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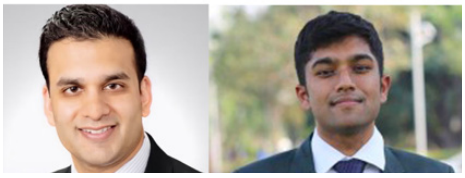
Orthopedics This Week

WEEK IN REVIEW



BREAKING NEWS

For all news that is ortho, read on.

CLICK HERE TO DOWNLOAD A PDF VERSION OF THIS WEEK'S NEWSLETTER

Orthopedic Power Rankings

Robin Young's Entirely Subjective Ordering of Public Orthopedic Companies

THIS WEEK: Musculoskeletal investors were breaking out the egg nog, fine china, and giving heartfelt thanks (also loading up on more ortho equities) for four basic reasons this week: 1. an overall healthy Q3 ortho & spine sales report (details below), 2. 10-year Treasuries dropped 7 basis points to 4.33%, 3. Hedge fund manager Scott Bessent for U.S. Treasury head and 4. a growing consensus among top investors that Trump's spend and tarriff rhetoric could, in reality, morph into a set of economic and market stability policies. Fingers crossed.

RANK	LAST WEEK	COMPANY	TTM OP MARGIN	30-DAY PRICE CHANGE	COMMENT
1	1	Integra LifeSciences	6.60%	23.39%	IART's shipping woes were not as bad as expected, new CEO, Q3 sales and earnings that beat forecasts. At these prices, a true value company. #1 in the Power Rankings
2	2	Pacira Biosciences	13.02	0.98	New J code for Exparel, 2-year data released on PCRX-201 single injection to treat knee OA. 48-65% pain improvement. Ends quarter with $454 milion cash war chest.
3	4	Orthofix	(10.99)	20.68	Decent Q3: 7% overall sales growth with spine leading the way at 18% year-over-year higher sales. Significantly better cash flow. Also a new $275 million credit facility.
4	3	Globus Medical	18.72	14.66	GMED Q3 sales were well above Wall Street's estimates. Earnings crushed the estimates. GMED is adding sales reps. Big jump in robot placements. Still cutting NUVA costs. And still underpriced.
5	6	Zimmer Biomet	20.70	5.27	Mixed bag for Q3, still working through logistics issues, which dampened sales, up only 4.0% year-over-year. But earnings beat Wall Street's conservative expectations and profit margins rose.
6	5	Medtronic	19.17	(6.57)	For the October quarter (MDT is on a May fiscal year) cranial and spine sales grew 6.7%, versus year-to-date which is much lower at 5.4%. That means rising rates of sales growth at MDT spine.
7	9	Alphatec Spine	(20.35)	96.10	Holy Moly Rocky!! ATEC nearly doubled in the last 30 days on the basis of a rousing Q3 sales report. Sales jumped 27% (5x the industry growth rate) and management raised 2024 guidance.
8	NR	ConMed	12.22	20.24	Unimpressive 4% Q3 sales growth, but 17% increase in EPS. CEO Hartman retiring. COO Beyer promoted to the top job. CNMD has always been underpriced, but at these prices, back on the Power Rankings.
9	NR	Smith & Nephew	19.00	(13.41)	4% Q3 sales growth. Minus China, sales actually grew 5.9%. Highlights were shoulder and wound care. Lowlights were knee and ENT sales. Value-wise, attractive at 4th best.
10	8	Johnson & Johnson	20.78	(6.45)	JNJ ortho and spine sales up just 1.3% for Q3. Highlights were U.S. hips, international knees and trauma. Lowlights were U.S. spine and international hips. On the Power Rankings based on valuation and 3.17% dividend yield.

Robin Young's Orthopedic Universe

TOP PERFORMERS LAST 30 DAYS

	COMPANY	SYMBOL	PRICE	MKT CAP	30-DAY CHG
1	Paragon 28	FNA	$10.04	$841	98.42%
2	Alphatec Holdings	ATEC	$10.06	$1,426	96.10%
3	SINTX Technologies	SINT	$4.96	$7	47.62%
4	Dynatronics Corp	DYNT	$0.13	$1	29.97%
5	Integra LifeSciences	IART	$23.58	$1,820	23.39%
6	Orthofix	OFIX	$18.91	$723	20.68%
7	ConMed	CNMD	$74.91	$2,314	20.24%
8	Globus Medical	GMED	$84.72	$11,536	14.66%
9	Aurora Spine	ASG.V	$0.32	$24	14.46%
10	Stryker	SYK	$384.85	$146,711	5.95%

WORST PERFORMERS LAST 30 DAYS

	COMPANY	SYMBOL	PRICE	MKT CAP	30-DAY CHG
1	Anika Therapeutics	ANIK	$16.97	$249	-30.85%
2	Xtant Medical Hldgs	XTNT	$0.40	$55	-27.33%
3	MicroPort Scientific	853	$0.73	$1,352	-14.31%
4	Smith & Nephew	SNN	$25.31	$11,065	-13.41%
5	Bioventus	BVS	$11.71	$950	-11.89%
6	Medacta	MOVE	$124.01	$2,480	-10.26%
7	Nevro Corp	NVRO	$4.52	$169	-7.76%
8	Aclarion	ACON	$0.18	$2	-6.89%
9	Medtronic	MDT	$86.21	$110,562	-6.57%
10	Johnson & Johnson	JNJ	$155.17	$373,591	-6.45%

LOWEST PRICE / EARNINGS RATIO (TTM)

	COMPANY	SYMBOL	PRICE	MKT CAP	P/E
1	Pacira Biosciences	PCRX	$17.55	$810	12.75
2	Johnson & Johnson	JNJ	$155.17	$373,591	20.25
3	Medtronic	MDT	$86.21	$110,562	20.66
4	ConMed	CNMD	$74.91	$2,314	25.37
5	Zimmer Biomet	ZBH	$110.22	$21,942	26.21

HIGHEST PRICE / EARNINGS RATIO (TTM)

	COMPANY	SYMBOL	PRICE	MKT CAP	P/E
1	Xtant Medical Hldgs	XTNT	$0.40	$55	83.22
2	Globus Medical	GMED	$84.72	$11,536	57.98
3	Smith & Nephew	SNN	$25.31	$11,065	42.07
4	Medacta	MOVE	$124.01	$2,480	40.65
5	Stryker	SYK	$384.85	$146,711	37.24

LOWEST P/E TO GROWTH RATIO (EARNINGS ESTIMATES)

	COMPANY	SYMBOL	PRICE	MKT CAP	PEG
1	Integra LifeSciences	IART	$23.58	$1,820	-7.46
2	Pacira Biosciences	PCRX	$17.55	$810	1.18
3	ConMed	CNMD	$74.91	$2,314	1.32
4	Medacta	MOVE	$124.01	$2,480	1.46
5	Stryker	SYK	$384.85	$146,711	3.21

HIGHEST P/E TO GROWTH RATIO (EARNINGS ESTIMATES)

	COMPANY	SYMBOL	PRICE	MKT CAP	PEG
1	Johnson & Johnson	JNJ	$155.17	$373,591	6.75
2	Xtant Medical Hldgs	XTNT	$0.40	$55	4.16
3	Zimmer Biomet	ZBH	$110.22	$21,942	3.82
4	Medtronic	MDT	$86.21	$110,562	3.75
5	Smith & Nephew	SNN	$25.31	$11,065	3.72

LOWEST PRICE TO SALES RATIO (TTM)

	COMPANY	SYMBOL	PRICE	MKT CAP	PSR
1	Dynatronics Corp	DYNT	$0.13	$1	0.03
2	Nevro Corp	NVRO	$4.52	$169	0.40
3	Xtant Medical Hldgs	XTNT	$0.40	$55	0.60
4	Orthofix	OFIX	$18.91	$723	0.97
5	Integra LifeSciences	IART	$23.58	$1,820	1.18

HIGHEST PRICE TO SALES RATIO (TTM)

	COMPANY	SYMBOL	PRICE	MKT CAP	PSR
1	Aclarion	ACON	$0.18	$2	24.32
2	Globus Medical	GMED	$84.72	$11,536	7.35
3	Stryker	SYK	$384.85	$146,711	7.16
4	Medacta	MOVE	$124.01	$2,480	4.86
5	Johnson & Johnson	JNJ	$155.17	$373,591	4.39

PSR: Aggregate current market capitalization divided by aggregate sales and the calculation excluded the companies for which sales figures are not available.

The Best Spine Surgeons in America

BY TRACEY ROMERO

Spine surgeons performing an operation / Source: Wikimedia Commons

According to Statista and *Newsweek* these are the Best Spine Surgeons in America.

This list, which *Newsweek* promises to update, is its first annual ranking of America's Best Spine Surgeons. The list is designed to recognize high performers in the field and to help patients find the best spine care in the country.

The Evaluation Process

The ranking was based on Medicare data, an online survey of more than 30,000 medical experts, a quality-of-care rating by peers of each spine surgeon as well as their American Board of Orthopaedic Surgery certifications, according to *Newsweek*'s Global Editor-in-Chief Nancy Cooper.

Newsweek invited physicians to participate in the survey via Newsweek.com between March and April 2024.

