

# **Nathan A. Miller, M.D.**

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**Place of Birth** Orange, California

## **Education**

- 7/82-6/86 B.S. - University of California, Riverside  
Riverside, CA 92521
- 7/86-6/89 M.D. - University of California, Los Angeles  
Los Angeles, CA 90024
- 7/89-6/90 Internship (General Medicine)  
St. Mary Medical Center, Long Beach, CA 90801  
Director: Peter Barrett, M.D.
- 7/90-6/93 Resident (Anesthesia)  
University of Virginia School of Medicine  
Charlottesville, VA 22908  
Director: Robert Epstein, M.D.
- 7/92-6/93 Pain Management Fellowship  
University of Virginia, Department of Anesthesia  
Director: John Rowlingson, M.D.

## **Professional Experience**

- 9/02-Present Coastal Pain & Spinal Diagnostics Medical Group  
Carlsbad, CA 92009
- 5/01-09/02 Staff Physician, Pacific Pain Medicine  
Encinitas, CA 92024
- 6/93-5/01 AAMG  
San Jose, CA 95112

## **Appointments**

- 6/97- 12/98 Chairman, Department of Anesthesia  
Alexian Brothers Hospital, San Jose, CA 95112
- 12/98- 5/01 Medical Director, HealthSouth Forest Surgery Center  
San Jose, CA 95112
- 2010-present Department Chair, Scripps Hospital Encinitas  
Encinitas, CA 92024

## Publications and Presentations

- Clinical Validation of a Multi-Biomarker Assay for the Evaluation of Chronic Pain Patients in a Cross-Sectional, Observational Study. Amirdelfan K, Pope JE, Gunn J, Hill MM, Cotten BM, Beresh JE, Dobecki D, Miller N, Mehta P, Girardi G, Deer TR. *Pain Ther.* 2020 Dec;9(2):511-529. doi: 10.1007/s40122-020-00175-3. PMID: 32495188
- Outcomes of a Multicenter, Prospective, Crossover, Randomized Controlled Trial Evaluating Subperception Spinal Cord Stimulation at  $\leq 1.2$  kHz in Previously Implanted Subjects. North J, Loudermilk E, Lee A, Sachdeva H, Kaiafas D, Washabaugh E, Sheth S, Scowcroft J, Mekhail N, Lampert B, Yearwood T, Shaw E, Atallah J, McLeod C, Han J, Yu C, Sedrak M, Lucas R, Trobridge A, Hegarty J, Miller N, Chen L, Jain R. *Neuromodulation.* 2020 Jan;23(1):102-108. doi: 10.1111/ner.13015. PMID: 31265205
- Spinal Cord Stimulation (SCS) Trial Outcomes After Conversion to a Multiple Waveform SCS System. Haider N<sup>1</sup>, Ligham D<sup>2</sup>, Quave B<sup>3</sup>, Harum KE<sup>4</sup>, Garcia EA<sup>5</sup>, Gilmore CA<sup>6</sup>, Miller N<sup>7</sup>, Moore GA<sup>8</sup>, Bains A<sup>9</sup>, Lechleiter K<sup>9</sup>, Jain R<sup>9</sup>. *Neuromodulation.* 2018 Jun 11. doi: 10.1111/ner.12783. PMID: 29889356
- Dorsal root ganglion stimulation yielded higher treatment success rate for complex regional pain syndrome and causalgia at 3 and 12 months: a randomized comparative trial. Deer TR, Levy RM, Kramer J, Poree L, Amirdelfan K, Grigsby E, Staats P, Burton AW, Burgher AH, Obay J, Scowcroft J, Golovac S, Kapural L, Paicius R, Kim C, Pope J, Yearwood T, Samuel S, McRoberts WP, Cassim H, Netherton M, Miller N, Schaufele M, Tavel E, Davis T, Davis K, Johnson L, Mekhail N. *Pain.* 2017 Apr;158(4):669-681. doi: 10.1097/j.pain.0000000000000814. PMID: 28030470

## Certifications

California State Medical License  
National Board of Medical Examiners, 1990, Cert No. 377476  
American Board of Anesthesiology, 1994, Cert No. 23918  
American Board of Anesthesiology, Subspecialty Certificate in Pain Management, 1998, Cert No. 23918  
X-Ray Supervisor and Operator, State of California, Permit No. RHC 141192  
Qualified Medical Examiner, State of California, 2001

