

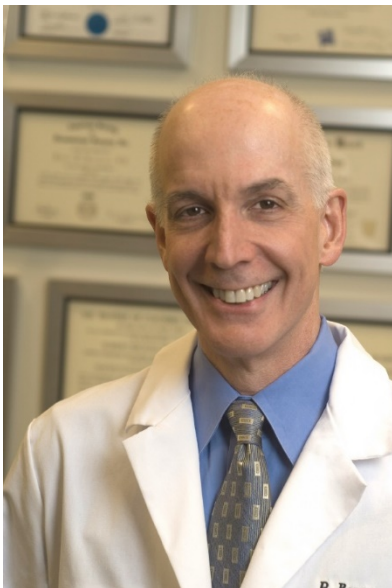
Best Practices: Bernstein Medical

The innovative hair restoration specialist on revolutionizing the standard of care in his field

Published August 2, 2018: Capsule's Best Practices Blog by Tova Carlin

Hair loss can be a sensitive topic. Pioneering surgeon and Columbia University professor [Robert Bernstein, MD, MBA, FAAD, FISHRS](#), developed the Follicular Unit Transplant (FUT) and Follicular Unit Extraction (FUE), the procedures that revolutionized the field. He's also helped develop Robotic FUE hair transplantation and has appeared on *The Oprah Winfrey Show*, *Dr. Oz*, and *Queer Eye for the Straight Guy*. His practice's [website](#) is a wealth of information on the field, including the multiple groundbreaking papers Dr. Bernstein has published on the topic. He was kind enough to chat with us about how transplantation is a collaborative effort, and how a little extra interest in a topic can lead to big inventions.

Tell me how you got into the field of hair transplantation.



My academic training was in general and cosmetic dermatology. When I was Chief Resident in Dermatology of Albert Einstein Medical College, I had my first experience with hair transplants. Upon following up to see how those procedures came out, I was quite horrified. I thought—I'm never doing this in my own practice. Over the years, my interest in cosmetic dermatology grew to encompass so many things, including lasers, sclerotherapy, fillers, and phototherapy. It was all fascinating, but I wasn't really gaining expertise in a single type of treatment. In 1994, a patient came into the office for an unrelated issue, and I had the chance to see a hair transplant that looked spectacular. The patient told me his doctor was William Rassman.

As it turned out, Dr. Rassman was giving a lecture at a hair symposium in Canada the following week, so I took a few days off, bought a ticket up to the conference, and for the first time saw mini-micrografting—a procedure that takes a long, thin strip out of the scalp, cuts it up into small pieces, and then re-inserts them into the balding areas. Of course, I went up to speak to Dr. Rassman afterwards and we hit it off. He was too busy to talk then, but he invited me to his office in California; he had a densitometer, which magnifies the scalp 30X. He pointed out that hair grows not individually, but in tiny groups called follicular units. He was utilizing the densitometer to measure hair density and determine who was a good candidate for a transplant. I spent a week with him, and then I had to go back to my dermatology practice.

So what happened next? That can't be the end of the story.

It's not! Before I left, he said to me: "You know Bob, if you want to be successful in life, you must think of one big idea—a better way to test blood, or a windmill farm—something that's different and breakthrough. Keep in touch and come visit again." I thought, "Yeah, sounds nice, but I have small kids, I won't be able to come back."

He kept in touch though, and I did go back one more time a month later. On the plane out there, I was thinking about those follicular units under the densitometer and, rather than cutting up a piece of tissue into small pieces, I wondered what would happen if you used the follicular unit instead of just small pieces of tissue. The grafts would then mimic nature and the wounds would become smaller—enabling the doctor to transplant thousands of follicular units in a single session.

On that five hour flight to California, I wrote a rough outline of what ended up being a 10,000 word paper on the topic. Dr. Rassman met me at the airport, and the first thing I did was hand him my outline and announce, "This is my idea." He looked surprised and asked, "What are you talking about?" I replied, "Don't you remember Dr. Rassman, you said I should think of a great idea. Well here it is!" After scanning through it he said, "Give up your derm office and let's do this—join me in my hair practice." And that's

exactly what I did. My wife said, “Uh oh, are you sure you know what you are doing? And I said, “Yes!”