For the quality score, surgeons were evaluated on their treatments, follow-up care, use of equipment and other factors related to patient care including average length of hospital stay, ER visits per 1,000 episodes, mortality rate, and complications by episodes.

Who's Who in Spine Care

Overall, 150 leading spine surgeons across 20 states with the most practicing physicians were included on the list. The surgeons received one to two ribbons for procedures they perform above state average.

For each spine surgeon ranked, their hospital affiliation, city, state, and high-performance treatments including back and neck pain treatment without fusion, neck pain and spine problems, disorder of thoracic spine, lower back pain and spinal fusion, is listed.

Here are the Who's Who in Spine Care. *(See table on following pages.)*

Newsweek also annually ranks the country's best vascular, prostate cancer surgeons and prostate cancer oncologists.

View the full listing of *Newsweek*'s list of America's Best Spine Surgeons here: https://www.newsweek.com/rankings/americas-best-spine-surgeons-2024.

Name	Hospital Affliation
Kingsley O. Abode-Iyamah, M.D.	Mayo Clinic - Jacksonville
Mark Adams, M.D.	Covenant Medical Center
Bradley D. Ahlgren, M.D.	Beaumont Hospital Troy
Todd Alamin, M.D.	Stanford Health Care - Stanford Hospital
Kevin N. Ammar, M.D.	Memorial Health University Medical Center
Peter D. Angevine, M.D.	New York-Presbyterian Hospital-Columbia and Cornell
Roy F. Ashford, M.D.	Huntington Hospital
Hyun W. Bae, M.D.	Cedars-Sinai Medical Center
Carlos A. Bagley, M.D.	UT Southwestern Medical Center
Gregory W. Balturshot, M.D.	OhioHealth Riverside Methodist Hospital
Babak Barcohana, M.D.	Southern California Orthopedic Institute
Sushil Kumar Basra, M.D.	Huntington Hospital
John A. Bendo, M.D.	NYU Langone Hospitals
Sigurd H. Berven, M.D.	UCSF Medical Center
Amandeep Bhalla, M.D.	Memorial Care Long Beach Medical Center

Peter L. Bono, D.O.	Ascension Providence Hospital
Christopher R. Brown, M.D.	Duke Raleigh Hospital
Paul C. McAfee, M.D.	MedStar Union Memorial Hospital
Brian M. Cameron, M.D.	VCU Medical Center
Jeffrey B. Cantor, M.D.	Holy Cross Health
Daniel L. Cavanaugh, M.D.	University of Maryland Medical Center
Thomas D. Cha, M.D., M.B.A.	Massachusetts General Hospital
Jens Chapman, M.D.	Swedish Medical Center
Selby G. Chen, M.D.	Mayo Clinic – Jacksonville
Ivan Cheng, M.D.	Ascension Seton Hays
William M. Costigan, M.D.	Huntington Hospital
Kenneth M. Crandall, M.D., FAANS, FACS	University of Maryland Medical Center
Colin G. Crosby, M.D.	Ascension Saint Thomas Hospital Midtown
Gurvinder S. Deol, M.D.	Wake Med Cary Hospital
Peter Brett Derman, M.D.	Texas Health Presbyterian Hospital Dallas
Randall F. Dryer, M.D.	Ascension Seton Medical Center Austin

E. Hunter Dyer, M.D.	Atrium Health Carolinas Medical Center
Daniel K. Fahim, M.D.	Beaumont Hospital - Royal Oak
Jeremy L. Fogelson, M.D.	Mayo Clinic – Rochester
Mark A. Freeborn, M.D.	Evergreen Health Medical Center
Christopher Dominic Frendo, D.O.	Huntington Hospital
Christopher Furey, M.D.	University Hospitals Cleveland Medical Center
Paul Gause, M.D.	HonorHealth - Scottsdale Thompson Peak Medical Center
Ryan Glasser, M.D.	HCA Florida Sarasota Doctors Hospital
Jeffrey A. Goldstein, M.D.	NYU Langone Hospitals
Michael W. Groff, M.D.	Brigham And Women's Hospital
Betsy Grunch, M.D.	Northeast Georgia Medical Center Gainesville
Raymond J. Hah, M.D.	Keck Hospital of USC
Roger Hartl, M.D.	New York-Presbyterian Hospital-Columbia and Cornell
William R Hotchkiss, M.D.	North Central Surgical Center LLP
Victor W. Hsu, M.D.	Doylestown Hospital
Serena Hu, M.D.	Stanford Health Care - Stanford Hospital
Alexander P. Hughes, M.D.	Hospital For Special Surgery
Leonel A. Hunt, M.D.	Cedars-Sinai Medical Center
Sravisht Iyer, M.D.	Hospital For Special Surgery
M. J. J. Clarke, M.D.	Mayo Clinic – Rochester
David M. Jackson, M.D.	Banner Estrella Medical Center
Paul R. Jeffords, M.D.	Emory Saint Joseph's Hospital
Gerard Jeong, M.D.	Tucson Medical Center
Samuel Joseph, M.D.	HCA Florida South Tampa Hospital
Kevin L. Ju, M.D.	Texas Health Presbyterian Hospital Rockwall
Paul M. Keller, M.D.	Holmes Regional Medical Center
Michael Kelly, M.D.	Rady Children's Hospital San Diego
Christopher K. Kepler, M.D.	Jefferson Health - Thomas Jefferson University Hospitals
Jad G. Khalil, M.D.	Corewell Health Taylor Hospital
Kunwar Khalsa, M.D.	HonorHealth Scottsdale Shea Medical Center
Sanjay K. Khurana, M.D.	Providence Saint John's Health Center
Leonard Kibuule, M.D.	Houston Methodist West Hospital
Choll Kim, M.D., Ph.D.	Scripps Memorial Hospital La Jolla
David H. Kim, M.D.	New England Baptist Hospital
Han Jo Kim, M.D.	Hospital For Special Surgery

Paul K Kim, M.D.	Atrium Health Carolinas Medical Center
Terrence T Kim, M.D.	Cedars-Sinai Medical Center
Yong H. Kim, M.D.	NYU Langone Hospitals
Eric Klineberg, M.D.	Memorial Hermann - Rockets Orthopedic Hospital
Mark A Knaub, M.D.	Penn State Health - Milton S. Hershey Medical Center
Eugene Young Koh, M.D.	University of Maryland Medical Center
Dean Borissov Kostov, M.D.	Riverside Regional Medical Center
Michael A. Kropf, M.D.	Cedars-Sinai Medical Center
James Kryzanski, M.D.	Tufts Medical Center
Craig A. Kuhns, M.D.	St. David's Medical Center
Darren R. Lebl, M.D., M.B.A.	Hospital For Special Surgery
Robert W. Lowe, M.D.	Tristar Centennial Medical Center
Steven C. Ludwig, M.D.	University of Maryland Medical Center
Michael Madsen, M.D.	North Carolina Specialty Hospital
Paul J. Marcotte, M.D.	Hospital of the University of Pennsylvania - Penn Presbyterian
Peter L. Mayer, M.D.	HCA Florida Sarasota Doctors Hospital

