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Orthopedics This Week

week in review

picture of success

breaking news

For all news that is Ortho, read on.

Orthopedic Power Rankings

Robin Young's Entirely Subjective Ordering of Public Orthopedic Companies

This Week: The events in Japan remind us all of who is really in charge—and that we are in an industry which, at its core, is about healing and repair. No doubt our friends and colleagues in Japan require our earnest best wishes and any tangible help—money, instruments, our hands and hearts—we can provide.

Rank	Last Week	Company	TTM Op Margin	30-Day Price Change	Comment
1	1	Orthofix	14.49%	10.57%	OFIX was top performer last week but the combination of 15x P/E, 1.0 PSR and 0.67 PEG keeps OFIX #1 in ortho.
2	2	Zimmer	27.38	1.48	Is ZMH a momentum name? Some on Wall Street think so. Certain unexpectedly strong sales growth at these prices is attractive.
3	3	Stryker	25.61	4.18	Interestingly enough, Wall Street's consensus is that SYK will post up 11% sales growth this quarter.
4	4	NuVasive	6.69	(11.6)	Analysts revised earnings downward, but kept sales growth at 12% this quarter. Word to the wise, NUVA typically beats expectations.
5	7	Integra LifeSciences	15.18	(0.23)	IART ends year with $129 million in cash and, arguably, best balance sheet in three years. With ortho equities so cheap, time to deal?
6	6	Wright Medical	7.34	(0.73)	New hammertoe product introduced. Good reception at ACFA meeting last week.
7	5	Smith & Nephew	23.22	(2.03)	SNN not looking so very inexpensive these days. PSR = 2.58. PEG=1.63.
8	8	Medtronic	31.23	(3.57)	Only 11x earnings, with 31% operating margins. Seriously, why?
9	10	Alphatec	1.11	3.07	Okay. We really like ATEC's management, biologics and aging spine focus. Up one spot.
10	NR	Exactech	9.66	1.27	One of our old faves, EXAC moved up our valuation screen this week. Back on Power Rankings.

Robin Young's Orthopedic Universe

Top Performers Last 30 Days

	Company	Symbol	Price	Mkt Cap	30-Day Chg
1	Orthofix	OFIX	$32.00	$577	10.6%
2	Mako Surgical	MAKO	$19.19	$653	9.6%
3	CryoLife	CRY	$5.65	$157	9.1%
4	ArthroCare	ARTC	$33.73	$918	6.6%
5	RTI Biologics Inc	RTIX	$2.68	$147	5.1%
6	Stryker	SYK	$63.02	$24,660	4.2%
7	Alphatec Holdings	ATEC	$2.69	$239	3.1%
8	Kensey Nash	KNSY	$25.88	$221	2.5%
9	Zimmer Holdings	ZMH	$61.68	$11,850	1.5%
10	TranS1	TSON	$3.49	$73	1.5%

Worst Performers Last 30 Days

	Company	Symbol	Price	Mkt Cap	30-Day Chg
1	NuVasive	NUVA	$26.29	$1,040	-11.6%
2	Orthovita	VITA	$2.19	$168	-9.9%
3	Symmetry Medical	SMA	$8.83	$317	-9.2%
4	Bacterin Intl Holdings	BONE	$4.00	$146	-8.0%
5	TiGenix	TIG.BR	$1.86	$57	-4.3%
6	ConMed	CNMD	$25.73	$727	-4.2%
7	Medtronic	MDT	$38.08	$40,890	-3.6%
8	Smith & Nephew	SNN	$57.51	$10,260	-2.0%
9	Johnson & Johnson	JNJ	$59.69	163,260	-0.8%
10	Wright Medical	WMGI	$16.29	$619	-0.7%

Lowest Price / Earnings Ratio (TTM)

	Company	Symbol	Price	Mkt Cap	P/E
1	Medtronic	MDT	$38.08	$40,890	11.21
2	Kensey Nash	KNSY	$25.88	$221	12.01
3	Johnson & Johnson	JNJ	$59.69	163,260	12.85
4	*Average*			*$11,933*	*13.19*
5	Wright Medical	WMGI	$16.29	$619	13.47

Highest Price / Earnings Ratio (TTM)

	Company	Symbol	Price	Mkt Cap	P/E
1	Smith & Nephew	SNN	$57.51	$10,260	78.17
2	RTI Biologics Inc	RTIX	$2.68	$147	30.67
3	ArthroCare	ARTC	$33.73	$918	25.28
4	Exactech	EXAC	$18.27	$238	20.76
5	Symmetry Medical	SMA	$8.83	$317	20.74

Lowest P/E to Growth Ratio (Earnings Estimates)

	Company	Symbol	Price	Mkt Cap	PEG
1	Orthofix	OFIX	$32.00	$577	0.67
2	Integra LifeSciences	IART	$47.37	$1,350	0.70
3	Alphatec Holdings	ATEC	$2.69	$239	1.06
4	Exactech	EXAC	$18.27	$238	1.18
5	NuVasive	NUVA	$26.29	$1,040	1.20

Highest P/E to Growth Ratio (Earnings Estimates)

	Company	Symbol	Price	Mkt Cap	PEG
1	Orthovita	VITA	$2.19	$168	5.11
2	Kensey Nash	KNSY	$25.88	$221	3.54
3	CryoLife	CRY	$5.65	$157	2.80
4	Johnson & Johnson	JNJ	$59.69	163,260	2.23
5	ConMed	CNMD	$25.73	$727	2.00

Lowest Price to Sales Ratio (TTM)

	Company	Symbol	Price	Mkt Cap	PSR
1	Symmetry Medical	SMA	$8.83	$317	0.87
2	RTI Biologics Inc	RTIX	$2.68	$147	0.89
3	Orthofix	OFIX	$32.00	$577	1.01
4	ConMed	CNMD	$25.73	$727	1.02
5	Wright Medical	WMGI	$16.29	$619	1.20

Highest Price to Sales Ratio (TTM)

	Company	Symbol	Price	Mkt Cap	PSR
1	TiGenix	TIG.BR	$1.86	$57	204.60
2	Mako Surgical	MAKO	$19.19	$653	14.93
3	Bacterin Intl Holdings	BONE	$4.00	$146	11.84
4	Synthes	SYST.VX	$133.82	$15,884	4.31
5	Stryker	SYK	$63.02	$24,660	3.36

2010 Review and 2011 Outlook

By Robin Young

The final set of unit sales numbers have come straggling in and the orthopedic industry's 2010 is officially history. Joanne Wuensch from BMO Capital Markets has been picking over the numbers and put out a research report last week that was mildly positive. She pointed very specifically to where she thought the industry and its specific suppliers are heading.

Aside from Wuensch, virtually every other major Wall Street analyst has reduced their orthopedic coverage and rotated into other corners of the medical technology world with more attractive growth opportunities. As a result, Wuensch's report was a welcome update and provided some particularly interesting insights. The following is our summary and interpretation of the Wuensch report.

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Hip Reconstruction 2010 Review

Hip implant shipments rose 3.6% worldwide in 2010 to $5.3 billion. Five companies hold a 95% share of the market with JNJ's DePuy, at 25% market share, being the largest. Two companies gained share in 2010—DePuy and Stryker. Two companies lost share—Zimmer and Smith & Nephew. The following table summarizes the global market share for suppliers of hip implants.

Worldwide Hip Implant Market Share Analysis (Source: BMO Capital Markets)						
Company	2006A	2007A	2008A	2009A	2010A	2011 est
Biomet[1]	10.6%	10.3%	10.7%	11.1%	11.1%	11.1%
JNJ-DePuy	22.7	23.6	24.3	25.0	25.1	24.6
Smith & Nephew[2]	9.2	12.1	13.6	13.4	13.0	13.0
Stryker	22.8	22.3	20.9	21.2	21.5	21.9
Wright Medical	3.0	2.9	3.2	3.3	3.3	3.3
Zimmer	28.9	26.6	25.4	24.1	23.9	24.1
Other[3]	2.9	2.1	1.9	2.0	2.0	2.0
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

1 Biomet Fiscal year ends in May. Sales have been calendarized
2 Smith & Nephew acquired Plus Orthopedics in 3/07. 2007 SNN ex-fx growth are pro-forma the Plus Acquisition
3 Exactech, DJO Surgical and others

A survey of surgeons by Wuensch offered some very interesting conclusions, specifically:

1. Most surgeons surveyed believe that the number of hip procedures will increase 6% over the next 12 months. This is much better than six months ago when surveyed surgeons predicted that hip implant procedures would rise just 2%.
2. Surgeons surveyed by Wuensch offered up the opinion that larger manufacturers are more aggressive on price than smaller firms. Indeed, of the larger firms, the surveyed surgeons picked Smith & Nephew and Zimmer as the most aggressive, but all firms were adjusting prices.
3. Survey respondents reported their use of metal-on-metal (MoM) hip implants is declining. Where 15% of surveyed surgeons reported using MoM hips a year ago, today that percentage has fallen to 8%.

