

**Marie:** Hello and welcome to *The Parkinson's Research Podcast: New Discoveries in Neuroscience*. I'm your host, Dr. Marie McNeely, and I've partnered with The Michael J. Fox Foundation for Parkinson's Research to bring you to the forefront of the field of neuroscience to discuss the latest advances and discoveries with leading experts.

The Michael J. Fox Foundation created this podcast for researchers, clinicians, and industry professionals with the hope that these conversations and the resources we share will advance your efforts and partnerships to improve brain health. We're welcoming guests with a range of experiences and viewpoints. The views expressed belong to the guests themselves.

Today we are discussing the Edmond J. Safra Fellowship in Movement Disorders. This program is accepting applications from medical centers right now; they are due the first week of December. If you want to learn more, please go to [michaeljfox.org/funding](https://michaeljfox.org/funding).

To help everyone understand the appeal and value of the program, we have two guests with us here today, Dr. Marcelo Merello and Dr. Sergio Castillo-Torres. Listeners, Marcelo is Director of the Department of Neurosciences and Chief of the Movement Disorders Clinic at the Institute for Neurological Research or Fleni Hospital. He is fellowship Director at Fleni and the University of Buenos Aires. In addition, Marcelo is Principal Investigator with the National Council for Scientific and Technical Research and Professor of Neurodegenerative Diseases at the Pontifical Catholic University of Argentina. In addition, he is editor of the *Movement Disorders Clinical Practice* journal from the Movement Disorders Society.

Today we'll be talking more about his role as the Fellowship Director at Fleni Hospital, which is one of the academic centers chosen as a site in the 2027 cohort of the Edmond J. Safra Fellowship in Movement Disorders Fellowship Program. The program provides support to outstanding centers around the world to train Movement Disorders clinician-scientists. And Marcelo, we are thrilled to welcome you to the show today. We really appreciate you being here. How are you?

**Marcelo:** Very Well. Thank you very much. It's wonderful, really, to be here and tell you something about our experience with the Safra Foundation Fellowship.

**Marie:** Well, we are so excited to learn more from you today. And perhaps to give our listeners a little bit of information about you first, can you share a little bit more about your career path, Marcelo, and your academic and medical background?

**Marcelo:** Yes. I studied at the University of Buenos Aires. I graduated as a doctor many years ago. Then I took my internal medicine residency because, although I always wanted to be a neurologist, my first impression was that I had to have a broad view of the clinical work. It is very important before being a neurologist. That's why I did my internal medicine residency in a university hospital called CEMIC in Argentina. Then when I was a third year resident, I took my elective in the U.S. I went to the Methodist [hospital] in Houston, Texas, because at that point I had finally decided just to be a neurologist. It was a very, very good experience.

I went to Argentina, and then I came here to my formal education as a neurologist at Fleni, which is where I stay today. I did all my residence in Fleni, and when I finished my formation in Fleni — it was around 1990 — I went to London to work with Dr. Andrew Lees. Everybody knows who is Dr. Andrew Lees. And I took the position at the Middlesex Hospital of Research Assistant and a Research Registrant at the Queen Square Hospital where I stayed for a while, and I completed my movement disorders formation there. Then back to Fleni where I did all my career since 1992. So basically, I spent all my neurologist and movement disorders career in the same place. When we started in Fleni, there was no movement disorders department. So, I created, from scratch, everything that we have today, which is the formal program in movement disorders was created by me and many fellows, and young doctors, and residents that participated here.

As you say, I'm a Principal Research Investigator of the CONICET — which is a kind of Argentine NIH and the ones who support my clinical research mainly. And also I have my Professor's position at the University of Buenos Aires and Universidad Católica Argentina. So, this is more or less what I'm doing and what I did.

**Marie:** Very cool. And I know, Marcelo, you've been able to see movement disorders really grow and blossom there at Fleni, and I think that's remarkable. So, can you tell us more about the hospital and perhaps more about the movement disorders group there?

**Marcelo:** Yes, it's very interesting because this is quite related with the Safra Fellowship because I was excited being in England. And when someone from a small country in Latin America sees the way that people in a country with a long history of education and research, like in my case was at Queen Square and at UCL in London, you are seduced to stay there.

I mean, in fact, I had the chance to stay there but something told me that I had to return to Argentina and to copy everything I saw there. And just to implant this way to work and all the good ideas in my country, and that's what I did. So, I

started this in Fleni. At that time. Fleni was very young. Fleni is in a private hospital who belongs to a foundation, a non-profit foundation, and is really devoted to neurology, neurosurgery, and pediatric neurology. So, we have residents in all these three specialties. We have a very busy out-clinic.

All people working here — I mean, all the chiefs and chairs of the different departments — have been educated abroad. So, we clearly know how important it is to be educated abroad when you can't find in your country all the tools just to become a specialist and at the end change the life of your patients.