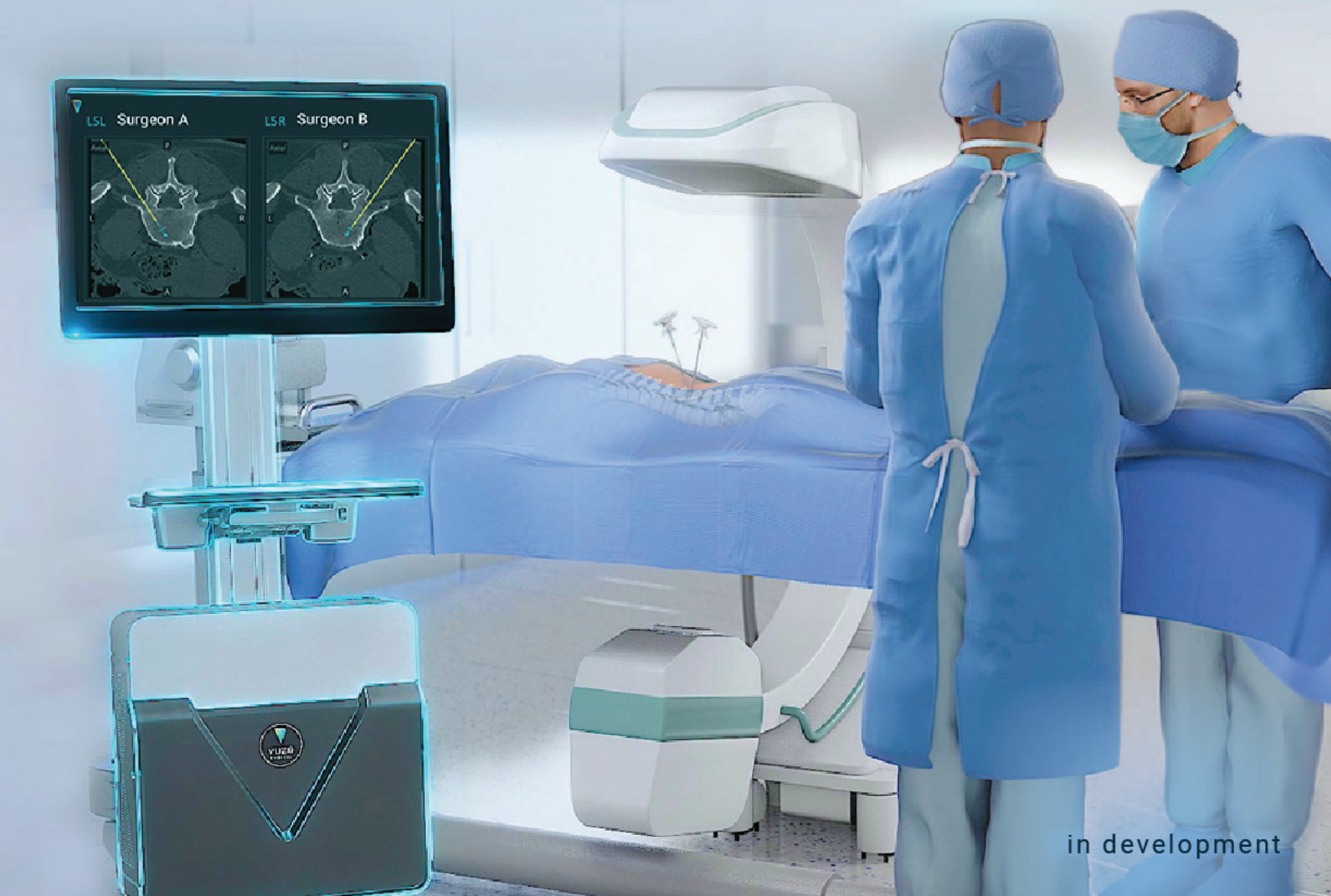
Behrang T. Mazahery, M.D.	Reston Hospital Center
William H. McAllister IV, M.D.	Riverside Regional Medical Center
John D. McCormick, M.D.	Memorial Health University Medical Center
Anis O. Mekhail, M.D.	Northwestern Medicine Palos Hospital
Mark M. Mikhael, M.D.	Evanston Hospital
Michael H. Moghimi, M.D.	Ascension Seton Medical Center Austin
Thomas Mroz, M.D.	Cleveland Clinic
Michael J. Musacchio, M.D.	Endeavor Health Skokie Hospital
George S. Naseef, III, M.D.	Morristown Medical Center
Eric W. Nottmeier, M.D.	Mayo Clinic – Jacksonville
Marcelino P. Oliveri, D.O.	Lancaster General Hospital
Okay A. Onan, M.D.	Ascension Seton Medical Center Austin
Joseph Orchowski, M.D., FAOA	Centra Lynchburg General Hospital
Brian A. O'Shaughnessy, M.D.	Ascension Saint Thomas Hospital Midtown
Richard M. Ozuna, M.D.	Beth Israel Lahey Health - Anna Jaques Hospital
Sohrab Pahlavan, M.D.	Kaiser Permanente - San José Medical Center
Andrew E. Park, M.D.	Methodist Hospital For Surgery
Daniel K. Park, M.D.	Beaumont Hospital - Royal Oak
Don Y. Park, M.D.	UCI Health Gottschalk Medical Plaza
John Park, M.D., Ph.D.	New York-Presbyterian Hospital-Columbia and Cornell
Alpesh A. Patel, M.D.	Northwestern Memorial Hospital
Tiffany G. Perry, M.D.	Cedars-Sinai Medical Center
Bimal Rami, M.D., FAANS	Greater Baltimore Medical Center
Nizam Razack, M.D.	Orlando Health Orlando Regional Medical Center
Davis Reames, M.D.	St Joseph's / Candler
Brandon J. Rebholz, M.D.	Froedtert Hospital and the Medical College of Wisconsin
John Rhee, M.D.	Emory University Hospital
Daniel Riew, M.D.	New York-Presbyterian Hospital-Columbia and Cornell
Andrew C. Roeser, M.D.	Houston Methodist Hospital
D. Todd Rose, M.D.	Novant Health New Hanover Regional Medical Center
Ranjan Roy, M.D.	Novant Health Rowan Medical Center
Mustasim N. Rumi, M.D.	Ascension Seton Northwest Hospital
Ashish K. Sahai, M.D.	Broward Health North
Sean Salehi, M.D.	Elmhurst Hospital
Andrew A. Sama, M.D.	Hospital For Special Surgery

VUZE MEDICAL

Concurrent Multi-Tool Guidance

NO cameras | **NO** markers | **NO** references
NO tool add-ons | **NO** workflow disruptions
ONLY a 2D C-arm and PC

Watch Live Demonstration



in development

Chintan Suren Sampat, M.D.	Silver Cross Hospital
Charles A. Sansur, M.D., MHSc	University of Maryland Medical Center
Jason Savage, M.D.	Cleveland Clinic
Gary S. Shapiro, M.D.	Evanston Hospital
Francis Hao Tso Shen, M.D.	University of Virginia Medical Center
Adam Lynn Shimer, M.D.	University of Virginia Medical Center
Jeremy M. Shore, M.D.	Beth Israel Lahey Health - Anna Jaques Hospital
Gbolabo Sokunbi, M.D.	Hospital For Special Surgery
Edward Song, M.D.	Arizona Spine And Joint Hospital
Leo R. Spector, M.D., M.B.A., CEO	OrthoCarolina
Steven Mark Spitz, M.D.	Northside Hospital – Atlanta
Noam Y. Stadlan, M.D.	Endeavor Health Skokie Hospital
Blake N. Staub, M.D.	Medical City Dallas Hospital
Byron F. Stephens, M.D., MSCI	Vanderbilt University Medical Center
Richard B. Stovall, M.D.	St. David's Surgical Hospital
Ryan M. Stuckey, M.D.	Texas Orthopedic Hospital
Ishaq Y. Syed, M.D.	Baylor University Medical Center
Mazin Al Tamimi, M.D.	UT Southwestern Medical Center
John Thomas, M.D.	New Hanover Regional Medical Center
Kirk Michael Thompson, M.D.	Baptist Memorial Hospital-Collierville
Thomas C. Tolli, M.D.	HCA Florida Pasadena Hospital
P. Justin Tortolani, M.D.	University of Maryland St. Joseph Medical Center
Jason O. Toy, M.D.	Ascension Seton Medical Center Austin
Luis Tumialan, M.D.	HonorHealth Scottsdale Osborn Medical Center
Jay D. Turner, M.D., Ph.D.	Barrow Neurological Institute at St. Joseph's Hospital and Medical Center
Juan Uribe, M.D.	Barrow Neurological Institute at St. Joseph's Hospital and Medical Center
David A. Vincent, M.D.	Sentara Princess Anne Hospital
Amir A. Vokshoor, M.D.	Providence Saint John's Health Center
Jeffrey C. Wang, M.D.	Keck Hospital of USC
Thomas M. Wascher, M.D.	Aurora Medical Center Oshkosh
Robert G. Watkins, M.D.	Cedar-Sinai Marina Del Rey Hospital
Keith D. Williams, M.D.	Baptist Memorial Hospital-Collierville
David W. Wimberley, M.D.	Texas Orthopedic Hospital

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126,692-Patient Study: Use Low-Dose Aspirin After TKA

BY ELIZABETH HOFHEINZ, M.P.H., M.ED.

Source: Shutterstock

A126,692-patient study, across 60 healthcare organizations, found that low-dose aspirin prevents venous thromboembolism. Simple.

The study, "Low-Dose Aspirin Is the Safest Prophylaxis for Prevention of Venous Thromboembolism After Total Knee Arthroplasty Across All Patient Risk Profiles," appears in the July 17, 2024, edition of *The Journal of Bone and Joint Surgery.*

Why This Study Now?

According to Co-author Atul Kamath, M.D., M.B.A. director of the Center for Hip Preservation at Cleveland Clinic, previous studies failed to consider varying patient-risk profiles, and they were not exactly high-powered studies. "The 2022 International Consensus Meeting on Venous Thromboembolism recommended low-dose aspirin as the most efficacious prophylactic treatment for all total joint arthroplasty (TJA) patients, including those with moderate-to-high-risk profiles for venous thromboembolism (VTE),[1]" said Dr. Kamath.

"Nonetheless, studies included within the International Consensus Meeting on Venous Thromboembolism network meta-analysis have often failed to consider varying patient risk profiles. Additionally, there is a lack of high-powered studies investigating the outcomes of patients in the era of outpatient TJA."

"The novelty of our work is that it aims to fill both of these gaps which exist in the literature. In addition to VTE, we also investigate complications related to bleeding, infection, revision, and readmission in the postoperative period following total knee arthroplasty (TKA). Moreover, as choice of VTE prophylaxis is based on surgeon preferences, we used our contemporary dataset to investigate the trends in the selection of prophylaxis for TKA patients of varying risk profiles."

The Study's 3 Goals

"Our methodology for this study aimed to accomplish three goals:

1) evaluate the trends in low-dose aspirin utilization for risk-stratified patients undergoing TKA,

2) compare risk-stratified 90-day postoperative outcomes among patients receiving low-dose-aspirin-only and alternative VTE prophylaxis, and

3) assess these outcomes in cohorts that received rivaroxaban and

anticoagulants in addition to low-dose aspirin.