Knee Reconstruction 2010 Review

Knee implant shipments rose 4.4% worldwide in 2010 to $6.7 billion. Five companies hold a 96% share of the market with Zimmer, at 26.7% market share, being the largest. Two companies gained market share in 2010—Biomet and Smith & Nephew. Three companies lost market share—DePuy, Stryker and Zimmer. The following table summarizes the global market share of knee implants.

Worldwide Knee Implant Market Share Analysis (Source: BMO Capital Markets)						
Company	2006A	2007A	2008A	2009A	2010A	2011 est
Biomet[1]	11.8%	11.7%	12.2%	12.8%	13.4%	13.6%
JNJ-DePuy	24.7	24.2	23.3	23.2	23.1	22.9
Smith & Nephew[2]	10.2	11.5	12.0	11.8	12.0	12.1
Stryker	19.2	19.5	20.1	20.6	20.5	20.7
Wright Medical	1.9	1.8	1.9	1.9	1.9	1.9
Zimmer	29.2	28.8	28.0	27.4	26.7	26.5
Other[3]	3.1	2.5	2.4	2.4	2.4	2.4
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

1 Biomet Fiscal year ends in May. Sales have been calendarized
2 Smith & Nephew acquired Plus Orthopedics in 3/07. 2007 SNN ex-fx growth are pro-forma the Plus Acquisition
3 Exactech, DJO Surgical and others

Wuensch's survey of knee implant surgeons uncovered some surprisingly optimistic opinions, specifically:

1. Most surgeons surveyed believe the number of knee procedures will increase 10% over the next 12 months. This is much better than six months ago when surveyed surgeons predicted knee implant procedures would rise just 2%.
2. Finally, there appears to be a shift away from premium-priced implants with 71% of the surveyed physicians saying that their hospitals are shifting away from premium-priced implants. Interestingly, of the patients who were also surveyed, 90% said there was NOT a shift away from premium-priced implants. Interesting information gap.
3. When asked what percentage of their knee procedures were performed using custom knee cutting blocks, 14% reported they have adopted them in their practice and 57% said they expected to add them over the coming 12 months.

Spinal Repair 2010 Review

Spinal implant (ex-Infuse) shipments rose 1.9% worldwide in 2010 to $6.99 billion. Nine companies hold a 90% share of the market with Medtronic at 36.4% market share, being the largest. Four of the major supplier gained market share in 2010—NuVasive, Synthes, Orthofix and Alphatec Spine. Four companies lost market share—Medtronic, DePuy, Zimmer and Biomet. The following table summarizes the global market share of spinal implants.

Worldwide Spinal Implant Market Share Analysis
(Source: BMO Capital Markets)

Company	2006A	2007A	2008A	2009A	2010A	2011 est
Medtronic	41.9%	42.1%	40.2%	38.4%	36.4%	36.1%
Synthes	13.3	13.0	13.4	13.4	13.5	13.4
JNJ-DePuy	15.7	15.0	14.4	14.5	14.3	14.1
Stryker	7.0	7.7	8.3	8.4	8.4	8.4
NuVasive	2.0	2..7	4.0	5.4	6.8	7.3
Zimmer	3.6	3.5	3.6	3.7	3.3	3.3
Biomet	4.3	3.6	3.3	3.4	3.3	3.2
Orthofix Int'l	2.9	4.3	4.0	4.1	4.4	4.6
Alphatec Spine	1.5	1.4	1.6	1.9	2.5	2.7
Others[1]	7.8	6.8	7.1	6.9	7.0	6.9
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

1 Exactech, DJO Surgical and others

It is certainly noteworthy that the three fastest growing spinal implant companies—NuVasive, Orthofix and Alphatec—have all made significant investments in biologic products, in particular cell-based and trophic implants. The retail value, we estimate, of all the cell-based allograft implants supplied by these three companies amounted to more than $120 million in annual shipments in 2010. For 2011, we estimate, sales of these products will likely rise another 25% to 30%.

Last October Wuensch surveyed spine surgeons regarding new technologies. Seventy four (74%) percent identified biologics as the most exciting new technology for the future of spinal implant surgery. At our 6th annual New York Stem Cell Summit held this past March 1, the number of spine surgeons attending doubled from prior year levels.

Has the spine market stabilized? Wuensch said, "In the 4Q10, the spine market appears to have nestled into a low-single-digit growth rate, increasing 1.5% constant currency, following 3.2% in 3Q10 and 1.9% in 2Q10."

2011 Outlook

For hips, Wuensch forecasts that shipments will rise 3.2% in 2011 to $5.4 billion, which is slower than the 3.6% growth rate reported in 2010. But most of that growth, says Wuensch, is likely to occur in the second half of the year when new products gain traction and there are easier year-over-year comparables. She is also looking at a fairly strong level of pent-up demand (Baby Boomers entering Medicare?) coming into the second half of this year.

Wuensch also pointed out that the industry landscape has shifted as a result of the metal-on-metal concerns. Specifically, she cited an uptake of the Zimmer's Continuum Acetabular Cup system which may attract some of the MoM hip surgeons.

For knees, Wuensch forecasts that shipments will rise 3.7% in 2011 to $6.95 billion, which is slower than the 4.4% growth rate reported in 2010. The U.S. market, Wuensch believes, has bottomed and should begin to post small, incremental growth rate increases in 2011, particularly in the second half.

Probably the most interesting new technology in knee implants is the advent of MAKOplasty and, soon, its penetration into the hip market. MAKO Surgical is reporting strong revenue growth, albeit from a very low base. In Wuensch's surveys MAKOplasty was cited as one of the new products that has most affected knee surgeon's practice in the last six months.

For spinal implants, Wuensch forecasts that shipments will rise 3.6% in 2011 to $7.2 billion, which is a faster rate of growth than 2010. There remain significant concerns regarding the reimbursement environment for spine fusion for patients with degenerative disc disease. However, new technologies—specifically biologics, MIS and lateral access instrumentation—are growing at solid double-digit rates.

Our thoughts? Wuensch has it just about right. Furthermore, at a time when valuations for orthopedic companies are at their rock bottom and most analysts have moved on to presumably greener medical technology pastures, the old orthopedic commercial market is starting to look better and better. ◆

AAOS's Identity Crisis?

By Walter Eisner

"As private practice physicians, we are nowhere. Who represents us?"

That's what Pete Sallay, M.D., a private practice orthopedic surgeon from Indianapolis asked panelists at the recent meeting of the American Academy of Orthopaedic Surgeons (AAOS) in San Diego. His colleagues attending a session titled: "AAOS Quality Initiatives, Health Care Reform and You," applauded enthusiastically.

Only moments before, panelist Michael Goldberg, M.D., spoke of the "Schizophrenia of Advocacy" as the Academy struggles to decided if it is a professional society or trade union in a dramatically changing healthcare environment where hospital employment of orthopedic surgeons has grown by around 70% from 2004 to 2008.

Salley's question and Goldberg's observation strike at the heart of almost every public policy issue confronting orthopedic surgeons in a new healthcare world. Members are pushing the Academy to reconsider what it stands for, who it represents and how it will engage with industry.

AAOS/morgueFile/RRY Publications

Private Practice, ACOs and Collective Bargaining

The following day at the full AAOS Open Meeting session titled: "Healthcare Reform Bill: Past, Present and Future," Academy leaders were asked again if private practices were still relevant. "What is the likelihood that private practice is going to survive future changes?" asked Ned Wilson, M.D., of Kalispell, Montana.

"Nobody knows the answer to that," responded Pete Mandell, M.D., the Academy's Council on Advocacy chair. "I think there will always be a role for private practice in rural areas, but I

"All of the other countries that have a hybrid or socialized system accept the right of physicians to have input as to the terms of their employment, their reimbursement, and the care that patients receive," said Connair. "The contracts that we have with private payers and Medicare regulate not only our fees, but access and quality as well. We are legally castrated from protecting our patients' care, because we don't have the right to bargain collectively."

2011 AAOS Meeting

think in big cities and higher density areas, the accountable care organization (ACO) approach is what legislators are looking at. They have to get costs down, and if they can't do that, we'll see more medical tourism, with patients going to Asia and Europe for treatment."

"ACOs will result in a tremendous cultural shift," he continued. "In the Kaiser model, doctors still have some autonomy, but they're also grouped together. It's not exactly private practice but may be the best we can hope for," added Mandell.

