

Behind the Breakthrough Podcast - University Health Network

Season 4 - Dr. Andrea Furlan

Transcript

BTB

This is behind the breakthrough, the podcast all about groundbreaking medical research and the people behind it at Toronto's University Health Network, Canada's largest research and teaching hospital. I'm your host Cristian Coté and on the podcast today, Dr. Andrea Furlan, award winning senior scientist at UHN's Toronto Rehabilitation Institute Research Center called KITE which stands for knowledge, innovation talent everywhere. Dr. Furlan is pioneering research and treatment for chronic pain, including the concept of deprescribing and the five M's are leading a profound paradigm shift in the way patients with chronic pain are cared for, to help them live healthier lives. Dr. Andrea Furlan, welcome to Behind the Breakthrough.

DR. ANDREA FURLAN

Thank you very much for inviting me to be here today.

BTB

Let's start big picture. We all have a pain system that alerts us to threats to our bodies, there's acute pain and chronic pain. Give us a brief overview, Andrea of these two very distinct kinds of pain?

DR. ANDREA FURLAN

Yes, acute pain is normal pain is the pain that we all have when something is broken, when there is a disease. If we have an injury, or lesion in our body, we need to be alerted. In fact, there are people who are born without the ability to feel pain, there is a genetic disorder, and they can't feel pain. And they can die early because they don't know that they have injuries. So pain is protecting us. And then we have this alarm system in our body that is there to alert us when something has been damaged. But this alarm system can break itself and can be malfunctioning. And when this happens it's like the alarm system of the houses just malfunctioning and it's laying off and making a lot of noise, or the volume of the noise that it makes us too loud or is constant never stops. And this is chronic pain is when the pain system is malfunctioning.

BTB

Okay, so this notion that chronic pain is alerting us to a malfunction in our pain system. And it needs rewiring, how well understood is this?

DR. ANDREA FURLAN

Not a lot. So unfortunately, there's concepts of the pain system. And the discoveries of where this pain system can break are relatively new to medicine, they have been discovered in the past 30 years because of functional MRI, PET scans. So a lot of physicians who are practicing today, they never learn this in medical school. Actually, I did not learn this in medical school 30 years ago that we have a pain system and this pain system can break. And so people who may be, not all chronic pains are this, let me just tell you this, some chronic pains are a sign that there is a constant ongoing injury to the body. But the majority is just dipping system is deregulated. And because a lot of physicians don't know this, they keep treating chronic pain the same way that they would treat acute pain. And we now know that they don't work. And that's why people keep going from one professional to another. They see multiple specialists and they get tons of MRIs, even surgery injections, and they don't get better. It's just because they're trying to put out a fire that doesn't exist.

BTB

Okay, so walk us through this is really the focal point of your research. Andrea, talk to us about diagnosis first, how do you pinpoint chronic pain?

DR. ANDREA FURLAN

Yes. So when a person has a chronic pain because their pain system is malfunctioning, they have also other symptoms. That's what directs us to realize they have a chronic pain primarily, that's the name is chronic primary pain because the disease is primarily in the pain system. So the pain system is not just pain, they have other symptoms that come in the syndrome, the constellation of symptoms, and the most common diagnosis is fibromyalgia. So if you heard about fibromyalgia, Fibromyalgia is a constant pain everywhere in the body, everything hurts, it never goes away. And so it's impossible that the person is having injuries in every single part of their body. So the injury must be somewhere else. It doesn't mean that they are imagining the pain that's not real. The pain is really, really real. But the problem is that the disease now is in a different place. So you don't look at the knee, the ankles, the low back, the neck, the arms. You look at the pain system.

DR. ANDREA FURLAN

And when you look at the pain system, you find all these symptoms. They're sleep is disrupted. They are insomniacs at night and fatigued during the day. They have a very deep fatigue that doesn't get better with rest. They have their mood is depressed. They get anxiety symptoms. They have problems with the sensitivities, they're sensitive to noise, loud noise, lights, changing temperature, even people touching them. So like the skin becomes very sensitive, and they tell me even a hug hurts. So you have to look at the person as a whole and start investigating all the symptoms. And then when you look at

the laboratory exams, the blood tests, the imaging studies, they're all normal, of course, because the body has healed, but it doesn't mean that the person does not have pain, they need to be validated because the pain is very real.

