Medtronic

Symplicity Spyral™ renal denervation system

Clinical data "symplified"

The data proving **significant, safe, and sustained** blood pressure reductions.[1-4]

The SPYRAL clinical program

SPYRAL HTN-OFF MED
Pivotal, randomized, sham-controlled trial to show safety and efficacy of the Symplicity Spyral RDN system in uncontrolled hypertension patients in the absence of antihypertensive medications (n = 331).[3]

SPYRAL HTN-ON MED
Randomized, sham-controlled trial to show safety and efficacy of the Symplicity Spyral RDN system in uncontrolled hypertension patients in the presence of antihypertensive medications (n = 337).[4]

Global SYMPLICITY Registry
Prospective, single-arm, all-comer, real-world registry to demostrate long-term durability and safety in patients with uncontrolled hypertension treated with the Symplicity RDN system (n = 3,300).[1,2]

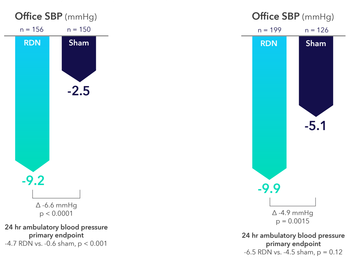
Significant

9 mmHg mean reduction
in office systolic blood pressure (SBP) in patients on and off medications at primary endpoint follow-up.

SPYRAL HTN-OFF MED Pivotal Trial[3]
Significant blood pressure reductions in the absence of medication at 3 months

SPYRAL HTN-ON MED Trial[4]
Significant blood pressure reductions with 20% lower medication burden at 6 months with RDN (2.9 RDN vs. 3.5 sham, p = 0.04)

Average baseline office systolic blood pressure (SBP) for both RDN and sham arms in both trials = 163 mmHg



Blood pressure reductions following Symplicity Spyral RDN system were present throughout the day and night.

Results may vary.

Safe

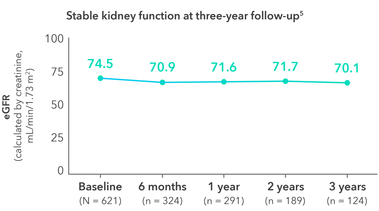
Excellent safety profile with low adverse event rates and stable kidney function

Pooled data from ON MED and OFF MED

< 0.4%
major adverse event rate at composite endpoint, including no new incidence of renal artery stenosis (> 70%) at 6 months.[4]
(N= 253)

Global SYMPLICITY Registry

Stable kidney function at three-year follow-up[5]

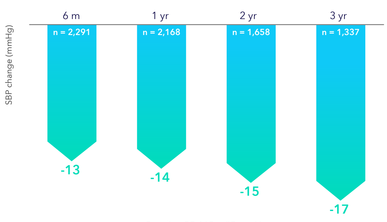


Results may vary.

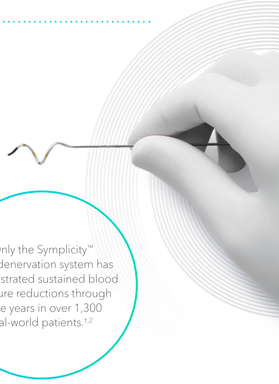
Sustained

17 mmHg mean reduction
in office SBP real-world patients at 3 years[1,2]

Global SYMPLICITY Registry[1,2]



Baseline BP 165 ± 25 mmHg
P < 0.001 at all timepoints vs. baseline BP



Only the Symplicity™ renal denervation system has demonstrated sustained blood pressure reductions through three years in over 1,300 real-world patients.[1,2]

Blood pressure reductions across high-risk subgroups at 3 years[1]

Results may vary.

† Includes Symplicity Spyral and Flex catheters.
‡ Resistant hypertension defined as OSBP >150 mmHg, ≥3 antihypertensive medications.
§ CKD defined as eGFR < 60 mL/min/1.73m².
ǂ Elderly defined as 65 years or older.