So Fleni has grown a lot. We have fellows from all around Latin America. We have top-notch technology. We have one of the largest — or maybe the largest — program in deep brain stimulation in Latin America. We were the first department who performed electro-physiologically determined targets for DBS. We implanted the first DBS in Latin America many years ago.

We have a PET scan. We have also DAT scan. We have a 3 Tesla MRI, and we have genetics. We have everything that someone needs to run in a special centering movement disorders like the centers in Europe or the U.S. We're very proud to have Fleni in Argentina. And I think this is quite recognized by the young doctors all around Latin American. That makes Fleni quite special.

**Marie:** Absolutely. And I think, Marcelo, you've led Fleni to become this leading movement disorders clinic. But I'm curious, how did you first find out about the Safra Fellowship Program and what ultimately made you decide to apply to the program?

**Marcelo:** Everybody knows about Safra Foundation. Everybody in the world who runs a movement disorders clinic wants to be part of the Safra Program. This is an absolutely famous program, and it's very prestigious. So, it's very easy to learn about Safra Foundation because it's present in most of the most important clinics around the world. I mean, I think I was the first Safra Foundation Program in Latin America because this one is not my first one. I had a previous Fellowship with Safra in 2022 or '23. I can't remember. So, we have earned this prestigious prize twice in our life.

**Marie:** I think that's remarkable. And can you talk a little bit about, you know, once you made that decision to apply, and you wanted to be part of this prestigious program — what was that application process like?

**Marcelo:** The application is quite straightforward. To be honest, if someone wants to apply, they need to understand very well what the Safra Foundation and The Michael J. Fox Foundation evaluate from the centers. So, I think The Michael J. Fox Foundation looks for a program that has all the capabilities to teach a young

doctor with the necessary skills to implement a program that would change or impact in their own community. I failed twice before I earned the first Safra Foundation Fellowship. And that taught me a lot about how to present what I'm doing. But it's quite straightforward.

I think what someone who wants to apply needs to express clearly what is your department or your program offering to the applicants, and how you think that what you're offering to this applicant will change the career of this person — that will be with you for two years — when this person returns to the country or their place, which in general, are places with less possibilities than the one that we have in a Safra Foundation Program.

One thing that maybe people think that the only person who earns something by the Safra Fellowship is the fellow. I think it's an absolutely bidirectional relationship. I think both the center and the fellow earns and learn a lot when they are involved in such programs. After having our first Safra Fellowship program, I think we understand very much the needs of different places.

It taught us how to collaborate with underrepresented communities. And understand how the social, economic, and cultural factors affect the care of the patients. And also this reshaped our own programs and the way that we assess our patients. We earn a lot and gain a lot by having the program. So, it's not only the fellow who learns about movement disorders and learns how to run a program in movement disorders to implant this program in their own town, or countries, or cities when they get back.

**Marie:** I love, Marcelo, that you highlighted the interactions and the benefits go both ways with this fellowship program. The center benefits and obviously the fellow benefits as well. So, I have to ask, you know, you mentioned that you've received this prestigious honor of being part of this program or selected to participate in this program twice now. Marcelo, you're doing something right there. What did it mean for you and the team at Fleni to have your center selected to participate in this program?

**Marcelo:** We are very honored, and I'm very happy. The interaction with the doctors from different parts of Latin America. This is a very good point because when we call for the position or fellowship, we receive more applications from other countries than Argentina than from Argentina. And to be honest, we focus more on young fellows coming from other countries from Argentina. Because maybe there are areas which need our expertise in movement disorders more than in Argentina. And also because this enriches us a lot because we want to interact with professionals from other countries.

And we've supervised fellows from Ecuador, Peru, Colombia, Brazil, Chile, Bolivia. I have had fellows from all around Latin America. And we have implanted in those countries, departments for movement disorders patients' care, which are quite similar to us, and we're very proud about it. Because every time that I go to a congress and meeting, I see my old fellows, even The Michael J. Fox Foundation Fellows, or Fellows from the MDS, or other kinds of fellows. We are a kind of family. This is a very enriching networking possibility to have this fellowship.

**Marie:** Absolutely. And could you perhaps comment on what it was like working with Sergio and some of the other fellows?

**Marcelo:** Sergio was great. Sergio was an incredibly enthusiastic person. He was enthusiastic with every area of the movement disorders, every project that we presented. He was great with the patients. He was great in research. He has published a lot. I would say maybe six papers in a two-year fellowship, which is a high number.

I mean, you and probably most of the people who are listening to me now are English speakers. And you know, and you accept that English is the language of science, everybody actually has. It's a great language. I love it. But you can imagine how difficult it is for us, those who are not English speakers, to write in English. And there are many, many doctors who are very good researchers, but are so afraid to publish because the language of publishing is English. And one of the things that we work a lot on with them is about that. It's about the most important [aspect] of scientific publications is not the language, because we will never write or speak like an English speaker. But if we have good ideas, the good ideas will be accepted elsewhere, no matter how those ideas have been written or how I put it into English.