BTB

Do you have a sense of the scope and scale of chronic pain suffering in Canada these days?

DR. ANDREA FURLAN

Yeah, so in the world, there are many groups that have looked at how many people suffer from chronic pain. And the numbers are really frightening because in adult population, it's one in five, we're talking about 20% of the population. And the older the population gets this can be one in three. Children also have chronic pain. So when you think about migraine is a kind of primary pain. Migraine is not anything that is wrong around the head. Migraine is a type of primary chronic pain. The other one is fibromyalgia. The other one is chronic back pain, chronic neck pain, Complex Regional Pain Syndrome, irritable bowel syndrome, chronic cystitis, which is the bladder painful bladder syndrome. So when you start putting all of this together, you see that it's not rare and if you add other types of chronic pain, like arthritis, neuropathic pain, those are not primary pain, arthritis is not a primary pain. Arthritis is a secondary pain.

DR. ANDREA FURLAN

The person has pain in the joints because they have an inflammation in the joint. And neuropathic pain is when the nerves are damaged. So that's not primary pain, they have a reason it's the nerve is an aroma it's post surgery. When a person has surgery, and they may cut the nerves, the surgeons have to cut a lot of nerves to get to the place of surging, and they may create neuropathic pain, and also there's primary pain. So when you start putting all of this together and look at how many surgeries we do every day in Canada, and we know for example, the incidence of chronic pain after surgery can be 30% C section, hernia, inguinal hernia repair, mastectomies, thoracotomy, surgery for cancer, because they have to cut so many nerves and they can create chronic pain.

BTB

And how have we typically treated chronic pain in the past?

DR. ANDREA FURLAN

Yeah, imagine the treatment for chronic pain is complicated, because you want to relieve the suffering, the person comes to you and they are suffering, they are tired of that pain, it has affected their life. So it is easy for the physicians to just want to alleviate that suffering and prescribe them medications. That's the easiest thing, you give them a piece of paper and they leave happy. So if that medication includes strong painkillers, the patients will feel better. Initially, they will feel oh, wow, this is great. And someone finally gave me a medication that works for my pain. And they will start using that every day, they will start being more active. But especially if that's opioids, that will create a second problem because if a

person takes opioids every day, they become tolerant, the body becomes tolerant, which means that they need to take a higher dose. And if you start giving higher and higher doses, now the opioids are going to activate receptors in the pain system that actually increase the volume of pain and they will be causing more pain instead of relieving more pain.

DR. ANDREA FURLAN

So the pain transforms from a let's say, a simple localized pain now starts spreading, it's almost like putting gasoline on the fire. And a lot of patients don't know this. And physicians don't know this. And not only they get more pain, but they also may get into trouble with addiction, overdose, especially if they take other medications for mood for anxiety, medications that are depressants, they can die of an overdose, they can cause an accident if they are behind the wheel, and they are sleeping behind the wheel. They may not be so productive at work, and they may make an error at work. So there's so many other consequences, they may develop sleep apnea and have a stroke. So we now are much more careful to whom we prescribe opioids, especially opioids, if they have chronic pain.

BTB

Alright, so let's move into your pioneering research in this regard in terms of better understanding and educating people on the fact that chronic pain is a malfunction in our pain system and it needs rewiring. Let's first deal with the actual methods of effective treatment to rewire the patient's pain system. First, your notion of deprescribing what does this involve?

