

# Arthroscopy

The Journal of Arthroscopic  
and Related Surgery

Official Publication of the Arthroscopy Association of North America

## Editor-in-Chief

James H. Lubowitz, M.D.  
*Taos, New Mexico*

## Assistant Editor-in-Chief

Michael J. Rossi, M.D., M.S.  
*Wenatchee, Washington*

## Assistant Editor-in-Chief

Jefferson C. Brand, M.D.  
*Alexandria, Minnesota*

## Editor-in-Chief Emeritus

Gary G. Poehling, M.D.  
*Winston-Salem, North Carolina*

## Infographics Editor

Jorge Chahla, M.D., Ph.D.  
*Chicago, Illinois*

## Board of Trustees

Nicholas A. Sgaglione, M.D.,  
Chairman  
*Great Neck, New York*

Robert E. Hunter, M.D.  
*Salida, Colorado*

John D. Kelly IV, M.D.  
*Philadelphia, Pennsylvania*

Louis F. McIntyre, M.D.  
*Sleepy Hollow, New York*

## Associate Editors

Nam-Hong Choi, M.D.  
*Republic of Korea*

Aman Dhawan, M.D.  
*Hummelstown, Pennsylvania*

Michael D. Feldman, M.D.  
*Tucson, Arizona*

Joshua D. Harris, M.D.  
*Houston, Texas*

Erik Hohmann, M.D., Ph.D., F.R.C.S.  
*Dubai, United Arab Emirates*

Timothy J. Jackson, M.D.  
*Pasadena, California*

Jüri-Toomas Kartus, M.D., Ph.D.  
*Trollhättan, Sweden*

Darius Moezzi, M.D.  
*Flagstaff, Arizona*

Nikolaos K. Paschos, M.D., Ph.D.  
*Boston, Massachusetts*

Mark G. Siegel, M.D.  
*Cincinnati, Ohio*

Daniel J. Solomon, M.D.  
*Novato, California*

Brian R. Waterman, M.D.  
*Winston-Salem, North Carolina*

Mark P. Cote, P.T., D.P.T., M.S.C.T.R.,  
Statistics  
*Farmington, Connecticut*

J. Martin Leland III, M.D., Technology  
*Cleveland, Ohio*

## Podcasts Editors

Christopher J. Tucker, M.D.  
*Arlington, Virginia*

J. Martin Leland III, M.D.  
*Cleveland, Ohio*

## Publication Staff

Deborah T. VanNoy  
Managing Editor  
*Winston-Salem, North Carolina*

Andrew Berin  
Publishing Director

Elsevier  
*Philadelphia, Pennsylvania*

Tim Person  
Journal Manager

The mission of the *Arthroscopy* Journal is to be the world's most authoritative and most current source of peer-reviewed clinical and basic science information regarding arthroscopic and related surgery.