For our study, we utilized TriNetX (Cambridge, Massachusetts), a cloud-based research network which continuously compiles electronic health record (EHR) data across many healthcare organizations (HCOs) worldwide.[2]"

88 Million Adult Patients, 60 Care Provider Organizations

"We specifically queried 88 million adult patients across 60 healthcare organizations within the United States. With this data source, we were able to leverage the most recent real-time data to evaluate both the trends and outcomes of prophylaxis selection in high- and low-risk patients. Additionally, our criteria for risk-stratification were comorbidities identified in the 2022 International Consensus Meeting on Venous Thromboembolism and a 2016 analysis of the National Inpatient Sample by Parvizi et al.[1,3] "

"The analysis of low-dose aspirin vs. rivaroxaban was included as previous meta-analyses had found lower rates of VTE with rivaroxaban. Lastly, the analysis of low-dose-aspirin-only vs. low-dose aspirin with additional anticoagulant was included as a sizeable number of patients in our dataset received additional anticoagulants according to their chart and limited published data is available for this cohort."

"With regard to trends, low-dose aspirin has become the most prescribed prophylactic agent with 55% of patients receiving it in 2022. In comparison, the proportion of patients receiving high-dose aspirin and other anticoagulants has decreased to 10% and 43%, respectively. Nonetheless, low-risk TKA patients were more likely to receive low-dose aspirin in comparison to high-risk TKA patients."

Ten-Year Longitudinal Study

Dr. Kamath explained to *OTW* that, over the ten-year study period, 2012 to 2022, "The rates of deep vein thrombosis (DVT) and pulmonary embolism (PE) decreased as well, potentially reflecting the outcomes of emerging outpatient surgery and rapid recovery protocols."

"When comparing the outcomes of low-dose aspirin to other prophylactic agents in high-risk patients, outcomes favored the low-dose-aspirin-only cohort in all outcomes assessed other than prosthetic joint infection, in which no difference was detected. When compared to high-risk patients

receiving rivaroxaban and low-dose aspirin in combination with another anticoagulants, low-dose-aspirin-only patients still had better outcomes following TKA. Our findings supported the recommendations of the International Consensus Meeting on Venous Thromboembolism. Low-dose aspirin is an inexpensive, well-tolerated medication requiring minimal observation so there is likely great synergy with outpatient TKA."

Practice-Altering?

"We do believe this study will shift practice for some orthopaedic surgeons," said Dr. Kamath, "The findings of our study and the conclusions reached by the International Consensus Meeting on Venous Thromboembolism support the use of low-dose aspirin in moderate-to-high-risk patients."

"However, the results of our big-data study are large-scale and may not account for all clinical circumstances. For example, patients may be taking an anticoagulant medication prior to TKA, they might have clotting disorders, or their risk of VTE may be too high to administer low-dose aspirin based on institutional standards."

"Further research is warranted to investigate optimal VTE prophylaxis in various subpopulations following TKA. Such studies will provide greater evidence to surgeons for making clinical decisions that are best for each patient." ♦

Additional study authors were Monish Lavu, M.H.M., Joshua Porto, M.S., Christian Hecht, II B.S., Alexander Acuña, M.D., David Kaelber, M.D., Ph.D., M.P.H., and Javad Parvizi, M.D.

References

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Neurosurgeons Raise Alarm Over Concussive Slap Fighting

BY TRACEY ROMERO

(Left to Right) Nitin Agarwal, M.D., associate professor at the University of Pittsburgh Department of Neurosurgery and Raj Swaroop Lavadi, MBBS, postdoctoral research fellow at the University of Pittsburgh Department of Neurosurgery / Courtesy of University of Pittsburgh and LinkedIn

Slap fighting has been popular in the underground sports world for years, but organizers are now trying to turn it more mainstream which has many neurosurgeons seriously alarmed.

Slap fighting—two people standing across from each, slapping each other in the face with open palms—has a higher risk of concussion than contact sports like boxing, martial arts, and football research is starting to show.

No Defense Allowed

University of Pittsburgh School of Medicine researchers recently conducted a first of its kind study on slap fighting to raise awareness about the signs of concussion and the need for further research to better understand the extent of damage caused by these blows to the face.

Despite the many safety concerns, slap fighting organizers like Power Slap are pushing for more state athletic commissions to approve slap fighting leagues. The Nevada State Athletics Commission oversees Power Slap.

Power Slap owners maintain, according to a recent *Forbes* article that regulations make slap fighting safer and that it is actually safer than combat sports like boxing where boxers have to sustain hundreds of hits compared to the three to five that occur during a slap fight.

Power Slap requires its fighters to wear ear plugs and mouthguards and divides competitors into MMA weight classes.

The league also provides people to stand behind the fighters to catch them if they've been knocked out and there are penalties for certain hits like those on the eyes or mouth.

Opponents are not allowed to defend themselves in any way though. They are judged on the amount of damage they inflict and how well they can absorb the slaps. Each match can last up to ten rounds. The fighters only have a few minutes to recover from a slap and the competition continues until one of them is knocked out or the judge decides the winner.

MORE Than 50% of Slaps Cause Concussions

The team of University of Pittsburgh researchers analyzed 333 slaps that occurred over 78 videotaped slap-fighting matches looking for signs of concussion and measuring how often they occur.

The results: More than half of the slaps caused signs of concussion, including impaired motor skills, a vacant stare, and slow recovery after a knockdown.

According to the University of Pittsburgh Medical Center, between 1.7 and

3 million sports-and recreation-related concussions happen each year. Five in 10 of these go undetected or unreported. When this happens, they don't get the treatment needed to prevent long-term brain damage.

The research team published their findings in *JAMA Surgery* under a research letter entitled, "Video Analysis of Concussion Among Slap Fighting Athletes."

From the data they collected, almost 80% of the fighters exhibited at least one sign of concussion during their matches. Broken down, almost 40% of the sequences resulted in signs of poor motor coordination, while a third of the sequences left the fighters with a blank and vacant look on their face. In addition, in a quarter of the sequences, they were slow to get back up after being brought down by a blow.

The research team led by Nitin Agarwal, M.D., associate professor at the University of Pittsburgh Department of Neurosurgery and Raj Swaroop Lavadi, postdoctoral research fellow at the University of Pittsburgh Department of Neurosurgery, hope their findings are just the beginning of a long conversation on the need for regulations to protect the long-term health of slap fighting participants.

The team is continuing its research by using a mouthpiece to measure the physical force of a slap. By determining the impact of an average slap, officials and ring-side physicians can improve safety regulations, they say.

Drs. Agarwal and Lavadi recently talked with *Orthopedics This Week* about the significance of their research.

To paint a clearer picture of how alarming their results are, they compared them to injury rates in boxing and kickboxing.

A 5-year surveillance study of boxing injuries found injuries to the hand were most common. The total injury rate during competition was 828 per 1000h and hand injury rate in competition was 302 injuries per 1000h.

A 16-year study of injuries to professional kickboxers recorded 382 injuries during 3,481 fights. The most common location of injury was the head/neck/face. The injury rate was 109.7 injuries per 1000 fight participations.

Another boxing study found injuries to the head and face were the majority of the injuries. Overall, there were 214 injuries recorded over 8.5 years, with an injury rate of 23.6 per 100 professional fights.

Dr. Agarwal explained that when comparing these numbers to the rate of injury found in their small study sample of slap fighters, it highlights the serious risk of injury during these matches.

"The video analysis shows deformed faces from slaps, bruising, and signs of blood clots and concussion," he said.

Dr. Lavadi further explained, "The only safety gear are cotton balls in the ears and a mouthguard which can monitor concussive forces but can't protect from them. And even with people standing behind the opponents to catch them when they fall, they are still hitting their heads."

Normalizing Slap Fighting Is Normalizing Permanent Brain Damage

Agarwal and Lavadi cautioned against referring to slap fighting as a sport because doing so normalizes it and might encourage children to try to emulate these fighters in the schoolyard.

"In football, there are many safety protocols, in Martial Arts, the first premise is defense. In slap fighting, there is no defense," Dr. Agarwal said.

"The rate of damage we have shown in slap fighting is alarming, and considering the smaller sample size, it is even more shocking," Dr. Lavadi added.

The attention their study is getting is important, they said, because they want to raise awareness about the extent of damage these competitions cause. Any participants in slap fighting interested in participating in their research are welcome to join. ♦

COMPANY

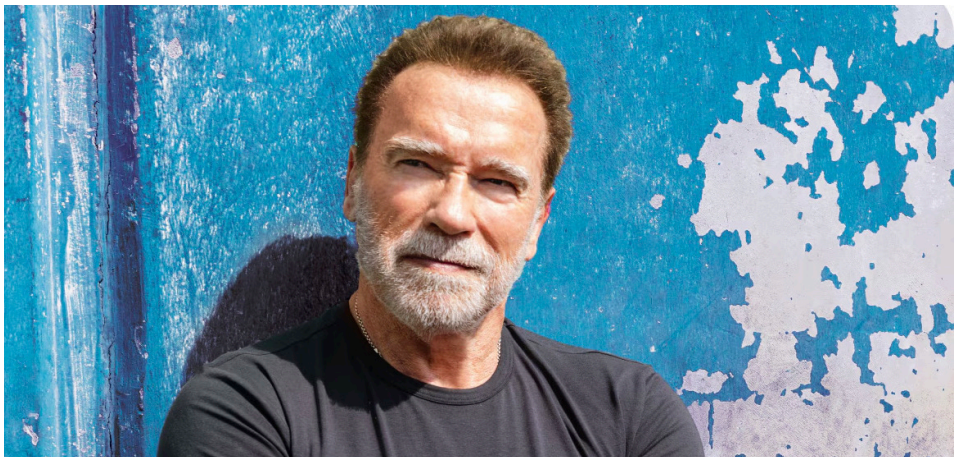
Arnold Schwarzenegger Joins Zimmer Biomet Holdings, Inc.