No Collective Bargaining for Physicians?

Michael P. Connair, M.D., in private practice in North Haven, Connecticut, asked Academy leaders about the so-called Campbell/Conyers Bill, which, if enacted, would allow physicians to bargain collectively without violating antitrust laws.

Connair said that one of the shortcomings of the Affordable Care Act was the failure to address the rights of physicians to collectively bargain with payers.

"All of the other countries that have a hybrid or socialized system accept the right of physicians to have input as to the terms of their employment, their reimbursement, and the care that patients receive," said Connair. "The contracts that we have with private payers and Medicare regulate not only our fees, but access and quality as well. We are legally castrated from protecting our patients' care, because we don't have the right to bargain collectively."

Connair told *OTW* that AAOS won't get involved in this issue because the Academy is afraid of the Department of Justice. He believes AAOS should become more "guild-like" as their colleagues in Europe where societies make sure members are getting a fair shake from payers.

A New President's Challenge

With Academy members pressing their leaders to look out for their best interests in a manner and intensity we hadn't seen before, we wondered if the Academy was undergoing an identity crisis.

We posed that question to the Academy's new president, Dan Berry, M.D., head of orthopedics at the Mayo Clinic in Minnesota.

"That's an interesting question," said Berry. "Medicine and orthopedics are changing fast. Orthopedics may be changing even faster and that's why it's been a successful specialty." Berry

Daniel Berry, M.D.

noted that the Academy is based on important foundations beginning with outstanding education and being good advocates for research and patients.

"We'll need to change with the times in education, research and with changing regulations."

What about the role of the private practice member? How will AAOS remain relevant to those members?

"The Academy is fortunate to have members from many backgrounds," said Berry. "We'll continue to represent diverse interests. Private practice physicians are the biggest part of AAOS, so the Academy will be responsive."

If not going through an identify crisis, is there a "Schizophrenia of Advocacy" as Goldberg suggested? Berry said he didn't hear Goldberg's comments personally, but said the Academy's interests are to represent the best interests of their member's patients. "Keeping the profession dynamic is an important part of doing that."

Physician Union

Dr. Connair is vice president of the Federation of Physicians and Dentists and of the National Union of Hospital and Healthcare Employees affiliated with American Federation of State, County and Municipal Employees (AFSCME).

Yes, Virginia, there is a physician's union. Connair has testified in front of Congress on this topic and spoke in detail with *OTW* about those collective bargaining efforts and the Department of Justice's push-back. We will report on those collective bargaining efforts and the role of the AAOS in the near future.

Shifting Economics

The Academy's relationship with its members is clearly the most important one. However, the relationship with industry is also important when over half of the attendees at the annual meeting are from industry and device companies continue to need surgeons to help design and test new devices.

When outgoing Medtronic CEO Bill Hawkins declared the end of the era of the surgeon champion as the sole marketing focus of device makers last year, he signaled the rise of the hospital purchasing department. Biomet founder Dane Miller told us at AAOS that Hawkins is exactly right.

We asked Berry if AAOS leadership has discussed this change in market conditions and what it means for the Academy and its members.

Berry said the Academy had not addressed that specifically. "But generally we recognize that market forces continue to be dynamic in how hospitals, healthcare systems and physicians are negotiating pricing." He says the entire economics of the healthcare system will continue to change over time.

"The Academy is fortunate to have members from many backgrounds," said Berry. "We'll continue to represent diverse interests. Private practice physicians are the biggest part of AAOS, so the Academy will be responsive."

Registrtaion Category	2009 Las Vegas	2010 New Orleans	2011 San Diego
AAOS Fellow/Member	7,154	5,613	6,452
Candidate Member	836	606	730
Resident Member	1,148	1,056	1,113
International Member	2,478	1,997	1,942
Other Member	67	90	42
TOTAL MEMBERS	**11,683**	**9,362**	**10,279**
Program Part/MD	544	407	427
International Attend/President	2,664	2,595	2,626
Non-Member MD	386	308	460
US Resident/Fellow	125	113	120
TOTAL PHYSICIANS	**15,402**	**12,785**	**13,912**
Program Part/Non-MD	208	186	99
Allied Health	2,222	1,768	1,789
TOTAL MEMBERS, PHYSICIANS AND OTHER HEALTH	**17,832**	**14,739**	**15,800**
Technical Exhibitors	**11,543**	**11,548**	**11,666**

2009 544 Companies 259,000 Exhibitors square footage
2010 591 Companies 261,290 Exhibitors square footage
2011 533 Companies 258,500 Exhibitors square footage

Source: American Academy of Orthopaedic Surgeons

The Annual Meeting and Industry

How those market forces play out at medical society meetings was evident at last fall's annual meeting of the North American Spine Society. There we saw that Synthes was temporarily absent from the exhibit floor as the company reevaluated its appropriate role in supporting medical societies and marketing to their surgeon customers. Synthes was present at AAOS.

Is this a cause for concern by AAOS?

"The Academy has a committee that looks at the overall experience of attendees and exhibitors. The initial reports from San Diego are very positive. Attendance was good and people seem to value the opportunity to evaluate products," said Berry. He has no doubts that over time, companies and physicians will reevaluate how the process of evaluating products at the Academy meeting is working.

The attendance, exhibitor numbers and square footage from the San Diego meeting show that members and industry continue to value the meeting. As the table from AAOS below shows, while attendance by physicians has dropped slightly over the last two years, attendance by exhibitors has remained steady.

SBi's "Booth-in-a Suite" Strategy

One company absent from this year's exhibit floor was Small Bone Innovations (SBi). SBi, founded by the Viscogliosi Brothers, made big news during the depths of the Great Recession in 2009 by raising almost $150 million in funding from sovereign funds and private investors.


Anthony Viscogliosi

Company Chairman and CEO Anthony Viscogliosi said the company decided not to spend several hundred thousand dollars in exhibit costs to be on the exhibit floor. "Instead we were there in a hotel (the Omni across the street from the Convention Center) to create a more personal, intimate and in-depth opportunity to build on relationships with surgeons, payers, hospitals and key global distributors."

He called it the "Booth-in-a-Suite" strategy.

The strategy, according to Viscogliosi, allows for more intense and complex discussions which today's world requires, as opposed to 30 people standing in a booth not doing very much.

"We decided to directly target the payers and hospitals and spend more on education, training, clinical data collection and face-to-face communication. We did that effectively at AAOS and I believe other companies will follow suit," added Viscogliosi

He advises AAOS to be proactive about adjusting to the changing environment and make it more economically sensible to participate in an effective way for each type of vendor.

However, Viscogliosi told *OTW,* it's vital for companies to support the surgeon societies. "The meetings are the venues and tools for relationship development and creation of better opportunities for education and training."

He still believes that some presence in the exhibit hall is valuable and plans to set up a smaller booth in the future to serve as a launching pad for attendees to get to the "Booth-in-a-Suite."

Dr. Berry inherits a medical society grappling with profound historic changes in science, regulations, reimbursement and economics. Will economic changes push the Academy to become more guild-like and redefine their own identity to remain relevant to members and vendors? ◆

The Carpenter Surgeon, Literally

By Biloine Young

Dr. Paul Anderson, professor of Orthopaedics at the University of Wisconsin, his wife Veronica and their black lab, Murphy, live in a spacious home in Verona, a community of winding roads and rural vistas outside Madison. Though their home has two attached garages, both of their cars are squeezed into one garage. The second garage is taken over by Anderson's wood work shop and his orthopedic residents from the University of Wisconsin Medical School. In a program unique to Anderson, his students can be found, any day, in his garage crafting boxes to hold their loupes, the magnifiers they wear fitted onto their glasses when they do surgery.

Dr. Anderson's box with contrasting wood joints

These are not ordinary boxes. The residents craft the boxes, made of rare woods, with intricate and decorative joining of a contrasting color wood. Not a nail or a screw will be found in any of them. The box Anderson held in his hand was of white oak with walnut dove tails in the mitered joints.

Dr. Anderson's cabinet-making workshop

What is going on here? Aren't orthopedic surgery residents too busy learning their craft to spend time building boxes in a garage? Anderson's response is that, by working with wood under his exacting tutelage, they *are* learning their craft. He referred to a study that found that one of the three predictors of surgical residents becoming highly skilled orthopaedic surgeons was if they had once done wood working.

He shook his head. "We have people come in who have never used a tool in their life. And we expect them to be able to put a complex fracture back together when they have never screwed two boards together. I bring residents here and teach them woodworking as it is good for their skill as surgeons. If they need to learn how to drill holes that are perpendicular to bone, they can practice on wood. They can learn how to join things. The principals for joining bones are the same as in wood working."