DR. ANDREA FURLAN

A lot of people come to our clinic, the pain clinic at Toronto Rehab, because they are taking lots of medications and they are still in pain. So the first thing that we take a look at is, are these medications really doing something for your pain, and they are usually not and we start deprescribing means we will be reducing the dose and eliminating those that are not necessary. And it's hard sometimes to know which one you start, I go one by one, we never taper a lot of them at the same time. And we usually do a slow taper. And so it doesn't need to be the opioid the first one. Sometimes we taper and deprescribe other medications, the medications that make them sleepy, the medications that are there for neuropathic pain, like nerve pain, but they don't have a nerve pain, and so as we start reducing those, they become more alert, they become more functional. And a lot of people tell me really, I don't know why I was on that medication for 10-15-20 years because I am feeling the same. But now I don't have the side effects of that medication.

DR. ANDREA FURLAN

So the concept of deprescribing is not new. It has been done a lot by the geriatricians who are the doctors of the older adults, they do this a lot to reduce to the minimum minimal necessary medications that a person needs to be. But when you do this for opioids, you need to be very careful. Because when a person stops taking opioids, they may have withdrawal symptoms. And those symptoms are horrible. The person tells me, they feel like they're going to die. That's how they described, they say that it's 10 times the worst cold or flu that they had in their life. So we don't want to make people suffering. We

want to make them comfortable. And there are ways and I teach this a lot. That's what I do a lot. I teach other health care professionals, physicians, nurse practitioners, pharmacists, physician systems, how to select the patient that we will deprescribe.

DR. ANDREA FURLAN

How do you select which drug you need to deprescribe first. And then how is the protocol that you're going to use to deprescribe safely without putting the person at risk and suffering more and sometimes we have to stop, I just say, Okay, we tried to deprescribe, but we are making you worse, and we will stop here and we may revert back to what they were before. Or we may continue or or pause for a few months and try later in the course of their disease.

BTB

And I understand Andrea at the same time as you introduce deprescribing, you also look at a new kind of treatment plan something you call the five M's.

DR. ANDREA FURLAN

Yeah, five M's. I did this because I need to remember, it's for my own memory. So for me the five M's is just an easy way for me to memorize the alternatives to that we can have for treating pain, and the M's stands for. I like to start with movement. My first M in my list of five M's is movement. Other people call this exercise but I like to call it movement because movement implies everything when you say exercise, usually the person think about going to a physiotherapist or going to a gym. But movement is much more than that you can move anywhere, even if you have a staircase at home. You can do movement, you can go up and down. You can do stretches, and you can do a movement in your bed if you are bedridden and you just had surgery. So movement is the best strategy for chronic pain actually, to rewire the pain system that will we're talking about here. There is a lot of evidence that movement plus the second M, which is Mind Body therapies are the best treatments for chronic pain and when you combine movement for the body and mind body exercise.

DR. ANDREA FURLAN

So I tell them you have to do exercise for your mind and exercise for your body, physiotherapy for the brain and physiotherapy for the body. And when you combine these two, it is amazing. That's when you start getting people really to success from the chronic pain, twenty, we're talking about 20 years of feeling pain everywhere. And now they are not feeling pain everywhere. They're going to dance. They're going to the beaches, they're walking, they're enjoying their lives with very little medication. So the other M's are manual therapies, like massage and manipulation things that are touching their bodies. The other M is modalities, things that are for example electrotherapy like you buy a tense machine and you apply to your body or acupuncture then you stick needles to the body, or heat and cold. And the last M is medications. So I tend to resort to drugs, pharmaceuticals medications as my last resource. Not that I don't like them. I really like them. We need them, but they are not my first choice.

BTB

Do you know the mechanism of action of the deprescribing in combination with the five M's and particularly the first two?

DR. ANDREA FURLAN

Yeah, so for example, when we deprescribe opioids, we also deprescribe other things. We deprescribe cannabinoids, we deprescribe benzodiazepines. We deprescribe antidepressants, anticonvulsants. It's amazing they cocktail that these people come to me. But when you deprescribe opioids, what happens is the opioids, especially higher doses, they attach to receptors in the pain system called NMDA receptors, and they increase the volume of pain. So that's very well established. The name of this phenomenon is called opioid induced hyperalgesia. Hyperalgesia means more pain, so it's more pain caused by opioids. We like some long names and complicated names. So opioid induced hyperalgesia is the technical name. So we know that if a person is on high dose of opioids, and we start reducing the dose, the tendency is that those receptors, the NMDA receptors, will now be free. And they will be blocked by magnesium like magnesium that we eat in supplements or in our food, and the magnesium will block those receptors and will come down so the volume of pain will be released.