Ahhhhnold is back!—and he's going to get America moving!

Arnold Schwarzenegger, bodybuilder, movie star, and former governor of California is teaming up with Zimmer Biomet Holdings, Inc., where he will serve in the newly established role of Chief Movement Officer. Schwarzenegger will aim to motivate, engage, and support individuals to increase mobility, maintain joint health, and proactively incorporate movement into their daily routines to foster overall health and wellness.

Schwarzenegger's 50-year mission of promoting health and fitness includes weightlifting, writing books, and his Arnold Sports Festival—the largest multi-sport fitness festival in the world. His daily newsletter, "Arnold's Pump Club," reaches nearly one million people with workouts, health and fitness information.

"Arnold's bold approach to personal health, innovation and evolution echoes Zimmer Biomet's vision to be the boldest company in MedTech by solving the most meaningful problems in healthcare today," said Ivan Tornos, Zimmer Biomet president and chief executive officer.



Arnold Schwarzenegger / Courtesy of Zimmer Biomet Holdings, Inc.

"People are seeking to lead healthier, more active lifestyles as they age, and the demand for people to keep moving pain-free is increasing. Innovative solutions like ours are making it easier to achieve that goal. I cannot think of a better partner than Arnold to join us as Chief Movement Officer, to help advance our shared Mission to alleviate pain and improve the quality of life for people around the world. Together, we're going to do amazing things for patients, surgeons and communities."

When You Rest, You Rust

Schwarzenegger added, "I am energized by Zimmer Biomet's Mission because it aligns with my own 50-year fitness crusade."

"I want every single person in the world to discover the joy of fitness and movement that has made my life better every step of the way. Through this partnership with Zimmer Biomet, I can continue to encourage others to make positive changes each and every day that support them living their best and most active lives possible. We never have to stop moving. In fact, I believe we shouldn't."

"I agree with the famous quote: 'If you rest, you rust,' and my goal with Zimmer Biomet is to continue to push people to see that movement creates joy and extends the quality of our lives."

OTW asked how this came to fruition and Rachel Ellingson, company senior vice president and chief administrative officer, said, "By partnering with Arnold Schwarzenegger, we can educate and empower people living with joint pain to go get help sooner than later and understand the new, innovative options available."

"There are over half a billion people globally living with some kind of arthritis, and it's estimated that less than 5% seek treatment, while the rest struggle with pain."

"Arnold is not only a worldwide household name but has been a lifelong champion of fitness with a commitment to motivating others to live fuller and healthier lives. He's purpose-centric, a bold thinker, and passionate about the importance of mobility—all that mirrors who we are as a company."

"Bringing Arnold on as Chief Movement Officer helps us reach and inspire millions of people living in pain to seek help."

Learning Lessons From Pickleball

"Our goal is spreading awareness and educating the millions of people living

in pain. In MedTech, traditional product marketing efforts have been directed toward surgeons and healthcare providers, but we recognize the power of patient choice and see the value in educating people with joint pain to have a voice in their healthcare decisions."

And, *OTW* asked, what does success look like? "With a multi-faceted partnership like this one, there are many metrics for measuring success," explained Ellingson. "In the short-term, we hope to see people engaging with the educational resources we are developing in partnership with Arnold, becoming savvier about the latest Zimmer Biomet innovations for joint pain relief, and finding a surgeon for an expert opinion."

"By engaging a high-profile personality like Arnold to inform and give a voice to patients, Zimmer Biomet is charting a new course for the MedTech industry which has largely focused its efforts on surgeons."

"We believe our campaign with Arnold is well-timed as people are eager to stay more active as they age. Take Pickleball for example, more than half of core players who play eight or more times a year—are 55 or older, and almost a third are 65-plus."

"Additionally, millennials, who are entering their 40s, are expected to be more proactive about researching their joint replacement options, comparing outcomes data and requesting a specific device. We encourage people to visit ZimmerBiomet.com to sign up to receive future updates about our partnership with Arnold." — *EH*

LEGAL

GEICO's RICO Suit Against Ortho Surgeon DISMISSED!

An orthopedic surgeon, a neurologist, and their medical practices

Source: Pixabay and sergeitokmakov

have entered into separate stipulations which dismiss a racketeering, aka: RICO, lawsuit filed against these practices by insurance giant and Warren Buffett owned, GEICO.

Government Employees Insurance Co., GEICO Indemnity Co., GEICO General Insurance Company, and GEICO Casualty Co. initiated the losing lawsuit. Collectively referred to as GEICO, the group of insurance companies underwrite automobile insurance. In the initial lawsuit GEICO alleged that the physicians inflated or falsified medical bills to enable larger settlements for automobile accidents.

GEICO filed the lawsuit against orthopedic surgeon Erik T. Bendiks, M.D., his medical practice Apex Spine & Orthopaedics, PLLC, Sonia P. Pasi, M.D., and her medical practice Advanced Pain Consultants, P.A. Dr. Bendiks and Dr. Pasi both provide services to patients recovering from injuries sustained in automobile accidents.

The physicians and their practices entered into stipulations of dismissal that all claims asserted by GEICO are dismissed with prejudice and without costs. A dismissal with prejudice means that the case is permanently dismissed and cannot be brought again.

A press release issued following the most recent stipulation of dismissal asserted that, "At every turn in the federal court proceedings, Dr. Bendiks and Apex Spine called out those accusations as completely baseless."

In the press release Dr. Bendiks said, "People who have been in automobile accidents often lack the financial resources to get the healthcare they need to recover."

Dr. Bendiks continued, "At Apex, we're here to help all those who have been injured. I'm especially proud of our track record of helping those less financially fortunate get back on the road to recovery."

For *OTW*'s initial coverage of the litigation, see "GEICO $2.8M RICO Suit Continues Against Ortho Surgeons."

The case was filed in the United States District Court Western District of North Carolina Charlotte Division. It is case number 3:23-cv-00590-FDW-SCR. — *KD*

EXTREMITIES

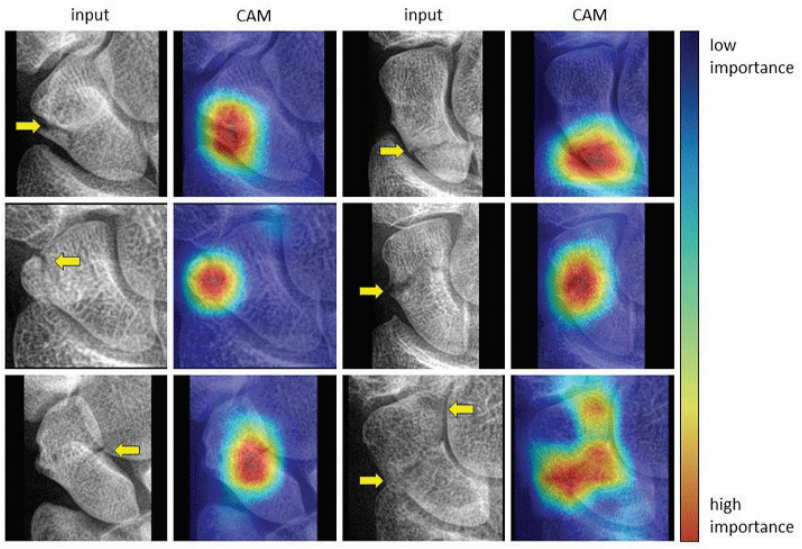
How Accurate Is Artificial Intelligence for Hand/Wrist Diagnosis?

A systematic review of 36 artificial intelligence (AI) studies provided evidence that AI models may give human diagnosticians a run for their money when diagnosing hand and wrist injuries—or maybe just lighten their load.

The study, "The Accuracy of Artificial Intelligence Models in Hand/Wrist Fracture and Dislocation Diagnosis-A Systematic Review and Meta-Analysis," appears in the September 5, 2024 edition of *JBJS Reviews*.

AI models are increasingly being employed to augment and potentially enhance diagnostic and clinical decision making. The University of Toronto authors of the study collected data regarding AI's ability to accurately diagnose hand and wrist fracture or dislocation using any radiologic imaging modality.

Co-author Chloe R. Wong, M.D., a third year resident in the Division of Plastic, Reconstructive & Aesthetic Surgery at the University of Toronto, explained the genesis of the study to *OTW*, "As a plastic surgery resident, I have actively participated in the management of numerous hand fracture cases and am able to appreciate that timely and accu-



AI for Wrist Fractures / Courtesy of the Radiological Society of North America

rate diagnosis, followed by appropriate treatment, is critical for preserving function while also reducing healthcare costs."

