



## American Healthcare Professionals and Friends for Medicine in Israel

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**Dr.** Itay Fogel is helping to get the skinny on diabetic wound healing.

The 39-year-old pediatrician is a 2016-2017 APF Dermatology Research Fellow at Northwestern University's Feinberg School of Medicine.

Fogel's NIH grant is designed to test creams, ointments and oral medication on diabetic mice with open wounds. This is the "translational" phase after "basic" research with cells and before "clinical trials" when products are tested on people.

"I just love dermatology, particularly with children," he says, noting that someday he'd like to become a pediatric dermatologist. "You can get a diagnosis often the moment a patient enters the room. Most of the time you see something on the skin, a rash or a lesion, and you know exactly what the problem is. You prescribe medication and then follow up. The patient comes back and the rash has disappeared or the lesion is reduced in size. And you see that the parents are very pleased too. The satisfaction rate is very high and the need for many extra examinations and diagnostic tools is usually very low. Most of the time there is no need to do an additional biopsy.

"And I also find skin manifestations of other diseases very interesting."

How did he get to the pediatric dermatology sub-specialty?

As a resident in pediatrics, he realized that the children's hospital where he worked was a leader, for example, in organ transplants and emergency medicine; but wasn't very strong in dermatology. "Many primary care and ER doctors referred out to pediatric dermatologists. So one day during a rotation with a pediatric dermatologist, it just 'clicked' and I said to myself, 'I want to become like *this* doctor.' "

The Be'er Sheva native decided to become a doctor when he was in the 12th grade. "When I was a child I was afraid of seeing blood. And if someone fainted or something, I didn't know what to do and it was very frustrating. I think it's like a compensation for that.

"I wanted to be able to help other people through any situation where most of the people can't do anything and I *can* do something; where I can save lives and help where most of the people don't know what to do. I will know what to do without being afraid of anything. And I will help people."

In 1996 he entered Tel-Aviv University medical school before military service because he felt "still fresh from school and ready to continue with studies."

Internship was at Meir Medical Center in Kfar Saba (near Tel-Aviv). In medical school and during internship Fogel thought he'd become an obstetrician/gynecologist (OB/GYN). His medical school thesis was on neonates and during both medical school and internship he spent many extra hours in the delivery room.

But that all changed in the army.

"After internship I had many positions in the IDF, in the field and at headquarters. In one posting I was in charge of physicians in the Reserve Forces.

"They came from all fields. And what I saw was that the OB/GYN's were not satisfied with what they were doing. They may have been rich, but they didn't stop complaining.

"Out of all the specialties, the pediatricians were always upbeat. They weren't necessarily the richest or the professors, but every day they went to work happy. I wanted this, to wake up with a smile on my face, knowing that I was going to work."

So Fogel did a pediatrics residency at Schneider Children's Medical Center in Petach Tikvah (near Tel-Aviv) completing the program in 2016.

Between internship and residency he also got a graduate degree in health administration at Ben Gurion University of the Negev in Be'er Sheva.

He remains in the military, a major whose last post was at IDF Medical Corp Headquarters working for the Army's Surgeon General. "I was the coordinator of the Israeli epidemic management team, dealing with such crises as the recent Ebola outbreak."

The Fogel family has come from Ra'anana to Skokie, Ill., outside of Chicago, for two years. Besides Itay they are: Mom Irit, 38, a medical secretary; sons Omer, 12; Noam, 10; Dolev, 7 and daughter Maya, 3.

Dad says the family is very involved in the local Jewish community. The boys attend Jewish day school and Maya goes to a Jewish child day care. "There are also a lot of Israeli families in Skokie and that is very nice. We are always having people to our house or going to others' homes."

The family has traveled all around the Chicago area, to Washington D.C., New York City and New Jersey. For the summer they are planning trips to Niagara Falls and Canada.

During the week Fogel works about nine hours a day in the office and in the lab.

In addition to experiments, he has lots of reading to do and presentations to prepare. Sometimes he has to study in his free time or go into the lab on weekends, but not on Shabbat.

"My family claims they see me a lot now because I had a lot of night shifts during my residency; and some of my positions in the army were the field so they often didn't see me at all for periods of time.

"Now, suddenly, I'm with them every weekend and I very rarely miss dinner. This is a most unique experience. And I think it's very good for the family.

"In Israel you're with your family mainly on Shabbat. Here it's every day. We sit together and ask each child, 'How was your day?' And we share our days. We're much closer than we were in Israel, spending all this time together. We have time just to speak with each other.

"This is something I think we are going to miss in Israel. Even though we have friends who've said they want to keep this lifestyle when they return from the United States, they don't succeed."

Another luxury is the time for research without having to squeeze it in between clinical work.

"You have all the time for research and all of the support, so different from Israel.

"I'm really learning to do research the way it should be done, no shortcuts, no bypasses. Every week you write a report, show your data and present it in front of everyone: your boss, all the other post docs, other students and clinicians, researchers from other fields, people from pharmaceutical companies and more. They critique and the discussion is very fruitful.

"I now understand research much better and how medicine gets to our shelves – all the phases before the final product, including the relationship between the pharmaceutical companies and the universities.

"Good doctors should have the ability to do good research. Research broadens your mind and gives you more tools to help many more patients and influence the treatment of future patients.