DR. ANDREA FURLAN

And we know that when a person does mind body exercises, what they do is they activate their own inner pharmacy. Believe it or not, we have inside of our brain actually it's in the brainstem. We have a powerful pharmacy, amazing pharmacy that can release opioids, endorphins and ketamines, diamorphines can also release cannabinoids called anandamide and those powerful painkillers, they travel all over the world, the body they travel to or you know, wherever we need them for pain. And they don't give any side effects because they are releasing tiny doses exactly where you need. So what those exercises do the mind exercises and the body exercises they activate the inner pharmacy. We all know that people will do they run a marathon or they compete, they produce a lot of endorphins, they produce so many endorphins. Endorphins is much more powerful than morphine. It's they do get high. Some of them do get a little high after they do this exercise. I'm not the kind of person I don't like exercise. I never got high off exercise. I just do because I have to do. But some people do feel the high because those are opioids and cannabinoids.

BTB

Yeah, the runner's high.

DR. ANDREA FURLAN

Yeah, the runner's high, and you don't need to feel the high to get the benefits of opioids. But the problem Christian is that in people who have this malfunction, you have the pain system, the pain system now will feel more pain when they exercise. So guess what? The patients who have this deregulation of the pain system when they exercise, they don't get the high, they don't feel the relief

right away. And they come to me and say, you told me to exercise but my pain just got a lot worse. So we need to teach them pacing. It's another technique.

DR. ANDREA FURLAN

And then we tell them well, but that's because you tried to do everything that you used to do before you're pain and you try to do everything in one day you need to go slow. So you need to readapt to the new normal and in start increasing those periods, then you do exercise to adjust so you're training your pain system again. It's like someone doesn't start running a marathon without training. The training to run a marathon involves concentration of mind, mindfulness involves nutrition, involves sleep involves physical training. The same thing with pain, you need to do all of those if you don't sleep, if you're not eating well, if you don't do your mind concentration exercise, and it can make you not be ready to train your body.

BTB

Is every chronic pain patient that comes to you suitable for the five M's and deprescribing?

DR. ANDREA FURLAN

No, I wish that it was that easy. And I would have just one template and give to everybody. No, unfortunately, people are very different and people have also different backgrounds and different stories. We know that people who develop chronic pain like those who have a predisposition to break they're pain system. I don't like to use the word break, I say malfunctioning deregulation of the pain system, okay? There are people who have a risk factor to have a chronic pain, I'll give you an example. Two people can have the same kind of injury to their body, exactly the same could start with a shoulder injury. But the two people, one will develop chronic pain, the other one will not. Now we know what are some factors that predispose one person to develop or not. So we need to understand those factors. Because if you don't tackle those factors, the pain will come back, because you didn't go to the root problem, some of those root problems we cannot fix anymore. So we know that people who had a very traumatic childhood experience they grew up in a home that it was very traumatic psychologically, they grew up with a psychological stressors, they don't develop the pain system so well.

DR. ANDREA FURLAN

So when in adult life, when they're exposed to a, let's say, a simple shoulder problem, it may break their pain system, because a pain system was not resilient, to fix itself to stop the pain. We cannot go back to the past, we can't fix their childhood. But we can do therapy now. Counseling, psychotherapy, so the person will understand that and once they make that connection, they go back to their past, and they forgive themselves and forgive whoever caused the problems to them. And that helps forgiveness therapy helps. There are also other risk factors that are happening now. So if the person is very frustrated with their work with their boss, they don't have a lot of job flexibility, or they have a terrible current present household situation, that may affect how they will respond to a acute pain, they may develop chronic pain. So we need to help them to see this. And that's what the psychologists the

counselors will do, they will help them to see that the mind aspects distress or that they're living right now need to be fixed, they need to be handled, managed, so they don't break their pain system.