1. Mahfoud F, Kandzari DE, Kario K, et al. Long-term efficacy and safety of renal denervation in the presence of antihypertensive drugs (SPYRAL HTN-ON MED): a randomised, sham-controlled trial. *Lancet*. April 9, 2022;399(10234):1401-1410.
2. Mahfoud F, et al. Outcomes following radiofrequency renal denervation according to antihypertensive medications: subgroup analysis of the Global SYMPLICITY Registry DEFINE. EuroPCR 2023.
3. Böhm M, Kario K, Kandzari DE, et al. Efficacy of catheter-based renal denervation in the absence of antihypertensive medications (SPYRAL HTN-OFF MED Pivotal): a multicentre, randomised, sham-controlled trial. *Lancet*. May 2, 2020;395(10234):1444-1451.
4. Kandzari D, Townsend R, Kario K, et al. Safety and Efficacy of Renal Denervation in Patients Taking Antihypertensive Medications. *J Am Coll Cardiol*. November 7, 2023;82(19):1809-1823.
5. Schlaich M, et al. Long-term safety and efficacy of renal denervation with the Symplicity Spyral catheter in the Global SYMPLICITY Registry. Presented at American Society of Nephrology Kidney Week, San Diego, CA. November 4–7, 2021.
6. Mahfoud F, Mancia G, Schmieder R, et al. Renal Denervation in high-risk patients with hypertension. *J Am Coll Cardiol*. June 16, 2020;75(23):2879-2888.
7. Mahfoud, F. et al. Blood pressure reduction after catheter-based renal denervation in patients with cardiovascular disease in the Global SYMPLICITY Registry. ESH 2022, Athens.

Indications
The Symplicity Spyral™ renal denervation system is indicated to reduce blood pressure as an adjunctive treatment in patients with hypertension in whom lifestyle modifications and antihypertensive medications do not adequately control blood pressure.

Contraindications
The Symplicity Spyral system is contraindicated in patients with any of the following conditions: • Renal artery diameter < 3 mm or > 8 mm • Renal artery fibromuscular dysplasia (FMD) • Stented renal artery (< 3 months prior to RDN procedure) • Renal artery aneurysm • Renal artery diameter stenosis > 50% • Pregnancy • Presence of abnormal kidney (or secreting adrenal) tumor • Iliac/femoral artery stenosis precluding insertion of the catheter.

Warnings and Precautions
A thorough understanding of the technical principles, clinical applications, and risks associated with vascular access techniques and percutaneous transluminal catheterization in renal arteries is necessary before using this device.
The safety and efficacy of the Symplicity Spyral system has not been established in patients with isolated systolic hypertension or in patients with prior renal artery interventions including renal stents, renal angioplasty, or prior renal denervation. The Symplicity Spyral system has not yet been studied in patients who are breastfeeding, under the age of 18, or with secondary hypertension. • Avoid treatment with the Symplicity Spyral™ catheter within 5 mm of any diseased area or stent. • Implantable pacemakers (IPGs) and implantable cardioverter defibrillators (ICDs) or other active implants may be adversely affected by RF ablation. Refer to the implantable device's *Instructions for Use*. • The patient's heart rate may drop during the ablation procedure. • Proper pain medication should be administered at least 10 min before ablating renal nerves.

Potential Adverse Events
Potential adverse events associated with use of the renal denervation device or the interventional procedures include, but are not limited to, the following conditions: • Allergic reaction to contrast • Arterial damage, including injury from energy application, dissection, or perforation • Arterial spasm or stenosis • Arterio-enteric fistula • AV fistula • Bleeding • Blood clots or embolism • Bruising • Cardiopulmonary arrest • Complications associated with medications commonly utilized during the procedure, such as narcotics, anxiolytics, or other pain or anti-vasospasm medications • Death • Deep vein thrombosis • Edema • Electrolyte imbalance • Heart rhythm disturbances, including bradycardia • Hematoma • Hematoma – retroperitoneal • Hematuria • Hypertension • Hypotension (may cause end organ hypoperfusion) • Infection • Kidney damage including renal failure or perforation • Myocardial infarction • Nausea or vomiting • Pain or discomfort • Peripheral ischemia • Pulmonary embolism • Proteinuria • Pseudoaneurysm • Radiocontrast nephropathy • Renal artery aneurysm • Skin burns from failure of the dispersive electrode pad • Stroke • Other potential adverse events that are unforeseen at this time.

Please reference appropriate product *Instructions for Use* and *User Manual* for more information regarding indications, contraindications, warnings, precautions, and potential adverse events.

CAUTION: Federal (USA) law restricts this device to sale by or on the order of a physician.

For further information, please call and/or consult Medtronic at 800-633-8766 or the Medtronic website at medtronic.com.

Medtronic

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