"Driven by my interest in AI, we explored AI models that have been developed to assist in diagnosing these injuries. We found, however, a significant gap in the literature—no meta-analysis has yet to evaluate the accuracy of AI models in detecting hand and wrist fractures and dislocations in comparison to image review by medical experts."

The authors searched Ovid MEDLINE, Embase, and Cochrane Central Register of Controlled Trials from their inception to October 10, 2023 and found 36 articles which qualified for review. To qualify for review, the studies had to use an AI model (index test) for detecting hand and wrist fractures and dislocations in pediatric (<18 years) or adult (>18 years) patients through any radiologic imaging, with the reference standard established through image review by a medical expert.

Most of the selected studies assessed wrist fractures (27.90%) through radiograph imaging (94.44%), with radiologists serving as the reference standard (66.67%).

The research team found that the reviewed AI models demonstrated area under the curve (0.946), positive likelihood ratio (7.690; 95% confidence interval, 6.400-9.190), and negative likelihood ratio (0.112; 0.0848-0.145) for diagnosing hand and wrist fractures and dislocations.

The team only examined studies with a low risk of bias. An applied sensitivity analysis did not reveal any difference from the overall results. Indeed, the team concluded that overall certainty of evidence was moderate.

"We found that AI models demonstrate a high level of accuracy in diagnosing hand and wrist fractures and dislocations when compared to image review by medical experts," said Dr. Wong to *OTW*. "Several studies have developed AI models for diagnosing fractures. Existing models range from general fracture detection to more targeted models focusing on specific regions and fractures, such as hand/wrist and scaphoid fractures, respectively. These efforts contribute to the growing body of knowledge on how AI can augment fracture detection."

The authors recommend that going forward, efforts should be directed to prospective external validation in clinical settings (i.e., primary care vs. emergency department, isolated trauma vs. poly-trauma) and feasibility and effectiveness studies on the implementation of AI models in clinical practice. — *EH*

SPINE

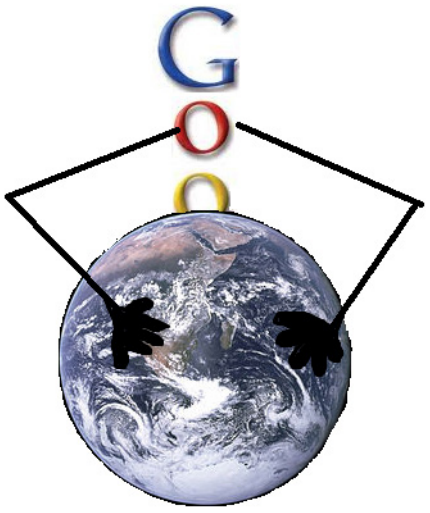
ChatGPT Beats Dr. Google for … Misinformation?

How do ChatGPT 3.5 and ChatGPT 4.0 stack up to North American Spine Society (NASS) clinical guidelines when it comes to lumbar disc herniation with radiculopathy? That's what a multicenter team set out to learn. Their work, "Lumbar disc herniation with radiculopathy: a comparison of NASS guidelines and ChatGPT," appears in the September 2024 edition of the *North American Spine Society Journal*.

Co-author Ankur Kayastha, B.S., a medical student at Kansas City University, told *OTW*, "Artificial intelligence (AI) is becoming mainstream in society and will be implemented in a variety of fields. This particular study was performed to obtain an early look at performance within a clinical medicine context. Utilizing two versions of ChatGPT for this study may provide insight as to the rate of progression of AI technology between updates."

The researchers prompted ChatGPT 3.5 and ChatGPT 4.0 with 15 questions from the 2012 NASS Clinical Guidelines for the diagnosis and treatment of lumbar disc herniation with radiculopathy. Two independent authors assessed the language output based on accuracy, over-conclusiveness, supplementary, and incompleteness.

OTW asked Dr. Kayastha about the challenges/milestones he encountered conducting this study. "ChatGPT answers questions differently even when asking the same question at different time points which makes it difficult to assess reliability" he said. "It also has a tendency to fabricate



Source: Wikimedia Commons and Azeliad

answers even in cases where it has access to correct information."

Progress ≠ Perfect

Among the 15 responses produced by *ChatGPT 3.5*,

- 7 (47%) were accurate,
- 7 (47%) were over-conclusive,
- 15 (100%) were supplementary, and
- 6 (40%) were incomplete.

For *ChatGPT 4.0*,

- 10 (67%) were accurate,
- 5 (33%) were over-conclusive,
- 10 (67%) were supplementary, and
- 6 (40%) were incomplete.

While there was a statistically significant difference in supplementary information between ChatGPT 3.5 and ChatGPT 4.0. (100% vs. 67%) there was no statistically significant difference between the two versions for accuracy (47% vs. 67%), over-conclusiveness (47% vs. 33%), or incompleteness (40% vs. 40%).

Both versions reached 100% accuracy for definition and history and physical exam categories.

However, ChatGPT 3.5 completely failed (0% accuracy) to answer questions regarding diagnostic testing and surgical intervention.

By contrast, ChatGPT 4.0 hit 100% accuracy for diagnostic testing and a 33% accuracy rate for surgical intervention information.

For questions regarding nonsurgical interventions, ChatGPT 3.5 gave accurate information 50% of the time. ChatGPT 4.0 hit a 63% accuracy rate.

"ChatGPT performed best regarding definition-based questions and worst with more complex surgical or prognosis-type questions," explained Kayastha. "AI will be integrated into healthcare in the future—the question is when. With proper regulatory oversight and access to accurate and up-to-date information, AI can be a useful clinical adjunct for clinicians. Ethical safeguards and questions of liability need to be reconciled before implementation, but AI can be incredibly helpful when used in the right context."

Buyer Beware

The authors found that although advancements in ChatGPT 4.0 have been made, a third of the responses in the data obtained in this comparative analysis still contained inaccurate information. ChatGPT 4.0 outperformed ChatGPT 3.5 in a statistically significant fashion only in terms of one out of four outcome measures: supplementary information. ChatGPT 3.5 added supplemental information to all tested clinical guidelines, whereas ChatGPT 4.0 responses were more conservative.

The investigators determined that both models were "vulnerable to producing unsupported or irrelevant details" and that "ChatGPT sometimes generates fabricated data to provide the user with an immediate response, regardless of the content's factual integrity. Despite these limitations, ChatGPT may still have potential to be a supplemental source for medical professionals pending future updates and ethical considerations." — *EH*

Mid-Course Report on MIS Spine Surgery

How well has minimally invasive spine (MIS) surgery lived up to expectations over the past decade?

That's what a team from the U.S. and Germany set out to determine. Their work, "Complications in Minimally Invasive Spine Surgery in the Last 10 Years: A Narrative Review," appears in the September 30, 2024 edition of *Neurospine*.

Source: Shutterstock

"Minimally invasive spine surgery has always been a disruptive force in spine surgery," explained Osama Kashlan, M.D., M.P.H., a neurosurgeon at New York Presbyterian Hospital/Och Spine, Weill Cornell Medicine in New York City, to *OTW*.

"However, over the last 10 years with the continued improvement in minimally invasive spine surgery techniques and the more widespread introduction of spine endoscopy in North America, it is the right time for this work because of the explosion of articles during that same timeframe comparing the different minimally invasive spine surgery techniques to open surgery."

"As with any new technology, it is always important to ensure that outcomes of minimally invasive spine surgery are either the same or better than open surgery. This manuscript utilizes the newest data and articles to confirm that minimally invasive spine surgery is a technology that is here to stay."

137 Studies Reviewed

The team reviewed 137 new MIS spine surgery studies and found that key complications in cervical minimally invasive spine surgery were:

- hematomas,
- transient nerve root palsy, and
- dural tears.

In thoracic minimally invasive spine surgery, it was:

- cerebrospinal fluid leaks and
- durotomy.

In lumbar minimally invasive spine surgery, common complications were:

- incidental dural injuries,
- postoperative neuropathic conditions, and
- disc herniation recurrences.

As you can see, complications varied by surgical approach.

"Minimally invasive spine surgery has a very low complication profile overall especially when combined with navigation," said co-author Galal Elsayed, M.D., a neurosurgeon at New York Presbyterian Hospital/Och Spine, Weill Cornell Medicine in New York City. "Future uses of augmented reality will push the safety of minimally invasive spine surgery further."

"The low rates of disk recurrence in the lumbar disk operations in all three minimally invasive spine surgery techniques was surprisingly lower than expected based on older studies showing recurrence rates of between 1-10%," said Dr. Kashlan to *OTW*. "This demonstrates that potentially our modern techniques are helping with lowering symptomatic disk recurrences."

OTW asked Dr. Elsayed about any limitations in the study and he said, "The most problematic of the limitations is the fact that our study lumps together all approaches and conditions into the three categories: tubular, uniportal, or biportal."

"For example, tubular approaches include both midline approaches and paracentral approaches to reach far lateral disks. This group also includes patients with stenosis from ligamentous and bony hypertrophy with patients who have disk herniations. Experienced spine surgeons know that all these situations are confounders in terms of risk and patient outcomes. We attempted to alleviate this bias by being specific with the approaches and conditions treated in the tables."

