

Profile Jeffrey Goldstein

Listed in *Who's Who in Medicine and Healthcare*, Jeffrey Goldstein, clinical professor of orthopaedic surgery, New York University Hospital for Joint Diseases, New York, USA, has had an impressive career—his extensive achievements range from developing a unique surface morphology to helping a man with a fractured spine walk again in addition to being a first responder during 9/11. But regardless of the innovations he has helped to develop, he still gets profound satisfaction from improving patients' quality of life. He talks to *Spinal News International* about the people who have inspired him and his passion for spinal surgery

When did you decide that you wanted a career in medicine and why specifically in orthopaedic surgery?

Many people in medicine are strongly influenced by their parents or close relatives when they are young. My parents are both retired teachers and they impressed upon me the necessity to excel in school. From high school, I attended Colgate University with a desire to progress on to medical school. At Colgate, I had a strong liberal arts curriculum and then attended medical school. Initially, I anticipated a career in reconstructive surgery but then gained exposure to orthopaedic surgery early in my internship.

Most of what we do in orthopaedics has a positive effect on quality of life. Our patients are generally healthy and appreciative of the opportunity to gain improved function. I had the opportunity to train with Henry Bohlman at University Hospitals in Cleveland. It was at that point that I had my first exposure to spine surgery. Dr Bohlman's exemplary approach to patient care and leadership in orthopaedic science served as an example that I wanted to emulate, and I sought out further training in spine surgery in Baltimore with Paul McAfee.

Which technique or technology has had a profound effect on your career?

Motion preservation and artificial disc replacement of the cervical and lumbosacral spine provided me with my first opportunity to participate in a level one research project. Not only were we able to demonstrate the beneficial effects of artificial discs for the treatment of cervical radiculopathy and degenerative disease of the lumbar spine, but we also were able to acquire level one data that demonstrated the benefits of anterior cervical discectomy and fusion for patients with neck and arm pain as a result of cervical radiculopathy. We also showed the benefits of spinal fusion for the treatment of recalcitrant low back pain.

Additionally, my participation in the Prodisc trials has given me the opportunity to share in the publication and presentation of some of the strongest evidence we have regarding the benefits of spine surgery for our patients. During the past 10 years, I have shared ideas and learned from, as well as formed lifelong relationships with, many outstanding spine surgeons, thought leaders, and aca-

demics. I have had the opportunity to teach and learn from others around the world and share our experiences of artificial disc replacement.

Who has inspired you in your career and what advice of theirs do you remember today?

I have had both the pleasure and privilege of working with several leaders in orthopaedic surgery. They have contributed to our field in different and unique ways. Dr Bohlman trained a group of leaders who I have had the opportunity to train with and learn from during my residency and fellowship. I did my fellowship training with Paul McAfee, who is also an innovator. Presently I work closely with Joseph Zuckerman, who is chairman of the Orthopaedic Department at New York University (NYU) Hospital for Joint Diseases and a past president of the American Academy of Orthopaedic Surgeons. I also work with Thomas Errico, who is the chief of the division of spine surgery at NYU Hospital for Joint Diseases and past president of the International Society for the Advancement of Spine Surgery (ISASS) and NASS. Both Dr Zuckerman and Dr Errico continue to serve as my mentors and have demonstrated the leadership qualities and confidence that allow them to achieve their goals while letting others participate and excel.

At the NYU Hospital for Joint Diseases, I partner with an esteemed group of spine surgeons and each of them is accomplished in the spinal field. It is gratifying to collaborate with them as we learn from each other. Our group works well together and we routinely collaborate in the treatment of our patients. We have been successful in regularly attracting to our training programme talented and motivated spine fellows who have also gone out into the community and into academics to take care of patients with spinal disorders. There are many very smart and talented spine surgeons who I have had the privilege of associating with and learning from.

As a keen inventor what have been your proudest moments?

We have developed a unique surface structure morphology, which allows us to promote and to control fusion and bony ingrowth into spine and orthopaedic implants and devices and thus, increase fusion success and implant stability. By understanding the wound healing process, we are able to control and manage it with our surface mor-

phology to create a better fusion and tissue ingrowth environment.

How has orthopaedic surgery evolved since you began your career?