## Awards Received

Magna Cum Laude, University of California, Los Angeles 1986  
Chief Fellow, Division of Pain Management,  
University of Virginia, 1992-93  
San Diego Top Doctor, Peer Review, October 2004

## Affiliations

Scripps Memorial Hospital, Encinitas, California: Active Staff, May 2001 to Present  
Chairman Department of Pain Medicine, 2010 to Present  
Tri-Cities Medical Center, Oceanside, California: Active Staff, May 2001 to Present  
Carlsbad Surgery Center, Carlsbad, California: Active Staff, August 2008 to Present

## Professional Memberships

American Society of Interventional Pain Physicians  
International Spinal Injection Society  
North American Spine Society  
American Society of Addiction Medicine  
San Diego County Medical Society

California Medical Association

## Research Experience

**Subcutaneous Nerve Stimulation for Failed Back Surgery Syndrome Patients. Sponsor:**  
Medtronic. Coastal Pain Research.: 2013- 2015

### Research Experience:

**Product Surveillance Registry:** Sponsor Medtronic: 2013- Present  
Spinal Cord Stimulation & Targeted Drug Delivery. Principle Investigator.

**Accelerate:** Sponsor: Boston Scientific: May 2014- Apr 2019: A Randomized Controlled Study to Evaluate the Safety and Effectiveness of the Precision Spinal Cord Stimulator System Adapted for High-Rate Spinal Cord Stimulation. Principal Investigator

**Accelerate Ex:** Sponsor: Boston Scientific: May 2017 – July 2019: A Randomized Controlled Study to Evaluate the Safety and Effectiveness of the Precision Spinal Cord Stimulator System Adapted for High-Rate Spinal Cord Stimulation. Principle Investigator.

**CNS\_HYD202US:** Sponsor: Mallinckrodt Pharmaceuticals, Inc.: Sept 2014-Sept 2017:  
A Controlled Two-Arm, Parallel Group, Randomized Withdrawal Study to Assess the Safety and Efficacy Of Hydromorphone Hydrochloride Delivered by Intrathecal Administration Using a Programmable Implantable Pump. Principle Investigator.

**Embrace TDD:** Sponsor: Medtronic: Feb 2019-Present: Prospective, Multi-Center, Post Market Study to Evaluate Intrathecal (IT) Morphine as an alternative to Systemic Opioids for the Treatment of Chronic, Intractable, Non-Malignant Primary Back Pain With or Without Leg Pain. Principle Investigator.

**Prolong:** Sponsor: Abbott: May 2019 - Present: Prospective, open label, post marketing study to Evaluate the effectiveness of Abbott neurostimulator devices in restoring pain relief for patients who no longer receive adequate therapeutic response from their current device. Principle Investigator.

**Envision:** Sponsor: Boston Scientific: July 2019 - Present: Objective Metrics. (Sleep Sensor, Watch, & Smart phone.  
Study collecting data on subjects in various stages of their SCS journey. Principle Investigator.

**Saluda ECAP:** Sponsor: Saluda Medical: February 2020-Present: A prospective, multicenter, single-arm study examining ECAP-controlled, closed-loop stimulation with the Evoke Spinal Cord Stimulator (SCS) System to treat patients with chronic pain of the trunk and/or limbs. Principle Investigator.

**CRD\_988 DISTINCT:** Sponsor: Abbott: October 2020-Present: Dorsal spinal cord stimulation versus medical management for the treatment of low back pain. Principle Investigator.

**Scope:** Sponsor: Boston Scientific: August 2020-Present: A 5-year Superior IDS clinical outcomes post-approval evaluation. Principle Investigator.

**ECHO-MAC:** Sponsor: Medtronic: January 2021-August 2021: Electronically evoked compound action potentials human observation Medtronic Algorithm Comparison study (ECHO-MAC). Principle Investigator.

**Trial to Permanent Prediction:** Sponsor: Abbott: May 2021-Present: This clinical investigation is a feasibility study designed to investigate whether objective data collected from chronic pain patients is predictive of subjective patient-reported outcomes and of adjustments to programming parameter. Principle Investigator.

**SKK Row:** Sponsor: Seikagaku Corporation: November 2019-Present: A multicenter, randomized, double-blind sham-controlled, comparative study of SI-6603 in subjects with lumbar disc herniation (Phase III). Principle Investigator.