"Minimally invasive spine surgery techniques are critical for every spine surgeon to learn," Dr. Elsayed told *OTW*. "Not all operations are best served with minimally invasive spine surgery techniques, but it is important for surgeons to have all tools in their toolbox to give their patients the best and more up to date care. The manuscript demonstrates clearly what the risks are of minimally invasive spine surgery and where it compares to open surgery." — *EH*

Extended Antibiotic Use Questioned in Massive Spine Study

A meta-analysis of 11,875 patients across 11 international studies has concluded that post operative anibiotic prophylaxis has no clinical value.

Source: Shutterstock

The study from researchers at the University of Colorado Anschutz Medical Campus, titled, "Extended Postoperative Antibiotic Prophylaxis Is Associated with No Clinical Value and Higher Projected Cost Following Adult Spinal Surgery: A Stratified Meta-Analysis and Probability-Based Cost Projections," was was published in the September 2024 edition of *JBJS Reviews*.

The team conducted a comprehensive literature search using several online databases: PubMed, MEDLINE via Ovid, Web of Science, Cochrane database, and Science-Direct. Their goal was to determine the value of different protocols for postoperative antibiotic prophylaxis following spinal surgery including:

1. Postoperative antibiotic prophylaxis for (<48 hours) vs. extended postoperative antibiotic prophylaxis (>48 hours)

2. Short course (24 hours) vs. E-PAP (72 hours)

David Ou-Yang, M.D., associate professor at the University of Colorado, explained the genesis of the study to *OTW,* "Surgical site infections are a major concern following spine surgery, with reported incidence rates ranging from 0.7% to 16.1%."

"These infections also represent 21.8% of hospital-acquired infections and result in additional management costs ranging from $20,000 to $94,000 per patient. Although the North American Spine Society's 2013 guidelines for postoperative antibiotic use are based on Grade B evidence, adherence to these recommendations remains suboptimal."

Mohamed Awad, M.D., M.B.A., research instructor at the University of Colorado, added, "Under the Hospital-Acquired Conditions Reduction Program, the Centers for Medicare & Medicaid Services [CMS] penalizes hospitals with high rates of infections each year by reducing their reimbursements."

"This penalty, along with an increase in infection rates, has the potential to generate a 'butterfly effect', pushing institutions toward extended postoperative antibiotic prophylaxis. The potential for extended postoperative antibiotic prophylaxis to reduce infections and avoid CMS penalties deserves further investigation."

"Even though short-term antibiotic use is becoming the norm in North America, international practices still favor extended protocols, ultimately contributing to antimicrobial resistance," explained Nicholas Alfonso, M.D., co-author and assistant professor, University of Colorado, to *OTW.*

"This discrepancy and conflicting literature led us to address whether the current literature supports extended postoperative antibiotic prophylaxis, to determine the value (outcome and projected cost) of different extended postoperative antibiotic prophylaxis protocols, and to provide the community with an evidence-based conclusion."

"To address these research questions and attain highly valid data, we followed level 1 sub-group meta-analysis to determine the risk estimates. To translate these risk estimates of our outcomes into projected cost, we also calculated the probability-based projected cost by multiplying risk by reimbursement."

11,875 Patients, 11 Studies, 6 Different Countries (37% From North America)

"Our meta-analysis consists of 11,875 patients across 11 studies from 6 different countries," explained Dr. Alfonso to *OTW.*

"The analyses of all included studies and randomized controlled trials (RCTs) demonstrated that extended postoperative antibiotic prophylaxis protocols have no significant value in reducing the incidence of superficial and deep surgical site infections. Extended postoperative antibiotic prophylaxis protocols were associated with significantly longer hospital stays and higher projected costs compared with short course protocols."

"Collectively, this amounts to $309.9 and $244.4 per episode excess hospital stay expenditure for extended postoperative antibiotic prophylaxis 48 hours and extended postoperative antibiotic prophylaxis 72 hours, respectively."

"It is important to note that only 36.6% of these studies were conducted in North America, and among the four North American studies, only one was an RCT. Therefore, our study emphasizes the need for global standardization of antibiotic prophylaxis guidelines by adhering to evidence-based practices to improve patient outcomes and address antimicrobial resistance."

Dr. Ou-Yang added, "To our knowledge, this is the first study to comprehensively quantify both the lack of clinical value, and the higher costs associated with extended antibiotic use following spine surgery. By stratifying the data and focusing on a probability-based cost projection, we were able to clearly demonstrate that longer prophylaxis does not equate to better outcomes, and in fact, leads to unnecessary expenditure." — *EH*

PEOPLE

Ravi Chari, M.D.: New CEO of Orthopaedic Solutions Management

Ravi Chari, M.D., who brings over 35 years of experience in healthcare, is the new chief executive officer of Tampa, Florida-based Orthopaedic Solutions Management (OSM), a system with more than 150 physicians and multiple service lines.

Ravi Chari, M.D./ Courtesy of Orthopaedic Solutions Management

Dr. Chari most recently served as chief operating officer of InnovaCare Health. Prior to this, he spent 15-years with HCA Healthcare, ultimately serving as the president of the West Florida Division and before that, COO of the HCA Healthcare Clinical Services Group where he led HCA's Clinical Excellence Agenda across 185 hospitals.

Ravi Chari is a University of Saskatchewan College of Medicine graduate. He completed his surgical residency at Duke University and his fellowship training at the University of Toronto in Hepatobiliary Surgery and Abdominal Organ Transplantation. He later joined Vanderbilt University Medical Center and rose to the level of Professor (with tenure) and chief of the Division of Liver Surgery and Transplantation. During his time at Vanderbilt, Dr. Chari also tacked on an MBA.

In his new role, Dr. Chari will be responsible for overseeing all aspects of OSM's operations, including ensuring the highest standards of quality and patient care. His deep understanding of the industry landscape and commitment to advancing orthopedic care will further strengthen OSM's position as a nationally recognized leader in orthopedic care.

"When I think about how I will lead OSM," said Dr. Chari to *OTW*, "I will draw from many of my past leadership roles and experiences. My role as President of the HCA Healthcare West Florida Division with 15 hospitals, 15 ambulatory surgery centers, 12 freestanding ERs and 22,000 caregivers foundationally shaped my approach to leadership, especially in high-stakes environments where strategic growth and operational excellence are paramount."

"My role at InnovaCare Health as COO gave me the chance to hone those skills, specifically as they applied to multi-market, multi-site outpatient clinics' growth, operations and acquisitions. In my previous Senior Vice President corporate role at HCA Healthcare, leading clinical excellence initiatives for HCA Healthcare across 185 hospitals also gave me a solid foundation in setting rigorous quality standards and driving patient-focused improvements."

"And most importantly to me, my experience as a practicing surgeon compels me to always approach the business of healthcare with a physician mindset that seeks to solve problems with both the physician's and patient's interests as the foremost considerations. In aggregate, these experiences have helped prepare me to lead OSM with a focus on operational excellence, a bias towards strategic growth, and a deep commitment to advancing patient care, all three of which align perfectly with our mission to help physicians deliver exceptional orthopedic care."

"Ensuring the highest standards of quality and patient care begins with a culture of excellence, execution and accountability. At OSM, we will leverage our team's depth of expertise, foster continuous improvement, and implement robust quality assurance protocols to exceed industry standards. Regular training, patient feedback, and a collaborative environment that values every team member's input are key. I believe our commitment to clinical and operational excellence will empower OSM to lead the field in patient outcomes and satisfaction."

When *OTW* asked what he sees on the horizon in the orthopedic industry that gives him hope, Dr. Chari noted, "The orthopedic industry is on the cusp of transformative advancements, especially with precision medicine and robotics enhancing surgical outcomes and reducing recovery times."

"The integration of AI [artificial intelligence] and data-driven care models, which improve personalized treatment plans, also provides exciting opportunities for better patient results. OSM's commitment to innovation, research, and quality aligns well with these trends, and I am confident that our dedication to adopting leading-edge solutions will position us to be at the forefront of these advancements, bringing more accessible, effective care to the communities we are privileged to serve."

OSM is a physician-led musculoskeletal services platform that gives physicians the tools they need to deliver the highest quality care possible. OSM and its practice partners collaborate to foster the industry leader in orthopedic medicine through excellence in clinical quality, value, research, and education. — *EH*

Simon Young Receives AAHKS' Clinical Research Award

Simon Young, M.D., knee surgeon in Auckland, New Zealand, has

Simon Young, M.D. / Courtesy of Axis Sports Medicine

received the American Association of Hip and Knee Surgeons' (AAHKS) Clinical Research Award at the society's annual meeting in November.

The award is given to an outstanding research paper in hip and knee arthroplasty. Young is being honored for his work as the lead author on the paper, "Intraosseous Regional Diclofenac for Post-Op Pain Management in Total Knee Arthroplasty."

The study tested whether regional administration of an anti-inflammatory medicine would reduce post-operative pain after total knee arthroplasty (TKA). It was already known that intraosseous regional administration of antibiotics resulted in higher local tissue concentrations, so the researchers set out to investigate the effectiveness of IORA (intraosseous regional administration of analgesia) diclofenac compared to intravenous diclofenac in TKA.