When I was a resident, one of my professors used to say "I do not need a study.... I know it works". Well, he had a breadth of experience and was usually right and his patients had good results. However, the same does not hold true today inasmuch we now understand the necessity to use knowledge based on level one data to treat patients. Another one of my professors used to ask during our conferences "Is this what you know or what you believe?" What this meant to me is "Do we have the data to support what we believe to be true?" We have developed an array of treatment modalities for our patients.

However, experience alone is no longer adequate support for deciding on treatment algorithms for our patients.

What are the three big questions in orthopaedic surgery that you would like to see the answers to?

- How can we diagnose the source of low back pain?
- Once we identify the source of a patient's pain, when is surgery an appropriate treatment option and what type of surgery should be used?
- In today's economic and regulatory environment, how are we going to develop and prove new technologies and who is going to pay for them?

Fact File

Appointments

2010–present Clinical professor of Orthopaedic Surgery; director of Spine Service-Education; associate director of Spine Fellowship, NYU Hospital for Joint Diseases
2003–present Honorary police surgeon, New York Police Department

Education

1996 Fellow, reconstructive surgery of the spine, Maryland Spine Centre, Baltimore, Maryland, USA
1990 MD, SUNY Downstate Brooklyn, New York, USA (received the Summa Cum Laude, Distinction in Research)
1985 BA, Colgate University, Hamilton, New York, USA

Societies (selected)

2011 Society of Lateral Access Surgeons
2010 Chairman Membership Committee, International Society for Advancement of Spine Surgery
2010 American Orthopaedic Association
2008 Lumbar Spine Research Society
2004 Scoliosis Research Society
2001 International Society for Study of the Lumbar Spine
2000 Fellow, American Academy of Orthopaedic Surgeons
1998 Fellow, American College of Surgeons
1998 Cervical Spine Research Society
1997 North American Spine Society
1981 American Mensa Society

Awards and Honours (selected)

2010–present Best Doctors in New York, New York Magazine
2010–present America's Most Compassionate Doctors
2010–present America's Top Doctors
2010–present America's Top Orthopedists
2008–present Patient's Choice Award
2002–present Who's Who in Medicine and Healthcare
2002–present Who's Who in Science and Engineering



How do you see treatment of the spine developing in the future?

Spine treatment will need to focus on modalities that have been proven effective. I would hope that we continue to develop and prove the efficacy of both minimally invasive surgery and motion preservation. While the promise of minimally invasive surgery is quite compelling, we need to prove that the results are maximally effective. Progress in our understanding of biologics will also be key to future advances in spinal interventions and treatment. In addition to the clinical efficacy of these treatments, we will also be required to show society that they are economically viable.

What are your current areas of research?

My research continues to focus on motion preservation and artificial disc replacement of both the cervical and lumbar spine. As we collect longer term data on motion preservation, we will be able to prove or disprove our assumptions regarding the long-term benefits of motion preservation as it is related to adjacent segment disease. I continue to be involved in the research and development of spinal implants.

What is the most interesting paper you have come across recently?

It is difficult to choose one paper. We have recently published our experience with two level lumbar artificial lumbar disc replacements in the *Journal of Bone and Joint Surgery* (JBJS-A) and also presented our five-year experience with cervical artificial disc replacement.

Outside of medicine, what are your interests?

My wonderful wife Julie and I have two beautiful young children Lex (two and a half) and Carly (four and a half). I enjoy spending as much time as I can with my family—they keep me grounded and continually keep me focused on the "big picture". My kids are some of the funniest people I know. My wife and I enjoy cooking and fine wine. I also like music (classic rock and country western in the operating room!), photography, and travel.

Can you describe your most memorable clinical case(s)?

As a chief resident, I took care of a young man who suffered a fracture to the cervical spine, an incomplete spinal cord injury and facet dislocation after diving into a lake. Through awake cervical traction,

we were able to reduce the fracture

and he walked out of the hospital. Just as memorable, but in sharp contrast with regard

to outcome, would be my experience as a first responder at ground zero

at the World Trade Center during 9/11. I responded with several of

the orthopaedic residents from NYU Hospital for Joint Diseases and slept in the hospital for several

days. We operated on a patient who suffered an incomplete thoracic cord

injury in addition to multiple other injuries.

Despite our best efforts, our patient died of multi-system organ failure several weeks later.

More recently, while the results may be somewhat less dramatic, I take a great deal of

personal satisfaction

when patients return to the office following surgery pleased with

their ability to resume their normal activities and enjoy their life and time with their families with improved function and diminished pain.



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