So, Sergio is a great reader. He's a fan of Borges's work, he's one of the best Latin American writers. And he enjoyed very much to write, and he produced a significant number of papers in his fellowship. Everybody was in love with Sergio here in Argentina.

And I'm happy to learn that he's in Mexico now, and he's trying to implant the same system of patient care, databases, some programs that we have here in Buenos Aires. It was a great experience for us.

**Marie:** Definitely, and how do you see this Safra Fellowship Program — maybe looking at the big picture — having an impact on the field, Marcelo?

**Marcelo:** As I told you before, this Safra fellowship is impacting the field in many aspects. First, patients. We are doctors because our main interest is to take care of

people. And I think this Safra Fellowship creates or improves the skills for young doctors to be better doctors to treat in a better way the patients. This is one aspect.

The second point is that because they are able to create programs of research and systematic evaluation of data and databases. That creates more research, more ideas. And this also goes to the patients, not directly but in an indirect way.

And the third way is the networking. This is very important. We need more good centers treating for movement disorders. I mean, the educational impact that this fellowship is having in Latin America is enormous. Because if our center has the Safra Fellowship twice, and we are successful enough to get good fellows, those fellows will do the same in their places. And they will educate two more fellows, and this amplifies. And probably in many years, all the regions will be not with such issues that we currently have with the U.S. and Europe, but maybe we'll finish to be an under-served area.

**Marie:** Absolutely. I think building these strengths in other areas around the world is critical to make sure that everybody around the world has access to this good quality care for movement disorders. And we mentioned that Fleni is, of course, at the forefront of clinical care and research. So for you, Marcelo, what do you see as some of the most exciting areas of opportunity in Parkinson's disease research or clinical care?

**Marcelo:** When I became a movement specialist, the field was so narrow. And when I see what we have now, I say we are facing so many changes in the area. One of the most challenging points to me is artificial intelligence. How to incorporate artificial intelligence into movement disorders without losing this face-to-face time that we spend with the patients? How to use this technology not to replace doctors, as many people said, which is impossible, but to help doctors to provide better quality of care to the patients.

And so one of the areas which are very important is the artificial intelligence, and perhaps the use of artificial intelligence in terms of biomarkers to me is one of the most exciting areas that we are facing in the future. There are a lot of lines written about neuro-inflammation, all the alpha-synuclein and immunotherapy in terms of therapies. It's an exciting area for research and, of course, genetics. Genetics is very important.

But what I think is important is that all doctors now understand that Parkinson's is something that starts many years before the first symptom. So, we are all putting our eyes on this pre-symptomatic period of the disease, in which we definitely, in the near future, I hope so, we will be able to change the evolution of the disease

or even stop it. And I think artificial intelligence and biomarkers, any kind of — biomarkers — are critical in this new view of the disease.

**Marie:** Absolutely. Well, Marcelo, you've brought up some really great points and some wonderful areas of opportunity in the field. Is there anything else that you would like to share before we wrap up today about your experience leading the Edmond J. Safra Fellowship Program?

**Marcelo:** First of all, I would say that if you are a young fellow, don't miss the opportunity to apply for a Safra Fellowship because the centers that are selected are great. It's a great opportunity to initiate a career.

And this is something that a young doctor somewhere will take [with them] forever. And from the director's point of view, they need to understand, as I said before, this is a bi-directional interaction. And the centers gain as much as the fellow when they carry on these programs.

**Marie:** Outstanding. Well, thank you so much for joining us today to share your experiences and perspectives, Marcelo.

**Marcelo:** It's been a pleasure to talk to you. Thank you very much for the interview.

**Marie:** And now listeners, I am excited to introduce you to our second guest, Dr. Sergio Andres Castillo Torres. Listeners, Sergio is an Associate Professor in Neurology and Internal Medicine at the Dr. Jose E. Gonzales University Hospital of the Autonomous University of Nuevo Leon. He was an Edmond J. Safra Fellow in Movement Disorders at Fleni Hospital. So, Sergio, welcome to the show today. How are you?

**Sergio:** Hi, great. Thank you, Marie, for the introduction. It's quite a warm morning here in Monterey, and everything's going well.

**Marie:** Well, we are glad to hear it, and we are so excited to have you with us today and to hear more about your experiences in this fellowship program. But perhaps we can start with a little bit of background here. Sergio, can you tell us a little bit more about your career path and your academic and medical background?

**Sergio:** Sure. I went to medical school here in Monterey where I was born. And I have to admit that at the beginning, I was drawn to medicine because it seemed like a challenge. And that's what drove me to study medicine.

And while on second year, which is here when we see the physiology classes, I was fascinated by the complexity of the human body, particularly of the brain. And I could say that pretty much early in my career, I was floating towards

neuroscience, neurology. And as the time passed during my career, there was this debate if I wanted to pursue neurology or neurosurgery. But honestly, I loved internal medicine. And I completed an internal medicine residency, and then I pursued a neurology residency here in Monterey.