DR. ANDREA FURLAN

So that's a long answer to your question. But that's just saying that each person is different. Each person with chronic pain has their own history, their own past, their own current situation. So I can tell them about the five M's. But if I don't talk about their home situation, they may have a child who is having a lot of problems, they will not sleep well, they will not eat well, they will be constantly stressed. And a lot of stress perpetuates this chronic pain. Our counsels for chronic pain take at least 90 minutes, if not more, because we need to get so many details.

BTB

I'm curious what patients say to you, when you tell them if they are a candidate for your treatment, that you're going to taper their opioids or pain meds and replace it with the you know, meditation and movement. How do they react?

DR. ANDREA FURLAN

So if I don't explain to them why I'm doing all of this, they don't understand. They they think that I am just trying to get rid of them that I don't want to treat them. I heard this many times they say, if you don't explain to me if you don't spend time talking to me about this, I don't understand how are you going to remove my painkillers and tell me to exercise? Well, they wait to see me many months because I have a very long wait list. And they say I waited so long Doctor Furlan to see you. And now you're telling me what my mother would tell me to eat well, to sleep well, to exercise and to relax my mind? And I said yes, that's the best advice that we have at this point. But I think once I explain to them, what is fibromyalgia? Where is in your body that fibromyalgia is where is the problem? Once they understand and once I tell them I know how you're feeling I believe that you have pain.

DR. ANDREA FURLAN

They heard from so many other doctors that oh you're pain is in your mind. Just go and distract yourself. Go shopping and your pain will go away. You just need to relax you're too stressed. So they're dismissed. Once they understand that I know how they're feeling that their pain is real, that they have all these normal exams. They bring me boxes or bags full of results. And I tell them, I know how frustrating this must be. But believe me, I have helped so many people with these strategies. Let's try and at least those who are willing to try they come back and they thank me. But I guess there are many patients who don't want this advice, and they will keep looking for other physicians that will inject them, they will do surgery that they will keep doing MRIs until they find what is wrong.

BTB

So once you've hit on this notion in your research that chronic pain is a malfunction of the pain system in our bodies, and it needs rewiring, what kind of data or evidence have you gathered using deprescribing in conjunction with the five M's to show that it's working?

DR. ANDREA FURLAN

Yes. So we collect every patient that comes to our clinic, we collect every visit, the pain diagrams, the pain intensity, the pain interference with their daily activities, those are validated tools. And we know that in about 1/3. And so it's not everybody, it's about 1/3 of patients, they really get better. They say, Oh my God, I don't know why I was on that pain pill for so many years, I'm feeling so much better. Thank you, Doctor Furlan, bye bye. The other 1/3 they don't get better or worse, their pain is just the same. Which is sad, because chronic pain is a chronic disease. And we wish we could now make them better. But sometimes it's impossible, they will have pain for the rest of their lives. Because some of those changes are permanent. But at least they're not having the side effects. They are not at risk. Risk of sleep apnea, the risk of having an overdose, and constipation, sleepiness, sleeping behind the wheel, etc. But in some patients, they will be worse, they will feel worse because of those withdrawals. And also because we know if they have been on opioids for months, years, which is very common, they suppress their ability of their inner pharmacy. Remember that I told you, we have this inner pharmacy in the brainstem that produce our own opioids and cannabinoids, it's suppressed forever.

DR. ANDREA FURLAN

So when we try to reduce the dose of the opioids, that inner pharmacy doesn't want to work anymore. It's permanently abolished, done, gone. So in those patients, it's going to be impossible to ever reduce their dose of opioids. So they will have to be on those. And we try to reduce to the minimum possible that we can, and then I discharge them and it's at the hands of the family doctor to continue prescribing. And I usually communicate with the family doctors, I've been teaching a lot. So that's what I've been doing a lot in the past 12 years. Since 2010. When I released I was the leader of the Canadian opioid guideline, that was the first Canadian guideline for opioid prescribing in Canada was published in 2010. And I had the privilege of being the leader of the research team that developed and published that guideline. So since I published that guideline, I have been going all over the country from coast to coast, teaching doctors, nurse practitioners, how to prescribe safely how to deprescribe safely. And as I said, sometimes will be impossible.