Don't call him a carpenter. "Cabinet-making requires surgical precision—you need to be within a hundredth of an inch," he said. Anderson's first career choice was architecture. He took shop in junior high school and was good at mechanical drawing. Medicine also appealed to him but being aware that "at the time only 15% of people who applied were getting into medical school," he settled on a fall-back position as an engineer. He had earned an M.A. degree in chemical engineering from the University of Michigan when medical school finally beckoned.

He graduated from Wayne State Medical School and during his third year rotation settled on orthopedic surgery. "It seemed like the ortho patients were doing better than other surgery patients," he said. "They survived their surgeries and they got better pretty quickly. Maybe it was that early self-gratification [that appealed to me] but that is why I chose orthopaedics. "

In 1992, while living in Seattle and working at the University of Washington Harborview trauma center, he signed up for classes in cabinet-making offered by the local community college. The class site was a high school industrial-level wood shop.

"The shop teacher taught us how to use the equipment. We had belt sanders, joiners, large table saws, drill presses, mortising machines—everything. I spent three hours a week using this very elegant equipment learning how to do things safely. Out of the 15 people in the class, four were surgeons. I did that for ten years."

Anderson maintains that there is "a big synergy between carpentry and the human body. A lot of the approaches and processes are the same." He led the writer over to a shelving unit against a wall that was holding art objects. "This is something I just finished over Christmas and installed and finished last week. The wood is called *primavera*. It is from Latin America and is pale looking with a golden pattern."

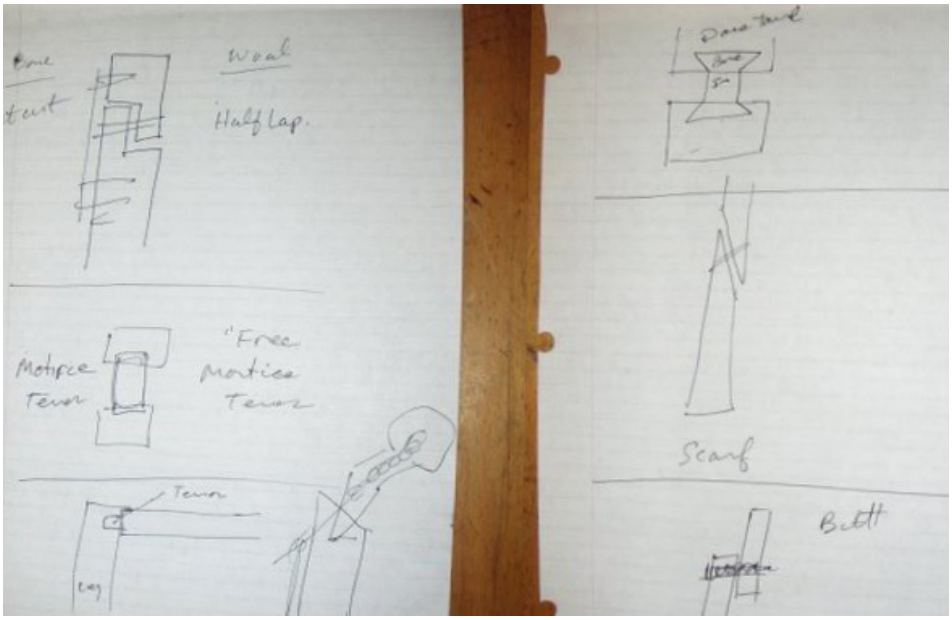
He pointed to an upper corner of the construction. "This piece is cantilevered, although it is up against the wall so there is no bending on it. The question is how do you make this so it will stick together and not fail? This is much like a femur and if you have a femoral neck subtrochanteric fracture, how do you fix that? The modes of failure will be the same."

Anderson pointed out that there are at least seven joints common to wood-working that are also described in textbooks of orthopedic surgery. "The first thing to learn about wood working is the art of joining boards together," he said. "The actual joining is much like orthopaedics. In orthopaedics we have a fracture. How are we going to fix that fracture? There are biomechanical principals you must use when you are fixing bones. The same principals apply in fixing joints together in wood. One of the problems is that wood is not dead. It changes size according to the humidity.

If you have tethered wood the wrong way, the joint will fail. Accounting for wood movement is much like what we do for dynamic compression in the body where we allow things to compress on their own. We just control it." In his wood-working, Anderson never uses metal fasteners.

Anderson grabbed a piece of paper and began sketching joints. "Here is a ***set-cut osteotomy***. We use this alot in the shortening of the radius or for bunion surgery. We would cut it like this," he said, rapidly sketching, "and put the screws in here. For bones we always use screws. In bone it is called a ***set-cut***. In wood we call it a ***half lap***, a very common joint. It is exactly the same."

Anderson sketched mortise and tenon joints. "One way of fixing a femur fracture when a hip is broken is to take the spike of the femur and put it in the center of the femoral canal and then we would put our hip screw in. Very similar to wood."



Dr. Anderson's sketches showing the similarities of joints in orthopedics and cabinet-making

"Another way of lengthening bone is by using a scarf joint where you cut a long oblique cut on two surfaces and you slide them to get a small amount of additional length. Then you put screws in to fix them. This same joint is used in woodworking where it is also called a scarf joint. In working with wood you can sand off the edges. That is the beauty of wood work. Sandpaper does a lot." He added, "I have also seen orthopaedic surgeons, when the joint does not look quite right, take a burr and machine the bone."

One of the most esthetically pleasing and strongest of the joints is the dovetail—a familiar joint found on all well-made drawers. This is the joint Anderson teaches his students to use on their loupe boxes—knowing that they may someday come across it on a spinal interbody fusion.

Anderson estimates that he spends from six to eight hours a week in his woodshop. Is it a stress reducer? Maybe, he admits. He says that he has many tools in his workshop that are better than the ones he has in the operating room. He finds the technology of the wood working saw blades to be far more refined than that in the saw blades that he uses in the operating room.

"The problem with saw blades is they generate heat from friction and heat kills bone cells. It narcotizes the bone edge. So we have to dissipate heat. We also like a straight, smooth cut. The problem we have in the operating room with a lot of saw blades is that they do not clear the bone of bone dust or bone chips. What are needed are gullets, which are valleys between the teeth for the bone dust to hide out in. The teeth should not be lined up straight. Instead they are offset left and right. This creates a little bit wider kerf but that allows for clearance of those things and significantly less heat generation."

Anderson finds the chisels he uses in wood working to be similar to the ones, called osteotomes, which he uses in the operating room. But the protocols are different between wood workers and surgeons, he says. Wood workers, themselves, keep their chisels sharp and finely tuned. Surgeons do not maintain the equipment in the operating room. As a result Anderson finds that "in the operating room the chisels get dull all of the time. My chisels here [in the workshop] are generally in better shape than the ones I use in the body."

Anderson is an artist of a cabinet-maker who takes on big projects. Anderson and his wife are fond of classic Stickley, mission-style furniture and the staircase, which Anderson helped design, in their house reflects this preference. He built a side-board and mirror for his dining room that carries out the design of the dining room table. The king-size bed for their bedroom as well as cabinetry, over eight feet long and six feet high, which fills the entire opposite wall, is also his work. The grandfather clock that he built is a masterpiece. His wife's favorite wood is cherry while Anderson

prefers sawn white oak, mahogany and black walnut. He made his office furniture out of mahogany.

Besides teaching, administration and performing spine surgery, Anderson is involved in basic research on artificial discs and regenerative medicine. He believes that, within a generation, physicians will be using stem cells for muscular skeletal repair. He is working closely with colleague Dr. Wan Ju Li, Ph.D., who calls himself the "stem cell doctor."

Anderson has published more than 150 articles on orthopedics and takes many more orthopedic journals than he does wood working magazines. However, when the periodicals arrive at his home or office, it is the woodworking journals that he reads first. Someday, he says, he hopes to publish an article in one of them. ◆

Dr. Anderson's bookcase

company

Aesculap New Video Library

Want to review a specific surgical technique or check up on a product demonstration animation? Click on either of two Aesculap websites to access the company's new video library featuring surgical technique videos, product demonstrations and patient testimonials in the categories of general surgery, neurosurgery, spine and orthopedics. The web site locations are: www.AesculapUSA.com/Video_Library and www.AesculapImplantSystems.com/Video_Library.

According to a company representative, the videos run approximately five minutes and the archive can be sorted by surgical discipline or product category. A keyword search is also available and all videos play within a self-contained viewer compatible with most operating systems and browsers. While most users of the library are anticipated to be surgeons, the site is open to all interested viewers.