So, what drove me to neurology, I think it was mostly that it's kind of like detective work. You have to poke around the patient's stories and try to identify symptoms, try to uncover them. And it's a little bit like playing detective. I think that my interest in internal medicine and neurology stemmed from being a fan of Sherlock Holmes stories. So, I was immediately attracted to internal medicine and then neurology, which was always my top pick for a specialty or subspecialty here.

And the most curious thing is how I was drawn to movement disorders. When I was a third year resident in internal medicine, one of my early mentors was Dr. Ingrid Estrada. And I was discussing with her that I wanted to make a rotation in a big neurology center outside of my city. And she sent me to Buenos Aires with the Hospital de Clínicas. And I was there, and I was fascinated with movement disorders.

Honestly, before that, I had not considered it a possibility. I had no particular interest in pursuing a fellowship or anything, but being there and watching, particularly Dr. Micheli, how he treated the patients, I got fascinated by movement disorders. And I think my pathway or my career in movement disorders started there. Also, I was still in internal medicine. Actually, that was one of the things that they found the most strange that normally they receive neurology residents, and I was an internal medicine resident. And they were a little bit curious. But then I finished, I made my neurology residency also here, and I started to build my career in that direction. I was lucky, fortunate enough to have Dr. Ingrid and the head of the department of neurology, which is Beatriz Chávez. I had the great opportunity that I was able to take because they were very supportive of not only me, but also other colleagues who were residents at the time.

So, we could have an international rotation and see how things are done in other places. And then as a neurology resident, I was able to spend briefly a month in King's College with Ray Chaudhuri and a little less than a month with Professor Kailash Bhatia, and I say a little less than a month because it was the month that the MDS was held in Nice. So, I spent one week of the rotation in the Congress really.

But I think those experiences helped me to realize that the field has great people. They had not only great physicians, but great human beings. And I think that's what started me on the path. One anecdote — that probably those who know me



know I am going to tell it — but when I was in the third year of internal medicine, I came across an article that was making parallels between Sherlock Holmes and William Gowers, which is considered the father of British neurology. And the article's title is “The Strange Case of William Gowers and Mr. Sherlock Holmes,” by Professor Andrew Lees. And I imagine that everyone who's listening right now, or almost everyone, knows who Andrew Lees is. But at that time, I had no idea, nothing of names in movement disorders. I read that article. And at that time, I was considering pursuing perhaps a residency in rheumatology because I liked the clinical side. And there were no shifts.

Perhaps I was a little bit tired from the shifts as an internal medicine resident. And I came across this article, which I mentioned. And I was fascinated because it was clearly written. It was the things I liked from neurology presented using Sherlock Holmes stories. And I can't really remember why, but I said, this is a great article. I am going to write the author to tell him that I really liked it and that it was a great article. And simply to send my appreciation to the author because I really liked the article.

And I was surprised when the author answered me. And he told me that he had been to Mexico, he knew some colleagues here. And he mentioned Ingrid. And then I go and tell Ingrid, well, you know what, I wrote this author, he answered me, he seems like a really nice person, he took the time to answer me when I'm just a resident. And I'll never forget Ingrid's answer. It was like, “How do you not know who Andrew Lees is?”

**Marie:** How have you made it this far? Yeah.

**Sergio:** Yes. And it was like, do you have any idea who he is? And then I started researching, and I was surprised because of the amount of research and amount of things he has pushed through the field.

And then it started a sort of electronic friendship with Dr. Lees. And that made me decide to go into neurology because I realized that I really love neurology, and it wasn't only a good choice just because I wanted to have no shifts or to rest a little bit more. And sincerely, I have not regretted that.

And from there on, everywhere I went, like Congresses for example, when I went to Buenos Aires the first time with Dr. Micheli, I told Dr. Lees, and he told me, send my regards to Micheli, he's an old friend. And everywhere I went, he was asking me to greet people on his behalf. And that's the great thing that has the field that it relies a lot on mentorship and on being able and willing to help others, regardless of if you know them really, or you don't check their background to see if you can befriend them or recommend them. No, no, no, people just are very great human beings. And I think that's what makes a difference in movement

disorders. And that's what made me sure that after finishing in neurology, I wanted to pursue a career in movement disorders.

**Marie:** Definitely. And I love how you described the value of this network and this sense of camaraderie that you feel in neurology. I think that's something that I've seen as well. And I just love this story of being kind of in the right environment at the right time, and finding this article, making that connection. And I think these serendipitous moments can really shape somebody's career. And I think a major moment in your career, perhaps, was becoming a Safra Fellow. So, Sergio, can you share what was your experience like as a trainee in the Edmond J. Safra Fellowship in Movement Disorders Program there at the Fleni Hospital?

**Sergio:** First of all, I was amazed. I think I still am. I remember the day I got the mail from Marcelo and Malco there at Fleni. They interviewed me for the position. And I was amazed. I could not believe it. I remember I woke up my wife, and I told her I was selected. We're going to Argentina for two years. And I still think it's one of the best things that has ever happened to me. And Ingrid always tells me that opportunities are for those who take them. There is no luck, really. Luck is for those who are prepared to take opportunities.