# Arthroscopy

The Journal of Arthroscopic  
and Related Surgery

Official Publication of the Arthroscopy Association of North America

## Editorial Board

---

Eyal Amar, M.D., B.Sc., *Tel Aviv, Israel*

Justin Arner, M.D., *Pittsburgh, Pennsylvania*

Aravind Athviraham, M.D., F.R.C.S.(C), *Chicago, Illinois*

F. Alan Barber, M.D., *Plano, Texas\**

Brian T. Barlow, M.D., *San Diego, California*

Andrew J. Blackman, M.D., *Chesterfield, Missouri*

Matthias Brockmeyer, M.D., *Homburg/Saar, Germany*

Taylor Brown, M.D., *Houston, Texas*

Gregory F. Carolan, M.D., *Bethlehem, Pennsylvania*

Jorge Chahla, M.D., Ph.D., *Chicago, Illinois*

J. Emory Chapman, M.D., *Salisbury, North Carolina*

John Christoforetti, M.D., *Frisco, Texas*

William Ciccone II, M.D., *Wheat Ridge, Colorado*

Timothy S. Crall, M.D., *Mammoth Lakes, California*

Darren de SA, M.D., F.R.C.S.C., *Ontario, Canada*

Ryan Degen, M.D., M.Sc., F.R.C.S.C., *Ontario, Canada*

Matthew F. Dilisio, M.D., *Omaha, Nebraska*

Benjamin G. Domb, M.D., *Chicago, Illinois*

Josef Eichinger, M.D., *Charleston, South Carolina*

Joshua Everhart, M.D., M.P.H., *Cleveland, Ohio*

Nathan Fanter, M.D., *Chicago, Illinois*

Scott C. Faucett, M.D., M.S., *Washington, District of Columbia*

Paul J. Favorito, M.D., *Cincinnati, Ohio*

Michael Fu, M.D., M.H.S., *New York, New York*

Trevor Gaskill, M.D., *Manhattan, Kansas*

Andrew Geeslin, M.D., *Kalamazoo, Michigan*

Brian B. Gilmer, M.D., *Mammoth Lakes, California*

Alexander Golant, M.D., *Flushing, New York*

Jason Grassbaugh, M.D., *Tacoma, Washington*

Benjamin Guevara, M.D., *Slidell, Louisiana*

David Hartigan, M.D., *Phoenix, Arizona*

Samer S. Hasan, M.D., Ph.D., *Cincinnati, Ohio*

Scott A. Hrnack, M.D., *Southlake, Texas*

Niraj V. Kalore, M.D., *Chester, South Carolina*

Mustafa Karahan, M.D., *Istanbul, Turkey*

Seong Hwan Kim, M.D., Ph.D., *Seoul, Republic of Korea*

Jörn Kircher, M.D., *Hamburg, Germany*

Melissa Kluczynski, M.S., *Amherst, New York*

Thomas P. Knapp, M.D., *Santa Monica, California*

Kyoung Hwan Koh, M.D., *Seoul, Republic of Korea*

Robert Kollmorgen, D.O., *Durham, North Carolina*

Arpad Konyves, M.D., *Rotorua, New Zealand\**

Bradford B. Kraetzer, M.D., *Piedmont, California*

Sameh Labib, M.D., *Atlanta, Georgia*

Lance LeClere, M.D., *Annapolis, Maryland*

Sang Hak Lee, M.D., Ph.D., *Seoul, Republic of Korea*

Mark J. Lemos, M.D., *Burlington, Massachusetts*

James P. Leonard, M.D., *Orland Park, Illinois*

Timothy Leroux, M.D., M.Ed., F.R.C.S.C., *Toronto, Canada*

Tae Kang Lim, M.D., *Seoul, Republic of Korea*

Timothy J. Lin, M.D., M.S., *Lebanon, New Hampshire*

Olaf Lorbach, M.D., *Homburg/Saar, Germany*

David Maldonado, M.D., *Westmont, Illinois*

Hal David Martin, D.O., *Dallas, Texas*

Elizabeth Matzkin, M.D., *Boston, Massachusetts*

Michael McCabe, M.D., *Overland Park, Kansas*

Christopher L. McCrum, M.D., *Dallas, Texas*

Robert Meislin, M.D., *New York, New York*

Giuseppe Milano, M.D., *Rome, Italy\**

G. Klaud Miller, M.D., *Evanston, Illinois\**

Kyong S. Min, M.D., *Honolulu, Hawaii*

Justin J. Mitchell, M.D., *Onalaska, Wisconsin*

B. Gilbert Moatshe, M.D., *Vail, Colorado*

Joan C. Monllau, M.D., Ph.D., *Barcelona, Spain*

Jeffrey J. Nepple, M.D., *St. Louis, Missouri*

Clayton W. Nuelle, M.D., *San Antonio, Texas*

John Nyland, Ed.D., D.P.T., *Louisville, Kentucky*

Kenneth M. Oates, M.D., *Anacortes, Washington\**

# Arthroscopy

The Journal of Arthroscopic  
and Related Surgery

Official Publication of the Arthroscopy Association of North America

## Editorial Board

---

Sven Ostermeier, M.D., *Gundelfingen, Germany*

Kwadwo Adu Owusu-Akyaw, M.D., *New York, New York*

Kevin D. Plancher, M.D., *New York, New York*

Anish G. R. Potty, M.D., *Laredo, Texas*

Matthew T. Provencher, M.D., *Vail, Colorado\*\**

David Pula, M.D., *Orchard Park, New York*

Chris P. Roberts, M.B.B.S., F.R.C.S., *Ipswich, England*

Patrick Sadoghi, M.D., *Graz, Austria*

Adnan Saithna, M.D., *Overland Park, Kansas*

Matthew Salzler, M.D., *Boston, Massachusetts*

Aaron T. Scott, M.D., *Winston-Salem, North Carolina*

Chris Servant, F.R.C.S., *Ipswich, England*

Andrew Sheean, M.D., *San Antonio, Texas*

David W. Shenton, M.D., *Billings, Montana*

Seth L. Sherman, M.D., *Columbia, Missouri*

Theodore Shybut, M.D., *Houston, Texas*

Mohamed H. Sobhy, M.D., Ph.D. (Ortho), *Cairo, Egypt*

S. Joshua Szabo, M.D., *Gibsonia, Pennsylvania*

Harukazu Tohyama, M.D., Ph.D., *Sapporo, Japan*

Steven Tradonsky, M.D., *San Diego, California*

Christopher Uggen, M.D., *Kalamazoo, Michigan*

Jelle P. van der List, M.D., *New York, New York*

Alexander R. Vap, M.D., *Richmond, Virginia*

Nikhil N. Verma, M.D., *Chicago, Illinois\**

William M. Weiss, M.D., M.Sc., *El Paso, Texas*

Merrick J. Wetzler, M.D., *Cherry Hill, New Jersey\**

James Wylie, M.D., M.H.S., *Boston, Massachusetts*

Jae Chul Yoo, M.D., Ph.D., *Seoul, Republic of Korea\**

Shinichi Yoshiya, M.D., *Nishinomiya, Japan\**

---

\*Associate Editor Emeritus

\*\*Assistant Editor-in-Chief Emeritus