To be more responsive to its growing customer base in spine and orthopedics, Aesculap, Inc. has formed a new company, Aesculap Implant Systems, LLC. This new entity has made available two patient videos in which "Susan" and "Tom" discuss the relief from pain and ability to resume normal activities they experienced after successful joint replacement surgeries. The videos, available on www.soactivesofast.com, prepare patients for appointments with their physicians, answer questions about the anatomy of hips and knees, present information on common diseases that affect joints and suggest non-surgical pain management strategies. There is also a section on "frequently asked questions."

Aesculap, Inc. of Center Valley, Pennsylvania, is a member of the B. Braun family of healthcare companies, headquartered in Tuttlingen, Germany. Founded in 1839, the firm is the world's largest manufacturer of surgical instrumentation and sterilization container systems. For more than 140 years Aesculap (its founding goes back to 1867) has provided its customers with surgical instrumentation and implants for neurosurgery, ENT, plastic and reconstructive, thoracic, micro-vascular, cardiovascular, orthopedic, laparoscopic and general surgery.

—BY (March 10, 2011)

Aesculap Inc.

legal

Brits Report Higher ASR Failures

The British Orthopaedic Association (BOA) and British Hip Society (BHS) have reportedly said that DePuy's recalled ASR XL Acetabular System can fail up to 49% of the time.

A March 9 Bloomberg article said four British surgeons reported data which shows the rate of revisions ranges from 21% to 49% after six years. The data haven't undergone peer review required for publication. The sets of data were presented at the recent British Hip Society Annual Conference.

DePuy recalled the ASR XL and an ASR hip resurfacing system last year after citing unpublished data from registries in England and Wales indicating that 13% of ASR XL patients required second surgeries in five years, and 12% of the resurfacing patients needed revisions within five years.

A DePuy spokesperson told Bloomberg that since the recall, DePuy has worked to provide patients and surgeons with the information and support they need. "DePuy remains committed to addressing reasonable and customary costs of testing and treatment for reasons related to the recall, including revision surgery if necessary."

John Restaino, a former podiatric surgeon, attorney and co-chairman of the plaintiffs' science committee involved in federal litigation over the device in the U.S., told Bloomberg, "These are catastrophic failures. A revision rate of 49% after six years is astounding."

Lawsuits

The ASR XL has been implanted in 37,000 patients in the U.S. where DePuy is facing some 600 lawsuits over the device. Some plaintiff's lawyers estimate the damages could cost DePuy billions of dollars. More than 350 lawsuits have been consolidated in federal court in Ohio, and more than 220 are pending in California state court. Another group of cases is pending in New Jersey state court. The company took a $280 million charge in the fourth quarter to pay for the recall.

John Skinner, an orthopedic surgeon and chairman of the BOA and BHS's expert advisory group on metal bearing hips reportedly said, "The results were at a level where we thought it was best to act now. The purpose is to tell British surgeons that the ASR XL patients are likely to have a higher rate of revision on the basis of this data, if it turns out to be correct."

According to the Bloomberg story, Mike Mahoney, Johnson & Johnson's worldwide chairman for medical devices (and DePuy's parent company), told attendees at a recent investor conference the company was "setting the right high bar for the industry in how we're managing the recall. But it is something that we're continuing to work through. We'll see the impact of ASR diminish throughout, as we move forward in 2011."

—WE (March 11, 2011) ◆

British Hip Society/British Orthopaedic Association

FDA Rejects Amplify

Pouring over company quarterly 10-Q filings with the SEC can sometimes uncover gems.

Wells Fargo analyst Larry Biegelsen just reported that Medtronic's third quarter 10-Q filing on March 9 disclosed that

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the FDA had issued a non-approval letter during the quarter for the company's new bone graft product, Amplify rhBMP-2 Matrix.

Biegelsen wrote that he thinks this news will put downward pressure on InFuse sales, the company's approved BMP product, because "physicians will be concerned about putting themselves at risk for malpractice if they use InFuse in an off-label setting and their patient has an adverse event." InFuse and Amplify contain the same active ingredient, rhBMP-2.

It is estimate that 70-80% of InFuse usage is off-label. Biegelsen said that approval of Amplify would help bring most of InFuse on-label.

In addition to the non-approvable letter, we found a disclosure that Medtronic also received a supplemental subpoena from the U.S. Attorney's Office in Boston on September 14, 2010, requesting more information regarding a Humanitarian Device Exemption (HDE) relating to Infuse and MasterGraft.

This is all on top of a continued investigation by Massachusetts' Attorney General and Senator Chuck Grassley looking into financial ties between Medtronic, the military and physicians who use InFuse.

Biegelsen sees additional downside risk for InFuse due to a likely settlement with the DOJ on the off-label promotion of InFuse and increasing competition. He also noted the approval of Amplify would bring most of InFuse use on-label.

In response to our question of when exactly the company received the non-approval letter and why it wasn't disclosed at the time, company spokesperson Marybeth Thorsgaard responded that Medtronic has been working with the FDA to address the questions in its letter and are hopeful that the FDA will concur with the [Orthopedic] Panel's conclusion and ultimately approve Amplify. "We use the 10-Q to update on these types of topics as appropriate," added Thorsgaard.

On July 27, 2010, the FDA's Orthopedic Device Panel voted 6 to 5 that the benefits of Amplify outweigh its risks and recommended approval of the product. The FDA is not obligated to follow that advice. The biggest issue during the July panel discussion was a concern regarding whether an ingredient used in the product which might be linked to cancer.

Competitors looking to step into any slowdown of InFuse demand include NuVasive (Osteocel) and Orthofix (Trinity).

—WE (March 10, 2011) ◆

biologics

IPS Cells Derived From Horses

In what they believe is a worldwide breakthrough, Canadian researchers have generated pluripotent stem cells (iPS) from horses. Pluripotency refers to the ability of a stem cell to become any of a vast number of different cell types found in the body. The research was carried out over a period of two years by a team of researchers led by Dr. Andras Nagy at the Samuel Lunenfeld Research Institute of Mount Sinai Hospital and Dr. Lawrence Smith of the University of Montreal's Faculty of Veterinary Science. The study was reported February 28 in the journal *Stem Cell Reviews and Reports*.

"IPS cells have been established from several species, but our study is the first to report the derivation of these changeable cells from horses," Smith said. He anticipates using the stem cells in his work on animal arthritis.

Ellumyne/Wikimedia Commons

After two months of reprogramming equine somatic cells, the resulting iPS cell lines expressed hallmark markers of pluripotency, contained a correct set of horse chromosomes, and were able to form a full spectrum of cell types and tissues fulfilling the criteria of pluripotency. "This means that the cell lines passed all the tests available to us for determining if they truly are what we think they are: pluripotent and a good source for future regenerative applications," said Kristina Nagy, research associate in the Nagy laboratory and lead author of the study.

The Canadian researchers' work represents a major step forward for both human and animal health alike. "Equine iPS cells bring new therapeutic potential to the veterinary field, and open up the opportunity to validate stem-cell-based therapies before clinical studies in humans," Dr. Nagy said. "As well, stem-cell based studies using the horse as a model more closely replicate human illnesses, when compared with studies in mice."

"The horse is an excellent model for a range of human degenerative diseases, especially those involving joints, bones, tendons and ligaments, such as arthritis," said Dr. Sheila Laverty, a professor in the Faculty of Veterinary Medicine at the University of Montreal. "Bone fracture, as well as damaged cartilage, tendons and ligaments heal poorly in horses. Therefore, the use of iPS cells in these animals may help enhance long-term tissue repair."

The Samuel Lunenfeld Research Institute of Mount Sinai Hospital, a University of Toronto affiliated research center established in 1985, is one of the world's premier centers in biomedical research. The University of Montreal Veterinary Hospital is the largest in North America and, this year, is celebrating its 125th anniversary.

—BY (March 7, 2011) ◆

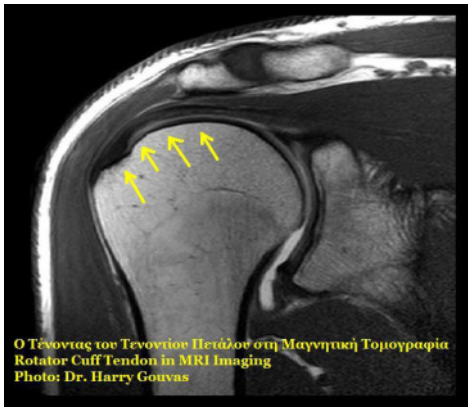
Rotator Cuff Repair Tough Nut

A group of St. Louis, Missouri's Washington University (WUSTL) scientists have received a grant of more than $2 million to solve one of the more difficult problems in orthopedic surgery—reattaching tendons to bones. Their hope is to improve the success rate of rotator cuff repairs by improving how tendons and muscles that surround the shoulder joint are repaired. Trauma to the shoulder can often detach the tendons from the bone. Therein lays the problem. Tendons do not reattach easily to bone and the failure rates for rotator cuff surgeries ranges from 20% to 94%.