So, in that regard, I really was very excited about the opportunity, particularly because, to put it in context of what it means, since it was, I think, mid of 2020. We were in the pandemic. We were not completely locked down, but it was a little bit harsh because in 2020, in February, I finished residency, and I started looking for options for a fellowship, and then COVID hits. And so, all opportunities seemed to vanish. And it was like, well, let's wait and see.

But I was a little bit disappointed or frustrated because one of my expectations was to perhaps try to pursue a fellowship in London since I had been recently there. And then COVID hits, and everything goes down. Then one day I get an email from Dr. Merello with the application that if I was interested in this program, and of course I sent my data, I was interviewed two times, and I got selected.

And the pandemic made it complicated. Although it was 2021, there were a lot of obstacles to hurdle because many issues with Argentina having its borders closed, so we had to request a special permission. And it was kind of not easy to get there. It took me two months after the expected start date. Fortunately, Marcelo and everyone at the team in Fleni were very patient, and they were very supportive, and they provided me with everything I needed to get there. And curiously, me and my wife, we got to Argentina on the first plane that was authorized to leave from Mexico to Argentina.

**Marie:** You were ready.

**Sergio:**

Yeah, I was obsessed with finding the flight. We had one for June. It got canceled. Then it appeared that it was going to be for July. Finally, it was the last week of August, but that was it. We got there.

I was particularly attracted to it, not only because of the Edmond J. Safra Fellowship, but because of Dr. Merello. I had not known him until 2018, which there was a congress in Leon, and I attended, and he gave a great lecture. And he mentioned Argentine writer Jorge Luis Borges on his slides and made parallels from some works. And that was a little bit of a surprise for me. I got to admit at that time, I was a little bit frightened by him — not because he was mean or anything — but because of who he was. And also all the other figures that I met that were really, really, really nice people.

And I remember that at that congress, one of the biggest lessons that gave me, I remember well, it was Kailash Bhatia who told me, we all start somewhere. So, check out what you want to do, and find your niche of where you want to work and what you want to do for working on the field. And so with that in mind, I got there and it was kind of an oddity because I didn't arrive and immediately go to the hospital. They still had a lockdown quarantine period when we arrived. So, we were like 10 days not being able to go out.

And after that, they welcomed me to the hospital. It was probably everything I wanted for, maybe more, because they are great people, very hardworking. They are very creative. They have a lot of ideas and have always a lot of things going in research and in the clinic.

And with the support of the Edmond J. Safra Fellowship, this was possible. Dr. Merello was always worried that I had everything that I needed to be able to focus on the program. And it was a fantastic experience because they have everything that a movement disorder fellow needs to get acquainted with the field. And they have a lot of experience training fellows. I was amazed. I was very, very glad to be there.

It was an excellent opportunity. And I don't think I could summarize it in one word. There are many things that I really loved. There was everything from making levodopa challenge tests to check for patients if they have or not a response to dopaminergic medication, to being present and being part of the evaluation of patients who undergo surgery for deep brain stimulation. The day-to-day experience with everyone there, which was also really, really great. They welcomed us and made us feel at home despite being very, very far away.

And I think that another important thing that obviously The Michael J. Fox Foundation and Edmond J. Safra Foundation emphasized is that they were

concerned not only for the research that gets made, but for the fellow and to provide a good environment for the fellow to thrive.

We are not only in clinic or in research. And they try to prevent us from forgetting that. And it was probably some of the best years of my career so far. From the beginning, Dr. Merello was very, very concerned what my wife would be doing there. My wife is an odontologist, and he brought us in touch with some colleagues there who he knew. So, we could see if she could pursue a course or something. So she could do something as well, not only me. He was always very thoughtful on that side. Not only on the clinical side, but always trying to keep that balance. I am really grateful to all the people I met there because they are very great at what they do.

**Marie:** I think that's wonderful. And I think being able to view the fellows as whole people, not just these individuals who are working in the lab or working in the clinic, but you have a life, you have a family, you have this whole world outside of work to think about as well. And it sounds like just due to everything that was going on in the world, Sergio, it was not easy to get there. But it sounds like once you made it to the hospital and were able to start working, it went really well, which I am delighted to hear. But can you share a little bit more about what you worked on there? Can you perhaps describe the research projects that you worked on there at Fleni?

**Sergio:** Yeah, there were two main projects I was involved with. The first one was the systematic evaluation of patients who undergo deep brain stimulation. That is, from the moment they are selected or considered candidates, I was appointed to make the evaluation before the surgery. Then I assisted the planning of surgery, the selection of targets, and then the postoperative evaluation, turning on the DBS, and then checking symptoms. I really liked that because it's a necessary thing that I learned there, that we need to perhaps rethink how we define success for the surgery. And I think that's one of my main research areas there — that I was focused on that under Marcelo's guidance.