Forty-six patients, 23 per group, undergoing primary TKA were enrolled in a double-blind randomized controlled trial. The intervention group received 75 mg IORA diclofenac and the control group received an IV of saline placebo.

According to the study authors, patients receiving diclofenac reported lower postoperative VAS-P scores and also used less postoperative opioid based pain meds. Dr. Young told *OTW* that the IORA diclofenac lowered pain scores in the first 24 hours and continued to provide pain relief for a few days following surgery.

Young is an orthopedic surgeon, associate professor specialist at Auckland University and a consultant surgeon at North Shore Hospital. He serves patients at Axis Sports Medicine on the North Shore as well as Southern Cross Hospital Wairau and the North Shore Surgical Center in Milford.

Dr. Young was fellowship trained in Adult Joint Reconstruction at the Mayo Clinic in Arizona and fellowship trained in orthopedic sports medicine at Stanford University in California. He also did a hip and knee arthroplasty fellowship at North Shore Hospital.

Dr. Young is a Fellow of the Royal Australasian College of Surgeons and earned his medical degree at the University of Otago Medical School. He completed doctoral postgraduate studies at the University of Auckland where he wrote a thesis on preventing infection in total knee arthroplasty.

Before starting his orthopedic surgical training, he spent two years at the Royal National Orthopaedic and Chelsea & Westminster Hospitals in London.

Young has been a member of the American Association of Hip and Knee Surgeons for eight years. He told *Orthopedics This Week* that societies like the American Association of Hip and Knee Surgeons are important for sharing ideas with colleagues from around the world.

OTW asked Dr. Young what attracted him to knee surgery and knee replacement surgery, he said "I worked for some good mentors early on who encouraged me to go into it."

He also had personal experience with knee surgery after a rugby injury during medical school.

Young is a prolific researcher. His work mainly focused on knee replacement and reconstruction.

Another one of his recent research studies was on the difference in 10-year clinical or radiographic outcomes between kinematic and mechanical alignment in TKA. The randomized controlled trial enrolled 99 patients randomized to either the mechanical alignment or kinematic alignment group.

Young and his colleagues found that at ten years there were no significant differences in patient outcomes like PROM score and ten-year survivorship free from revision. They concluded that mechanical alignment remains the standard.

His team has also been looking at five-year data on cemented vs. uncemented implants.

Looking forward, Young said that knee surgery and replacement should continue to focus on how to best optimize function of knee replacement and minimize complications for each individual patient. "I am grateful to the AAHKS for the recognition. It is a real honor. The research team is excited to be at the meeting," he added. — *TR*

Charles P. Hannon Is 2024 James A. Rand Young Investigator's Award

Charles P. Hannon, M.D., an orthopedic surgeon with the Mayo Clinic in Rochester, Minnesota, was honored

Charles P. Hannon, M.D. / Source: Mayo Clinic

with the American Association of Hip and Knee Surgeons' (AAHKS) James A. Rand Young Investigator's Award at the society's annual meeting in November.

The award named in honor of James A. Rand, M.D., founding member and past president of the Association, recognizes Hannon's research on reducing opioid use after hip and knee replacement.

Every year the award is given to a young investigator who demonstrates excellence in knee-related research.

The study, "What is the Safest and Most Effective Dose of IV Dexamethasone in TKA? A Multicenter Prospective RCT," compared three different doses of IV dexamethasone to determine effectiveness in total knee arthroplasty. Hannon and his team randomized over 400 patients to three doses, measuring pain, nausea, and glucose levels.

Patients who were in the 16mg group, consumed less opioids and reported less pain and nausea, Hannon said.

He added that he and his team have received funding for a follow-up study to now look at the number of doses of dexamethasone to administer in total arthroplasty.

Hannon is an associate professor in the department of orthopedic surgery and a senior associate consultant of adult reconstruction at Mayo Clinic. He specializes in primary total knee arthroplasty, robotic total knee arthroplasty, robotic unicompartmental knee arthroplasty, primary total hip arthroplasty, direct anterior total hip arthroplasty, revision total knee arthroplasty, revision total hip arthroplasty, periprosthetic fracture, and periprosthetic joint infection.

He has authored over 100 peer-reviewed publications and serves as the co-lead investigator for several clinical practice guidelines in orthopedic surgery. He also serves on several committees for national organizations including AAHKS and the American Academy of Orthopaedic Surgeons. He is a former AAHKS Health Policy Fellow.

Hannon has been a member of the American Association of Hip and Knee Surgeons since 2017. He told *Orthopedics This Week* that societies like the American Association of Hip and Knee Surgeons are important for its support of new research in hip and knee surgery and its advocacy for its members and their patients.

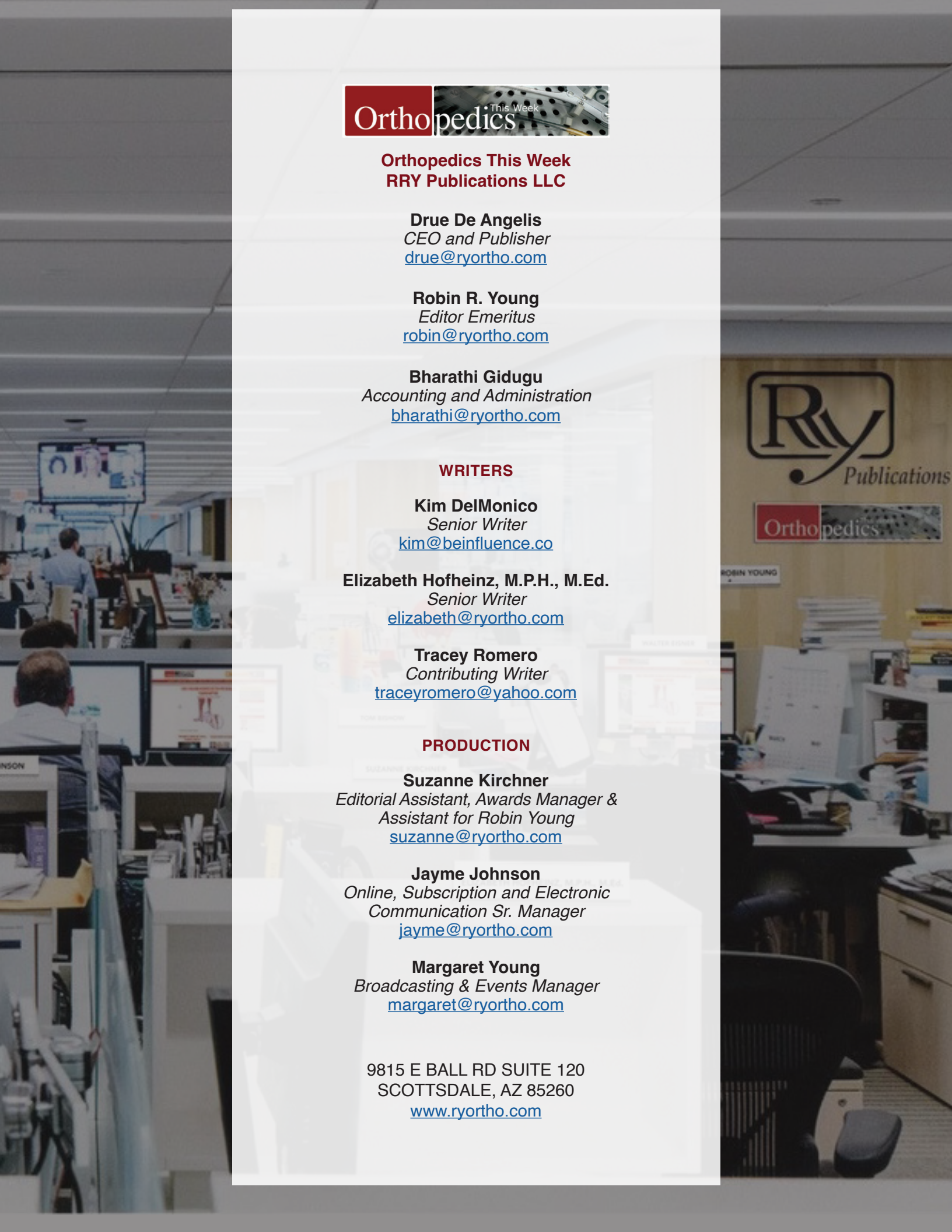
He said what drew him to orthopedics was his own experience as a child. He was born with a club foot and his doctor always cared about him personally. He wasn't just a diagnosis.

"I wanted to be just like him," he explained.

Hannon earned his undergraduate degree in political science from Villanova University and his medical degree from Georgetown University School of Medicine. He completed his orthopedic surgery residency at Rush University Medical Center and his RST Adult Reconstruction – Lower Extremity fellowship at the Mayo Clinic College of Medicine. He also has an MBA from the University of Chicago.

The American Association of Hip and Knee Surgeons' Annual Meeting was held November 7-10, 2024, in Dallas, Texas.

The mission of AAHKS, which was founded in 1991, is to improve patient care in hip and knee surgery through education, advocacy, research, and outreach. More than 5,000 surgeons and other hip and knee health care professionals are members of the association. — *TR*



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