The researchers, Younan Xia, Ph.D., the James M. McKelvey Professor in the School of Engineering & Applied Science, and two professors of orthopedic surgery from the School of Medicine, Leesa M. Galatz and Stavros Thomopoulos, hope to solve the problem with the clinical use of the biomimetic patch.

The tendons in the rotator cuff system are relatively compliant and stringy, like a rope, while the bone is hard and porous, like cement. "Attaching a compliant material like a tendon to a relatively stiff material like bone is a fundamental engineering challenge," said Thomopoulos.

Because the grading between tendon and bone occurs at both the microscopic and nanoscopic levels, Thomopoulos decided to team up with Xia, an expert in nanotechnology. They proposed a temporary scaffold that will guide the healing process along the path it follows during infant development. "Our scaffold approach is to mimic the natural tissue by stepping up gradually in



Dr. Harry Gouvas and Wikimedia Commonst

stiffness from tendon to bone," said Thomopoulos.

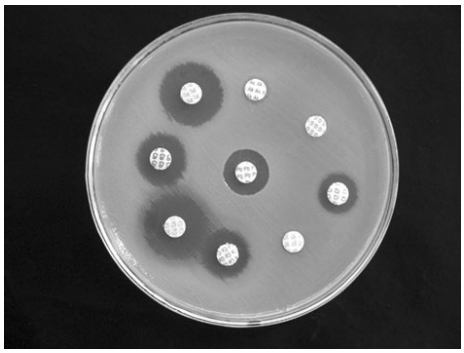
The WUSTL scaffold consists of a mat of nanoscopic fibers electrospun in Xia's lab that mimics the structure of the collagen fibers in a tendon. The mat is then coated with a continuous gradient of hydroxyapatite, a mineral containing calcium and phosphorus that gives strength to bone, so that it is stiff and bone-like toward one end and compliant and tendon-like toward the other.

Then the scaffold is seeded with adult mesenchymal stem cells, a type of stem cell that can mature into osteoblasts (bone-forming cells) or fibroblasts (cells common in tendons). The hope is that as the fibers disintegrate over the course of a few months, the mineral gradient will promote the graduated differentiation of the stem cells. Stem cells toward the bone end will be coaxed by the presence of mineral to differentiate into osteoclasts while the stem cells at the tendon end, surrounded by unmineralized fibers, will form fibroblasts.

"The newly manufactured scaffold looks like a sheet of paper and can be cut to fit the tendon tear," says Xia. The team has taken the method as far as it can in vitro and is now ready to try it in a small animal model, the rat. They will create a tear in the rat's rotator cuff, repair it with a suture, and then lay a piece of the biomimetic scaffold over the repair site."A rat's shoulder is surprisingly similar to ours," says Thomopoulos. "A study done years ago compared the shoulder anatomy of 34 different species, and aside from the primates, the rat bony and muscular anatomy was actually closest to ours."

—BY (March 7, 2011) ◆

Betadine Use Cuts Infections



Microaro and Wikimedia Commons

Deep periprosthetic joint infection is a devastating complication of total joint replacement surgery. Despite surgeons' best attempts to prevent it—using aseptic techniques, prophylactic antibiotics and careful preparation of the skin—deep infections still occur in from 0.3% to 1.9% of joint replacement surgeries.

That infection rate can be lowered, according to a study initiated and conducted by Craig Della Valle, M.D. Associate Professor of Orthopedic Surgery at Rush University Medical Center , by using betadine in a rinsing technique, a procedure that costs only around $1 per patient. "In addition," according to Della Valle, "betadine is effective on many types of bacteria including methicillin-resistant Staphylococcus Aureus (MRSA)."

Della Valle and his colleagues devised a protocol for primary total knee and total hip arthroplasty in which they soaked the wound with a diluted betadine solution for three minutes following implantation of the prosthetic components. They followed with a pulsating lavage of normal saline without antibiotics. Prior to final closure, they applied a 10% betadine solution to the skin surrounding the incision. They found that following this procedure nearly eliminated early deep post-operative infections.

"Betadine is safe, inexpensive, simple to use, and readily available within most operating rooms," said the study author Della Valle. Previous research had shown that a diluted betadine lavage of the surgical wound prior to closure reduced the rate of post-operative infection in orthopedic and general surgery cases but it had not been previously studied in total joint arthroplasty.

Prior to the initiation of the betadine lavage protocol, doctors experienced acute post-operative deep infection in 18 out of the 1862 cases performed at Rush University Medical Center. Following initiation of the protocol, only one case occurred in the 688 total joint arthroplasties performed. This represented a reduction of the infection rate from 0.97% to 0.15%. Doctors reported no side complications associated with the treatment.

Two events triggered Dr. Craig Della Valle's interest in researching betadine. One was a journal article about its use in general surgery. The second was a

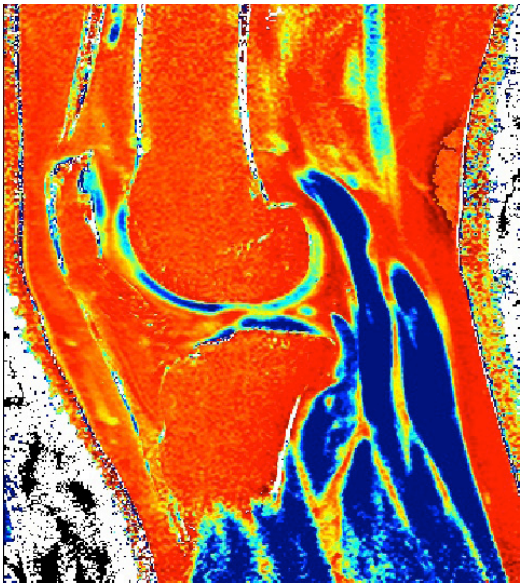
grand round conducted at Rush University Medical Center by Dr. Arlen Hanson of the Mayo Clinic in which he reported on the positive results he had observed of painting the betadine solution on the skin following surgery. When Della Valle heard this he told his colleagues, "Let give it a try."

—BY (March 7, 2011) ◆

large joints

New Protein Molecule for RA?

Anti-inflammatory, progranulin…NYU Langone Medical Center researchers from several disciplines have created a new protein molecule derived from the growth factor progranulin—a molecule that could one day be the basis for new therapies in inflammatory diseases, such as rheumatoid arthritis. The study is published in the March 10, 2011 issue of *Science*.



Michael Durkan/Wikimedia Commons

"The development of this protein extends our understanding of the molecular mechanisms that drive the growth factors and cytokines control of cartilage development and arthritis," said Chuan-ju Liu, Ph.D. in the news release. Dr. Liu, the lead researcher and associate professor in the Departments of Orthopaedic Surgery and Cell Biology at NYU Langone Medical Center, added, "Whether the protein accounts for all of the anti-inflammatory effects we observed in the study needs to replicated, but we are very encouraged by these initial results."

As indicated in the news release, more than 20 years of research has focused on identifying cytokines (cell-signaling protein molecules secreted by the glial cells of the nervous system and other cells in the immune system responsible for intercellular communication), leading to the inflammatory and degenerative processes in rheumatoid arthritis. The molecule created and used in this study, called ATSTTRIN (antagonist of TNF/TNFR signaling via targeting to TNF receptors), is a peptide constructed from segments of proteins that originate within a cell, which has a high affinity and specificity for binding to tumor necrosis factor receptors (TNFR).

The researchers indicate that with this new protein, they could eventually have new treatments for conditions such as rheumatoid arthritis, Crohn's disease, ulcerative colitis, ankylosing spondylitis, plaque psoriasis and psoriatic arthritis.

—EH (March 10, 2011) ◆

Diagnosing Juvenile Arthritis

Old fashioned is often the best way to go…According to a new literature review published in the *Journal of the American Academy of Orthopaedic Surgeons*, the rate of false positives in laboratory evaluations and imaging studies used to screen for juvenile arthritis is of limited value. The best approach? The history and physical.

Juvenile idiopathic arthritis (formerly known as juvenile rheumatoid arthritis) may involve symptoms such as joint stiffness in the morning that improves later in the day, weight loss, or fatigue. At the same time, some young patients may not suffer any of these symptoms, but have a swollen joint that is discovered after another incident such as an injury.