And the second one was I was in charge of recruiting patients for a protocol of patients with multiple system atrophy, which consisted in making a clinical evaluation and performing some autonomic tests so they could be recruited or included in a study which is international, led by Dr. Kaufmann in New York. So, I was involved very much in those cases. And it was a great thing because really I saw perhaps 18, 17 patients with multiple system atrophy, which I don't think I will see that much patients in the rest of my career due to the rarity of the disease, but it got me very interested in that.

And from that, there was a publication derived where we analyzed the use of the scales for the disease along with a visiting fellow from Colombia. And I think

those were like my main research projects there. And after that, the main thing was not to forget the clinic. And so I always tried to attend or be with someone else in the clinic to not lose that side because if the fellow is oriented towards clinical research, I didn't want to lose the clinical side. And sometimes Dr. Merello sent me some patients which were challenging, like they had no diagnosis yet. So, I had to evaluate them and then present them in front of everyone else. Like everyone else does when they have challenging cases.

And I think that experience — it was important during the fellowship. We can provide each other with valuable input to avoid missing a potentially treatable diagnosis or to avoid getting cycled with some patient that has an uncommon disease. So, I think that's another take that I get from the fellowship that you have to do teamwork. Otherwise, alone, you cannot get very far.

**Marie:** I definitely agree. And I love to hear that you got some exposure and some unique opportunities both on the research side as well as on the clinical side. And I'm curious, Sergio, do you have an example perhaps of something that you learned during your fellowship there at Fleni that maybe has helped you now that you're further along in your career in research or clinical practice?

**Sergio:** Yes, definitely. It's the, I don't know if it's mindset or the directives, that Dr. Merello always emphasized we use when considering to perform some research on any topic. The first thing being the clinical message. What clinical message does the research want to answer or to give? And then after you have a clinical message that is sound, that is solid, that is coherent, logical, then you start to work up how to address that message or that idea to avoid fishing expeditions of, let's see what we can find. But he always emphasized the clinical side of the research.

It was like we wanted to do something, and maybe we got a little bit drawn towards MRIs or some nuclear study to evaluate patients. And he always tried to focus us again on the clinical message. And I think that's the most important thing because I find myself repeating that with residents who are here in the hospital where I work, when they try to present to me a case that they think deserves to be published or something that they find interesting.

And I find myself repeating that phrase very often. What is the clinical message? Because one thing that happens here, which can happen in a lot of places — that happened to me — is that sometimes residents, they think that they have to come to us (to the faculty) with the complete article just ready to be sent. And I tell them, no, you just give me what do you want to share from this case. What did you learn? What is interesting to you? And we work from there, which I think it's a direct lesson and a direct learning from my fellowship. That's the thing I

appreciate the most of all that I learned. Never forget that the patient must go first.

**Marie:** Certainly, I think maintaining that big picture perspective can be difficult to do. It's easy to sort of get lost in the details every day. So, let's talk about patient care. You mentioned the clinical perspective, the big picture clinical message is important. But how has this fellowship experience and training impacted how you care for patients today, Sergio?

**Sergio:** I think the most meaningful way that it has impacted my career is that I try not to reduce the patient to the mere number of a scale or a clinical rating scale. I use them a lot, but I try to always get what the patient feels and to see if the patient is doing well or not before deciding to make any changes or suggesting any modifications to the patient's treatment.

As I said before, and I think I'm quoting this from one of the books of Dr. Lees, that the patient must come first. And he also published recently a brief essay on the issues of clinical rating scales that we must not forget that we are, above all, clinicians. And sometimes scales, although useful, they don't capture the full experience of the patient. Then sometimes even although the clinical rating scale number is improving, the patient does not feel better or senses that has not changed anything. And the opposite is also sometimes true. This is not a surprise. It's something that — it's been going around the field for quite a time.

But I am interested in that: finding meaningful patient-reported outcomes. They represent really what the patient thinks is an improvement. And those measures also coincide or agree with what the clinician thinks is an improvement. I think that's one of the biggest challenges that we have. And to avoid reducing patients to a scale because then we lose the human side of medicine.

**Marie:** Definitely. I think being able to take this holistic approach is tremendously important because exactly like you said, someone may improve from this number to this number on a scale. But if they still can't do the things they want to do in everyday life, they may not sense that improvement. And kind of thinking about what we can do to measure things and to impact care to the extent that the patient is being able to achieve their goals and experience those meaningful changes I think is really valuable.

**Sergio:** Yes, and I think that's one of the things that I try to emphasize more whenever I work with residents, whenever I interact with them, that let's not forget the words of the patient. How is he feeling? Don't just look at them, right? How is he doing?

Because what I always tell them is if the patient's feeling well, just check that whatever you are doing, the treatment, will not cause the patient harm. And so,

you can leave it there. And if the patient's doing well and is not limited by the symptoms, don't change anything. As long as the patient has no risk of harm or the risk is minimal. And I try to emphasize that because sometimes when we are in training, we try to adhere very rigidly to medication dosages or like achieving certain metrics to consider that the patient has improved. And sometimes we forget that the patient can improve without significant change in the metrics we use. So, that's a big challenge for the field to reconcile those views in a meaningful way for both parts.