BTB

I want to get into that education aspect of how you're leaving your research, Andrea, but first for patients, what kind of timeframe are they looking at for benefit when it comes to that 33% that it's helping?

DR. ANDREA FURLAN

Yeah, it depends on how long they had been on opioids, and what was the dose that they had been. So if they had been many years on a high dose of opioids will be harder, will take longer compared to someone that just started taking opioids, let's say a month ago or two months ago, and they had not

been reached a high dose. So I usually tell my patients that it will take one month for every year that they had been on opioids. So I had seen patients who had been on opioids for 15 years. And so we planned should taper over 15 months. And they were okay. They said okay, 15 months it's slow, and the body will adjust. So we will not feel those withdrawals. Actually, we can do faster than that. When I planned, let's say 15 months. I usually can do that in six, eight months.

DR. ANDREA FURLAN

But sometimes, if the patients have a event in their life, like I had one patient that her mother died when we were doing the taper, she came to me and she said, Can we pause because I'm not ready. So we paused for a few months and then continued later. Again, people are different. I had patients that we planned for many months. And they came back to me a month later, and they had reduced dramatically almost stopped. And they said I just did that it was almost like some people have experienced quitting smoking. It's about the same thing. Sometimes you need faster you need to go slower. Sometimes you need a couple of attempts until you get successful.

BTB

What's been the reaction of the healthcare system to your treatment approach of deprescribing and the five M's?

DR. ANDREA FURLAN

It's interesting that you asked that because this is a field that is very polarized. There are healthcare providers and patients who are very adamant that opioids are helpful, and there is no reason to taper, no reason to rock their boat. That's how I sometimes tell the patient let's rock your boat a little bit and you have been comfortable for 15 years on the same dose. Can we shake a little bit and it will make them feel uncomfortable? Some people don't like that. And some healthcare professionals, physicians, they don't want their instability, because now the patients can be calling them on the weekend not feeling well. I'm on withdrawal. What do I do? Where do I go? We have also another option, instead of just deprescribing, we can switch the opioid to another opioid, like methadone, or buprenorphine, which are safer opioids. But that's another story.

DR. ANDREA FURLAN

So there are healthcare professionals who say I don't want to do it, I am not prepared to do it, it takes too much time, it's a pain for me for the patient, we'll just keep the way it is and that all the physicians or the healthcare professionals who really embrace this, and they know it's going to be work, it's more work to deprescribe the opioid than to prescribe to prescribe it's easy. You just keep prescribing, increasing the dose, and go, there is no limit. But to deprescribe, you're going to make the patient feel uncomfortable. So not a lot of people want to do that. And for this reason, we do have a lot of limitation, I have many courses and many different flavors for people to attend. If they want to attend in person, if they want to attend online, if they want to attend live, virtual, we have all kinds of offers for them. They don't have an excuse to learn. They just need to put some work in and help their patients.

BTB

On this education front. Talk to us about how you're reaching doctors to what's called the Echo network?

DR. ANDREA FURLAN

Echo program. Yes, yeah. So as I said, since 2010, when I published the guideline, I have been invited to go everywhere to teach how to prescribe because some people with chronic pain, they need opioids, and the physicians, nurse practitioners, they need to know when is that situation and do it. There are neuropathic pains, there are no susceptible things they need to prescribe opioids, so don't be afraid. And then there are other situations that they don't need to prescribe opioids and they need to remove the opioids. So I do have many options for healthcare professionals who want to learn and one of them is funded, with funding from Health Canada, I developed a online course. And this online course is open to anyone in Canada, healthcare professionals in Canada. And they go and they take a three hour online whenever they want, wherever they are, as long as they have a stable internet connection. They can do that to get certificate, that's one way. But I'm not there live. The other one is Echo Project Echo was funded by the Ontario Ministry of Health. And now we also got funding from Health Canada to expand this to other provinces. So what Echo is I'm live there in front of a zoom camera with the whole interprofessional team that works with me.