"To establish a diagnosis of juvenile idiopathic arthritis [JIA] is a matter of pattern recognition," says Marilynn Punaro, M.D., in the news release. Dr. Punaro, a pediatric rheumatologist at Texas Scottish Rite Hospital for Children and University of Texas Southwestern Medical Center, Dallas, Texas, and the author of this review, added, "Also, there is no lab test that can conclusively diagnose rheumatic disease—you have to rule out other

Jjskarate/Wikimedia Commons

common diagnoses. That is why a full physical exam is important, as well as a detailed patient history that will reveal other symptoms. If the patient has one swollen joint, the other joints should be examined because the diagnoses could be very different based on what is found in that exam."

"It is important to try and diagnose JIA early so treatment can begin," added Dr. Punaro. "If left untreated for months or years, there is a likelihood of long-term disability, growth problems or deformity. The disease can cause joint damage that is irreversible. The good news, though, is that when we do diagnose JIA, we have many excellent treatments available."

As for what orthopedists may miss with regard to the history and physical, Dr. Punaro told *OTW*, "When I see patients referred to me by orthopedists where the diagnosis was delayed, the most common mistake on the physical examination was not to examine all the joints when finding a single swollen joint. Obviously, the differential diagnosis would be considerably different if multiple joints are involved. In terms of history, I think it is important to see if other systems are involved beside the musculoskeletal, and to realize that for juvenile arthritis the onset is almost always subacute, joint pain is rarely severe, and persistent swelling in a joint with associated morning stiffness and loss of function are the most common complaints. Since juvenile arthritis is a diagnosis of exclusion, if the history differs much from this, other diagnoses must be considered."

—EH (March 9, 2011) ◆

Knee Pain Biomarker Identified

Whether a person's knee pain stems from a meniscal tear, arthritis or some other injury is difficult and can result in needless surgery and expensive imaging to find out.

Now Gaetano Scuderi, M.D. and a team of researchers have confirmed in a study published in February in *The Journal of Bone and Joint Surgery [JBJS] (The Journal of Bone and Joint Surgery (American). 2011;93:336-340. doi:10.2106/JBJS.J.00718)*, that a particular protein complex appears in patients with painful meniscal tears. The finding of this biomarker could be used to prevent those needless surgeries and save a lot of money spent on medical imaging costs.

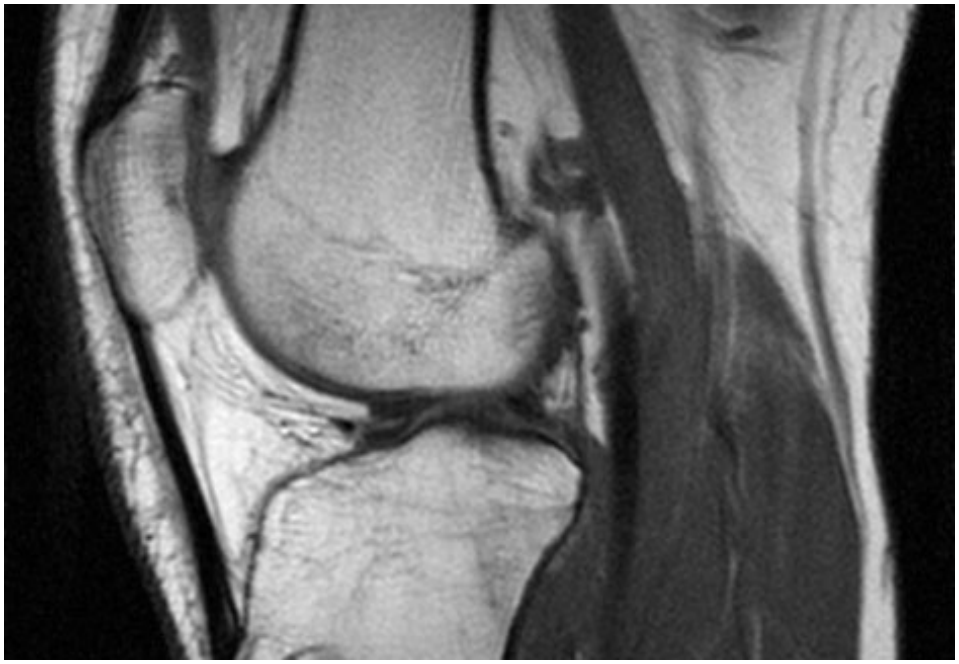
Scuderi is a clinical assistant professor of orthopedic surgery at Stanford University School of Medicine.

Most Common Procedure

According to commentary accompanying the *JBJS* article, arthroscopic procedures for the treatment of meniscal injuries are one of the most commonly performed procedures in the U.S. In a recent review of cases submitted for Part II of the American Board of Orthopaedic Surgery certification examination, CPT code 29881 (partial meniscectomy) was the most commonly submitted procedural code for five consecutive years between 1999 to 2003, surpassing the next most frequent procedure by a margin of 2:11.

Scuderi's Spine Biomarker

This isn't the first time our readers have heard of Dr. Scuderi. He, and two colleagues, were winners this past year of an *OTW* Spine Technology Award in the pain management category. The team identified a biomarker that identifies the exact spine location responsible for low back pain.



Gaetano Scuderi, M.D.

Meniscal Study

In the meniscal study, Scuderi and his co-authors found that a biomarker appeared in the knee fluid of 30 patients who had suffered a painful meniscal tear. It was not present in the knees of 10 asymptomatic patients. According to the study, the biomarker, a fibronectin-aggrecan complex, "holds out the promise of allowing orthopaedists to quickly and accurately diagnose whether the source of a patient's discomfort is a meniscal tear, as opposed to another type of injury or abnormality, simply by taking a sample of knee fluid. It could thus obviate the need for expensive medical scans and help to prevent surgery that does not address the true cause of a patient's pain."

"The challenge is not identifying molecular markers of cartilage degeneration, dozens of which are now known," said co-author Raymond Golish, M.D., PhD, who recently completed a fellowship in spine surgery at Stanford. "The difficulty is in finding markers that correlate with painful injuries, as opposed to age-related degeneration that is painless. This study is a big step in that direction."

The research was supported by Cytonics Inc., a Florida-based company founded by Scuderi in 2006 to pursue possible clinical applications of the fibronectin-aggrecan complex.

—*WE (March 7, 2011)* ◆

people

St. John Heads Pioneer's International Sales

Jim St. John is the new Vice President International Sales at Pioneer Surgical Technology, Inc.

St. John has lived in Europe for over 12 years, speaks 5 languages and has 25 years of experience in the spine industry.

A company spokesperson told *OTW* on March 9 that leaders at Pioneer realize that the markets outside the U.S. have always been a hotbed for new innovative spine technologies. Many promising ideas and products originated with thought leader spine surgeons based in major OUS countries. "Pioneer wants to further engage with these individuals to

Jim St. John/Pioneer Surgical Technology, Inc.

assist with their data collection, product ideas and to assist them with introducing cost reducing therapies to this market. Accordingly, Pioneer is excited to appoint a very experienced international spine manager to establish their strategy and lead this initiative."

St. John last worked for Benvenue Medical where he had the role of Vice President Worldwide Sales & Marketing. Before that he worked for Zimmer Spine and Abbott Spine, with his last position located in Europe where he was the GM of Zimmer Spine SA (Bordeaux, France) and VP of Zimmer Spine EMEA. While with Zimmer Spine, he had sales, marketing and general management responsibilities and was instrumental in developing their international strategy and distribution channels. Twice during his time with Zimmer Spine he led the integration of multiple distribution channels as a result of mergers.

Tom McLeer, Pioneer's GM of Spine and Chief Marketing Officer said, "Jim will be responsible for establishing our strategy and managing our entire international sales operation. He will provide additional focus in our established territories of Europe and China as well as working to expand into new markets in the world. We are excited to add such strong international talent to our team."

—WE (March 9, 2011) ◆

Floyd Leaving DePuy Orthopaedics

David Floyd/DePuy Orthopaedics

David Floyd is leaving DePuy Orthopaedics, Inc. at the end of March.

Company spokeswoman Lorie Gawreluk told *OTW* via email on March 5 that Floyd resigned from his position as president of DePuy Orthopaedics, "to pursue interests outside of DePuy and Johnson & Johnson." Floyd submitted his resignation after the recent American Academy of Orthopaedic Surgeons (AAOS) meeting and reshuffling of DePuy and Johnson & Johnson senior executives.

As we reported at the end of December, DePuy Spine's Gary Faschetti was recently appointed to the position of Company Group Chairman for the DePuy family of companies, which includes DePuy Orthopaedics, Inc., DePuy Spine, Inc., DePuy Mitek, Inc. and Codman & Shurtleff, Inc.