**Marie:** Definitely. And I think your responses thus far, Sergio, have really highlighted this investigative side or approach that you use, sort of inspired by Sherlock Holmes, where you might be able to pick up on some clues just by listening to the patient that aren't currently detectable with the tests that you're using in the clinic. So, I think this is a wonderful approach. And I guess, taking a step back to look at the field as a whole, how do you see this Edmond J. Safra Fellowship Program that you participated in having an impact?

**Sergio:** It's been 10 years now that the fellowship has been launched. And I think it's making a very big difference because we are not enough. We need more movement disorder specialists because they are debilitating diseases, and the need cannot be overemphasized. So, the Safra Fellowship provides a great opportunity for people in different backgrounds to get trained at highly-qualified service centers around the world. And it provides everything that one needs, not only the financial side that you need not worry about anything else but the fellowship, but also the networking, also the opportunities they provide, like this one, for example.

They are always trying to make everyone's voice be heard so everyone can say their experience, and they are open to learn from those experiences. I think that's one of the great things. And I think it's a great opportunity because it allows us to focus solely on the field, on training in both the clinical side and the research side and not having to worry about anything else. And being exposed or becoming part of a community that has between its members, some of the most respected scientists of the field. I think that networking aspect is also one of the great triumphs of the fellowship because you can approach with very much ease any of the top researchers in the field who are involved with the fellowship. And that's one of the greatest impacts the fellowship has had so far.

It will continue happening. I mean, every year we're more fellows. And I think it's still that we are not enough, but their objective is to train people like me who returned to where I was born and raised and try to start my own center here and train other people. And I think that's the objective. It's like they train us. We go back to where we came from, and then we have to grow there. And all that dedication to training us, we have to reflect it on those who come after us so we

can train them as well. Whether they pursue movement disorders or not, they have to know, particularly neurology residents. Their impact is not limited to the centers that train the fellow because the fellow then moves to another place and goes back to his home place, and then he starts growing the network there, and it's expanding. So, we can hope to cover most of the places that are underserved right now.

**Marie:** Definitely. I think you highlighted a really important point here with this sort of idea of the growing impact of the program over time as more fellows go out in the world and are then training people based on some of the experiences that they had and things that they learned in their own fellowship. And I definitely agree that there's just a great need in general for more movement disorders specialists right now. So, for people out there who might be considering moving into movement disorders, Sergio, do you have any advice or perhaps a message that you would want to give to early career clinicians and scientists who are considering specializing in movement disorders?

**Sergio:** I think that the best advice I can give is, get involved. And by getting involved, I don't mean publishing in a high impact journal. No. Getting involved begins at asking someone locally or writing an email to someone, reach out to someone you see in the movement disorders field because you will find that most of them are really open to collaborate and to help other people. I always tell residents here because it happened to me. You get sometimes frightened because you see the big researchers, you imagine I will write him, and he will ignore me. He will tell me, who is this guy? He is no one. And we tend to underestimate the capacity we have to make that contact and make it grow into an opportunity.

The field is one of the most friendly, I think. Almost everyone knows everyone, and they are willing to help to collaborate in some other way. And the field always welcomes those who are interested, and there are diverse societies which are all open to accepting members. Most of them have discounted rates for students or residents, so the opportunities are there, you just have to reach them. Because if you don't, someone else will take them. And it might be an opportunity that you let go which could have been a good moment for your career. Lose the fear, get involved.

And try to find a good mentor who supports you and wants to see you grow in your career. A mentor who is willing to push you further than you imagined that you can go. A mentor who sees your potential, because maybe when we are beginning, particularly when we are busy in clinical work, we cannot see our potential for developing in a certain field. So, I think finding a good mentor is essential for that.



And near the end of the fellowship, actually, I was curious why they selected me. And who were like the other applicants? And I remember the thing that drew their attention most, besides that I had some publications, and that I was interested in the field, and I had rotations (although brief). But I think the thing is, that I had my mind set on becoming a movement disorders specialist and that's one of the things that gave me much more points over other applicants. That's one thing that we can advise to those at the early career, try to focus your mind and your goals. And as I said earlier, the opportunities will arise, and you have to be aware and ready to take them.

**Marie:** Definitely, I think that demonstrated commitment is something that they'll be looking for in applicants. And I think that's something that you can kind of work into your application to better convey that.

**Sergio:** Yes, "commitment". That's the word. Because that's what convinced them. And overall, it was a great experience, and I think the opportunities are there. We just have to wait and sometimes be patient, and if the opportunity arises take them.

