improvement in Function	114.70%	32.50%	48.20%	22.60%

At 6 months, subjects who received COOLIEF\* Cooled RF saw greater improvements in function than subjects who received other treatments (IAS and HA)<sup>4,5</sup>



### Extended Durability

- Clinical trials have demonstrated the extended clinical durability of COOLIEF\*. **The majority of subjects experienced pain relief lasting 12 months, with some experiencing pain relief lasting upwards of 24 months.**<sup>1,2,4,7</sup>
- Patients also saw significant improvements in function at and past 12 months, with 80% and 66.7% of subjects who received COOLIEF\* still reporting satisfactory joint function at 18 and 24 months, respectively.<sup>1,2,6,7</sup>

### Pain Scores of Level 1 RCTs for COOLIEF\* Cooled RF<sup>1,2</sup>