Floyd took over as head of DePuy Orthopaedics in September 2007. A graduate of Grace College in Winona Lake, Indiana, Floyd was a classic "local boy makes good story." Prior to coming back to Warsaw, the birthplace of DePuy, Floyd served as president of Abbott Spine. Before that he was president and CEO of AxioMed Spine in Ohio, president of Centerpulse Orthopedics, president of Zimmer USA, vice president for OrthoLogic and a vice president at Sulzer Orthopedics.

Floyd's departure at DePuy, coming during a time of corporate changes and challenges with recalls and lawsuits over the ASR hip system, caused media reports to associate his departure with those events.

However, recent conversations with people close to Floyd, lead us to believe that personal reasons trumped such associations.

Floyd is widely regarded as one of the good guys in orthopedics and we wish him well.

—WE (March 7, 2011) ◆

THE PICTURE OF SUCCESS

Dr. Claudia Thomas, Part II

By Elizabeth Hofheinz, M.P.H., M.Ed.

Dr. Claudia Thomas

"She shouldn't be alive," said the physician reading Dr. Claudia Thomas' EKG. At 98 pounds, a struggling Dr. Thomas couldn't stand up and her potassium level was well over eight when it should have been four.

After a litany of symptoms and a roller coaster ride of possibilities, Dr. Claudia Thomas was worn out. She explains, "At the end of my residency I started having protein in my urine; the doctors couldn't find a reason for it and I was told that it was unlikely to cause problems. I put it out of my mind and then undertook my fellowship at Shock Trauma in Maryland. Several years later I began to experience weight loss and fatigue. Then came the signs of kidney failure; I was given the option of dialysis or a transplant—I chose the latter. The night before the operation my surgeon said that he had found a mass in one of my kidneys; the plan was to remove that kidney and biopsy it. After the procedure, I woke up with the surgeon saying that he had found cancer in both kidneys and had removed them both. I would have to be on dialysis for a year before we could consider a transplant."

Crushing news, to be sure. But the resilient Dr. Thomas had a unique reaction. "My first thought was, 'Thank God. I had cancer, but the doctor found it and removed it. I am cured.' Then a grand mal seizure hit me. My dear mother had given up her life to be my caregiver… she and my sister—who had volunteered to give me a kidney—were my biggest sources of support. I lapsed into a comatose state and had bleeding on the brain. On day three of unconsciousness, the I.C.U. nurse gave my mother a Psalm to read to me—alas, I woke up rather miraculously. A new brain scan revealed that the bleeding in my brain had disappeared. The doctor had no explanation."

One day it had been a Psalm that had provided hope…later, it would be a supply delivery man. Dr. Thomas: "I was placed on hemodialysis and nearly a year after waking from the coma my sister and I were again tested for the viability of a transplant. In some sort of horrible Groundhog Day scenario, the surgeon entered the room and said, 'We have a problem. There is an antibody in your blood that wasn't there before… it will cause you to reject *any* kidney. I was dying."

"I had been hanging on by faith, but now I was very depressed. I returned home, where I was hooked back up to a dialysis machine. The young man who brought my supplies—a gospel singer—was always in good spirits. One day I said to him, 'John, did you hear? I can't have a transplant.' He immediately, and very matter-of-factly said, 'Oh, the Lord has already taken care of that.' Soon afterwards, my sister insisted that

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they retest my blood. My happy ending? They discovered that the antibody was not the kind that would cause kidney rejection. On September 30, 1991 I gratefully accepted my sister's kidney."

Now a fortress of strength, Dr. Thomas is also exquisitely tuned to the suffering of others, even when they don't express it verbally. "One of the biggest advantages that I have in life is the fact that I have been desperately ill. I can sense that someone is grappling with something, and I invite them to open up. For example, a patient's husband may be in the hospital. Because of the way my practice is set up, I can take the time necessary to spend with someone who needs emotional support."

Dr. Thomas with some of her youngest mentees/Dr. Thomas

Sometimes, those who need support are the ones in the white coats. When asked about her most valued contribution, Dr. Claudia Thomas sums it up in one word…mentoring. She notes, "Women have challenges just thinking about how to approach a career in orthopedics. Some are discouraged by their chairmen; I recall a young female medical student who was told by her chairman that orthopedics is 'not for females.' I strongly suggested to her that she not go to a program that had not already trained a woman. Sometimes people contact me in the 11th hour when they are already in a residency and things are not going well. Residency is like an initiation, with a hierarchy/pecking order…the unofficial 'program' is to beat up on the person below you. I tell mentees that if you are unsure of yourself or easily embarrassed then people will feed on that. This perpetuates the victim syndrome and people like this will continue to be singled out."

But the clear thinking, fair minded Dr. Thomas demands that those under her tutelage also take a look in the mirror. "The flip side is that I tell young surgeons that they must also examine their contribution to the situation. For example, perhaps someone *always* feels like the victim. The reality is that women and minorities in medicine consistently have to be at their best. You must double check your work, you must know the labs in and out, etc. The most challenging situation for these young orthopedists is when the people who are supposed to be teaching them *aren't* teaching them. Your superiors are not giving you the kinds of cases you need to get sufficient exposure to various conditions and procedures. Whether someone's situation is real or is just a perception I can't say. But I usually advise them to talk to the chair or chief resident, people who should be more mature about these things."

Too seasoned by the vagaries of life to be anything but realistic, Dr. Thomas says, "Some people don't make it and if you can't stand up to the pressures

"One of the things now happening to young people of color and young women is that they have had parents who have not prepared them for a world where racism and sexism still exist. When you encounter people who expect you to fail, and who may actually try to create a pathway for you to fail, you need to understand these dynamics…and you need to have tremendous self esteem."

Dr. Claudia Thomas

perhaps you shouldn't. Orthopedic surgery is not for everyone. One of the things now happening to young people of color and young women is that they have had parents who have not prepared them for a world where racism and sexism still exist. When you encounter people who expect you to fail, and who may actually try to create a pathway for you to fail, you need to understand these dynamics…and you need to have tremendous self esteem."

And you couldn't get away with Dr. Thomas' approach to patients without such confidence...and a lot of caring. "As fair and engaging as I think I am, I still have my own biases and I assign personalities to people who come into my office. For example, if someone comes to an appointment smelling of cigarette smoke I take the 'mean' route in order to shock them into taking care of themselves. I might say, 'Oh, I've got to get some air spray in here.' Or perhaps, 'Do you look in the mirror? I've got 80 year old patients who look better than you.' Sometimes this approach works, and then, of course, that only causes me to do it more. But maybe sometimes I need to find another way to confront the smoker."

Regarding the field she loves, Dr. Thomas states, "Orthopedic surgery still requires some deprogramming when comes to taking care of people. A disproportionate number of minorities get amputations, and are not offered state of the art treatment. For example, if both a black male and a white male come to the ER with a long bone fracture, the white male is more likely to be given a narcotic for pain. The black male (or Hispanic male) is often presumed to be drug seeking, and is given Tylenol. This has been documented in the literature. I have been fortunate to address many audiences about these issues of bias, including staff and executives at DePuy, who recently invited me to talk about how unequal treatment affects them as implant manufacturers."

Zimmer has also been open to Dr. Thomas' message, and has supported her and her colleagues in their efforts to reach out to those who might have never imagined themselves in scrubs. "Several colleagues and I realized that during residency recruitment we were fighting over the same one or two African American males. After some reflection, it became clear that we were 'losing' boys at the middle school level, so my four partners, all African American males, decided to mentor local boys. We go to a particular middle school monthly during the school year with the message that the only way to a bright future is to do well in school. While we bring in non-surgeons as well—I recently brought in my neighbor who is the head of the FBI for central Florida—our focus is on introducing the boys to the medical field. One of the things that captivated these kids was when the Zimmer bus came and the boys got to don scrubs and simulate a knee replacement. They were absolutely beside themselves with wonder and joy."

As for Dr. Thomas, she credits her parents' constant, loving focus on 'the books' for getting her to where she is today. "The biggest key to my success was having a functional family with two parents who cared about education. "

Looking forward, she notes, "I am an artist at heart and I when I eventually slow down I am determined to learn how to paint with watercolors."

As food for thought, Dr. Thomas leaves us with the following riddle.

A man and his son were in an accident in which the father was killed. The son was badly injured and brought to the ER, where it was decided that he needed surgery. The surgeon was called, but said, 'I can't operate on him…he is my son."*

Dr. Claudia Thomas…always challenging herself and others to be fully human.

To learn more about Dr. Claudia Thomas, please visit: **http://www.godsparelife.com/** ◆

*The surgeon was his mother.

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