**Marie:** Certainly, well Sergio, these are all exceptional pieces of advice, so we appreciate you sharing them with listeners out there. And we also are encouraging listeners to check out movement disorders. Give it a chance. It is a vibrant and welcoming community. And I know there's so much cool research going on in the area as well, particularly in the field of Parkinson's disease, so Sergio, when you look out at the field, what do you see as some of the most exciting areas of opportunity in Parkinson's research or clinical care?

**Sergio:** I think that the most exciting ones right now, and which are surely the ones being happily debated, are the synuclein tests to confirm the presence of this abnormal protein, and it's used to define or to propose a biological definition of Parkinson's disease. I think that's one of the greatest advancements recently, but that we have yet to make a clinical sense out of it.

It allows us to have a little bit more certainty for patients who already have the symptoms because, as many clinicians will agree, the patient sometimes is frustrated because he has no test to confirm that he has Parkinson's or that he has a certain disease, so he feels like the diagnosis is a little bit uncertain. So, I think that is one.

And the second one is genetics. Genetics is going to pave the way for personalized treatments. And I think I'm going to misquote it probably, but Ignacio Mata was earlier here this year giving us a lecture on genetics, and he said that it is the key that will allow us to open new therapies for the disease and to have treatments that will allow us to slow disease progression. And one day,

find a cure — that it will not hit all — but it will be first for the genetic forms of the disease.

So, I think that field which intertwines with the synuclein test is one of the most exciting fields right now because we are beginning to construct or be able to have a better way to define the disease, or to classify the disease, than the clinical symptoms alone. But again, we should not forget the clinical side. The patient is always first. So, finding a good meaning and a good way to implement these tools into our clinical practice is going to be a challenge.

And one of the things that I find most exciting is that, I don't know if in many other fields this happens, but in movement disorders patients are quite involved. There are congresses like the World Parkinson's Congress which patients attend. And the lectures are stratified according if it's for clinicians, it's a mixed lecture, or only for patients. So, the patient can decide which lectures they want to go to. And I think that's a great thing because it provides the input from the people who deal with this day to day. That's always something that I like to emphasize to clinicians that you see the patient one time each 2-3 months. The patient lives with this every day. He has to deal with the disease every day, so we need to better serve them like finding a meaningful way of telling they have the disease and telling if they are better when we give them something

And I think this is one of the highlights of research in the field that patients are also getting involved, and caregivers also. And they have their say. Because in the end, it's who we are trying to benefit. Because if I give some drug that eliminates a certain protein but the patient says I feel exactly the same. I have still the same issues. Are we achieving something of progression? I mean, the drug is working but the patient is not better. So, those are the challenges that we are faced with in the next years — that we have to reconcile the clinician's view with the patient's view of disease and how it is defined and how progression is defined.

**Marie:** That makes sense. And Sergio, I really like that you are thinking broadly about this kind of new research that's coming out while maintaining that grounding in clinical care and thinking about the patient experience. And I think that's exactly the outcome that the Edmond J. Safra Fellowship Program was hoping for. So, it is wonderful to see, and we truly appreciate you joining us on the show to talk about your experiences today.

**Sergio:** No, thank you. I would like to thank you and also everyone at The Michael J. Fox Foundation and the Edmond J. Safra Foundation for all the opportunities they have presented during this time. I am more than happy to collaborate in any possible way, and also thanks to my mentors mainly Ingrid and Marcelo, who were my main mentors in the field. I still remember every day blessings they

have taught me during these years. And I am really really glad that the Safra Fellowship was granted to Fleni in that time — the first time it was outside of North America and Europe.

And I saw in The Michael J. Fox Foundation website, it was granted once again to Fleni, so I think that reflects that they are doing things really well. And the first experience which it allowed me was a positive one, and that has resulted in them getting the grant once again. So, I think that's great, and let's hope that the next fellowships are granted to more centers in underserved areas. I think that's going to help a lot to broaden our perspective regarding this disease and having more research in patients that are not usually well-represented in research.

**Marie:** Definitely. I think that's such an important point, and Sergio, thank you so much again for sharing your insights with all of us today.

**Sergio:** Thanks for the time. And finally, last but not least, a big thanks and my whole-hearted gratitude to my wife for all the support she provided during the fellowship and afterwards, and to my family, obviously. Without them, I think I could have not achieved the things I did and the things I want to achieve in the future. It was something that Marcelo and Ingrid always emphasized that, never forget the family, and try to find the balance. Also, it's really hard to have a work-life balance. Trying to find it is the first step.

**Marie:** I think that's wonderful. I agree that having that support is critically important. And we truly appreciate all of the amazing work that you're doing in Parkinson's disease, both on the research and the clinical care side. Well, Sergio it's been such a pleasure to chat with you, and to our listeners out there it's been great to have you here with us as well.

If you want to know how The Michael J. Fox Foundation can help your research, please visit [michaeljfox.org/researchresources](https://michaeljfox.org/researchresources). And as a reminder, the Edmond J. Safra Fellowship in Movement Disorders is currently accepting applications. They are due the first week of December. If you're interested, please visit [michaeljfox.org/funding](https://michaeljfox.org/funding).

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