"For example, when I came here, I didn't know how to work with mice. Now, after several months, I'm kind of an expert on how to work with them."

So, what's a day like?

"I work in the lab of world-renowned physician/scientist Dr. Amy Paller, a pediatric dermatologist. My main project is to experiment on diabetic mice with skin ulcers.

"We're working with the approach that you can affect the healing of diabetic skin ulcers in three different ways -- by controlling blood sugars, by direct contact with the wound and by systemic oral medication. But when a diabetic patient's sugar is very poorly controlled, we're trying to offer something simpler, treating the wound directly with a cream or an ointment or using oral medication. We don't, however, get involved in treating blood sugars."

Fogel's job is to treat skin ulcers of diabetic mice with various compounds as well as to administer oral medication and then compare results among the various test subjects.

He takes lots of notes and photographs and analyzes the photographs with very sophisticated software. Experiments last about two weeks. "We take pictures almost every day. If you don't have pictures, it's like you've done nothing."

"We also analyze microscopic body components such as proteins and lipids."

After 10 days or so, he harvests the organs and skin of the mice and does further analysis. Each experiment involves about 16 mice. Then he begins again. Already some of the medications are showing promise for clinical trials.

Is the fellowship experience intense?

"Yes."

"The first three months were very intense because I had to learn a lot of things. There are people in this lab who have done this kind of research seemingly for all of their lives. And you have only 12 weeks of training for everything that took them years to learn."

"You have to work and do experiments and show data exactly as the others do and have done for years. You have to bridge the gap in about three months."

"Initially someone had to help me as though I were an undergraduate student. This is what it's like

coming from a clinical background to a very high-level translational research lab."

But Fogel feels the Israeli temperament has helped out a lot. He says Israelis adapt very well to new situations. "After not even a year I feel I can contribute to the discussion, show very important data and think about new techniques to try."

Still, the program remains very intense. "There's a lot to be done and it all has to be done very well."

Not only has his Israeli nature helped him to adjust quickly, his military background has helped him implement new elements of lab procedure -- protocols -- written instructions, with photographs, dictating exactly how certain things are to be done in certain situations.

"I love protocols! I started creating them when I was a medical officer in a field brigade about 10 years ago and continued it at Schneider. I realized it was much easier to handle emergency situations when you have protocols, certain documented steps that should be done each and every time and eventually done automatically, without error. The military is, of course, big on protocols."

"I realized there weren't enough of these in the lab and I set about photographing and writing and putting together some samples for my boss. She liked them and I got to do more. Now they are all over our lab and in others here as well. So when new people come in we don't have to explain as much, we use the protocols."

Designing protocols means really having to research and know a subject inside and out, says Fogel who believes the same thing about teaching, another love. "Sometimes when you read about something you think you understand it, but you often really don't. Teaching and writing forces you to be better at what you're doing. If you can teach well and write good protocols it shows that you really know your stuff."

Was it necessary to leave Israel to get this experience?

“Yes.”

The gold-star specialists, equipment and research aren't available in Israel for a fellowship in Fogel's specialty. Also, there aren't many limitations on money at a place like his lab, he says. “In Israel we need to do about the same with 1/10th of the resources. Here, for example, if you need a new camera, you get one. If you need more mice, no problem.”

Working with Northwestern's cutting-edge researcher and clinician Paller was a major draw to the Chicago medical school. “At first when I applied I didn't know what a famous and prestigious place this was for dermatology. But dermatologists from Israel, who studied in the U.S., recommended I send my CV to Dr. Paller. So I started to Google her. And I asked the head of pediatric dermatology at Schneider about her and everyone knew she was famous world-wide. Then I made it my goal to work in her lab.”

In fact, at first Paller turned Fogel down. But the Israeli pediatrician persisted and ultimately prevailed. “Very Israeli of me,” he said chuckling.

Fogel also chose to leave Israel for Northwestern because he would, someday, like to do a second residency in dermatology toward his goal of a sub-specialty in pediatric dermatology. “Dermatology residency programs in Israel are very competitive,” he said. “I felt that having worked at one of the top dermatology research labs in the world and having attended many important conferences and

meetings would make me a stronger candidate. I now have some real insights into dealing with skin disorders and can contribute in many arenas, including how to do experiments better.”

He has published eight journal articles and is about to publish two more from his time at Northwestern. Fogel hopes to publish at least two more before he completes his fellowship.

What do you hope to take back to Israel from your fellowship years?

“Well, as I said before, I would love to do a second residency in dermatology. But the army ‘owns’ me and I do love the military, so we will have to see. After all the stressful things I've done in the military and during residency, being a dermatologist is more, shall we say, ‘convenient’ and you get less ‘white hair.’ And there's also the fact that in dermatology patients don't die on your table.

“If I leave the military I will combine clinical work with research, doing experiments with animals and skin disorder models. I have a better understanding of how to create such models and I will want to take such elements of what I did here and try to implement them in labs in Israel. In Israel we study new drugs and medications but usually with less money and fewer animals. Everything is in on a smaller scale.

“What I can bring home is what I learned here and then teach it to researchers and doctors in Israel.”

## **American Physicians Fellowship for Medicine in Israel**

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