So what happened with that paper you wrote?

We published it in 1995. It was called Follicular Unit Transplantation (FUT for short), and it soon became the standard of care in the field of surgical hair restoration. Seven years later, Dr. Rassman and I published Follicular Unit Extraction (or FUE), which obviated the linear scar on the back of the head that was the tell-tale sign of a traditional hair transplant. The procedure was already being performed as early as the 1990s, by Dr. Ray Woods in Australia. He was using 1-mm punches to remove follicular units one-by-one from the back of the scalp. It's quite difficult to perform this procedure without transection (damage to the follicles) since the hair changes its angle and direction below the surface of the skin.

Dr. Woods would go to medical meetings and keep his cards close to his vest about how he did this. Bill and I thought, “We must figure this out.” So, we worked out the details in conjunction with the Department of Dermatopathology at Columbia University, and we ended up writing another paper, “Follicular Unit Extraction: Minimally Invasive Surgery for Hair Transplantation,” in which we coined the new term “FUE.” Worldwide, FUE now constitutes about 56% of all hair transplantation procedures. In the US it's slightly less than that, and overseas about 80%, with the remainder still being FUT.

So tell us about that amazing [machine](#) you helped develop.

FUE started to take off, but it remained an amazingly difficult procedure, with patient variability that was hard to pin down. We didn't know whether this was due to loose scalps, very fine hair, operator variability or what. In 2011, a company called Restoration Robotics developed a robot that could start doing it mechanically. At the time it was rudimentary—like operating stick shift. I soon became a medical advisor to the company.

Now, eight years later, with nine major upgrades to the system, many of which I've been involved with, the robot is amazing.



It's not just a simple robot-controlled punch, but rather two punches. First, it's a sharp one that scores the skin, making a tiny hole. The machine then applies light suction to the scalp, helping to elevate the graft and orient the scalp so that it's flush to the robot's surface. Second, there is a rotating blunt punch around the outside of the follicular unit that goes into the deeper tissues. Jim Harris in Colorado pioneered this two-step technique with his hand-held punch.

The first robot was not able to distinguish between follicular units of different sizes. But it can now skip over the smallest and select the ones containing more hair. The robot can also be used to identify the graft sites and actually place those grafts. A doctor designs the hairline, inputs this into the computer—including details of the angle, depth, and spacing—and the robot goes ahead and automatically does it. Implantation of the actual grafts is the newest function; it is still rudimentary but we're making progress on it.

The design aspect is really fascinating, and it's great to get to explain it to the patients because they need to understand what you are doing.

The procedure is a team effort. We have a big clinical staff here. The doctor's role is obviously critical, but an experienced team is very important for a successful transplant.

Vital signs

Any surprising hair care tips? I advise people to stay out of the sun—it dries out your hair and you might as well have less sun damage.

Favorite patient amenity? For our patients, we have a huge flat screen TV in the operating room, so you can watch the Food Channel or Animal Planet—anything you'd like during surgery. It's way bigger than the one I have at home. For our staff, we have a break room that has the best view in the office. You can see [432 Park](#) from the window and the [Norman Foster building](#) across the street; we painted the break room bright orange to give our staff a smile.

Sounds like you're into architecture. It's a fantastic hobby in New York. I highly recommend the [AIA Harbor line tours](#) as a way of learning about the skyline.

What else keeps you feeling good during the work week?

Going out during the week with my wife and friends—in NYC there are always tons of things to do. I'm too high-energy to just work, go home, eat, watch TV, and then sleep. And it really helps living close to where I work. When I'm too busy to get to the gym, I cheat time and do the stairs in our high-rise building— two-to-three times at a clip!

Any good success stories recently?

We recently saw a 12-year-old Afghani girl with burn scars on her scalp from the war. Although it took multiple procedures to restore, the hair was able to grow in the scar tissue and eventually covered it well. It made such a difference in how she was able to recover from the trauma and return to a more normal life.



Learn more about Bernstein Medical [here!](#)

Know an innovative practice in NYC? We'd love to hear, introduce us [here!](#)