DR. ANDREA FURLAN

So I have other physicians, psychiatrists, neurologists, addiction medicine, we have psych, no physicians, we have psychologist, pharmacists, nurse, social worker, physiotherapist, occupational therapist, chiropractor. So we have all these professional sitting in front, a zoom camera, just to discuss cases that any clinician, any clinician, any healthcare professional in Ontario, who has a case of a patient that is complex to them, they're having questions, they want to provide a better care for that patient, they present to us and they present to the whole network. So one person presents the other 60 who are attending and registered and learn. And we're the experts. We also learn, everybody learns from that case discussion. And that patient who is being presented we don't know their name, it's anonymous, deidentified case, but that person gets a one hour discussion about their pain. So if we recommend to deprescribe the opioids, then we will discuss how are we going to treat that pain because a person still has pain? Are we going to use the 5 M's? Are we going to use modalities? Where do you find this or the person lives in a rural area of Ontario? What are available to them right there. So we spend an hour discussing one case every week. We are there in front of the camera every week since 2014.

BTB

And I understand you along with the team at KITE developed an app, the opioid manager, what does the app do?

DR. ANDREA FURLAN

So the app was developed in 2012. Actually, we have two apps. So the opioid manager and the my opioid manager, and the opioid manager is for the physicians, clinicians prescribing the opioids. So they what the app does is it guides them. It's a summary of the guideline. Basically, it's a summary of what the guideline says the doses, how to convert from one opioid to another one, because you don't want to make a mistake, that's for the clinician, and the my opioid manager is for the patient receiving opioids, we actually have a book too. So it's an app. And there is a book that people can download for free. And both apps are available for free. Now they can download from iTunes, but the book is free, and people just go to opioid manager.com. And they can have all this information.

BTB

You are such a champion of education. When it comes to chronic pain. I know you've just mentioned your book, the apps, the Echo network, but I have to make mention of the fact that you have this unbelievable YouTube page, where you talk to and educate patients and clinicians about chronic pain. You have close to 400,000 subscribers and videos with millions of views. How do you explain this engagement that you're getting on YouTube?

DR. ANDREA FURLAN

Yeah, I started posting in 2019. I record with my cell phone, no high tech I record at home. And what I do is, I just record what I repeat in my clinic 10 times in a day. I find that when I am in the clinic with patients, things are rushed. And I really like to educate the patients, I like to explain to them what they have, especially if I'm going to deprescribe opioids and I want them to exercise. I want to motivate them why they need to do that. Because I think if they don't understand the why they will not follow my advice. So I was frustrated because I wanted to spend time educating them. But you know, they were knocking on my door saying, Dr. Furlan you have two other patients waiting for you outside. And I just came home one day and I said I'm going to record myself and put myself on YouTube and tell my patients to watch if by making a diagnosis of fibromyalgia, then tell them watch this video. This is me explaining 17 minutes, what is fibromyalgia. So my patients started loving it, they really came back and they said I love it because I can show it to my husband, to my daughter, I can rewind you because I speak too loud, too fast. I put closed captions.

DR. ANDREA FURLAN

Some people don't have English as their first language. So I put closed captions in 44 languages. And those are because I didn't start putting 44 language I just kept adding these languages because my patients came to me they said, Dr. Furlan I don't understand your English. I said okay, what language do you speak Greek? Okay, let's add Greek to all the videos. Romanian, Bulgarian, Croatian, Ukrainian, and Russia and everything. So they keep asking me and I keep adding more and more closed captions. So they go home, they listen with the closed captions. And then when I speak a long word, like Central sensitization, which is a mechanism of fibromyalgia, then they can read I put the words behind my head so they can read and understand what is that she's saying? Yeah, what is this long word? So I guess I did for my patients, but it doesn't mean that I have 35 million patients because 35 million views so far, people from all over the world, every single country that YouTube is present has viewed my videos I feel so honored to be entering people's houses in Nepal, for example, I have people

who follow me from Nepal. And they write comments and they say, you are amazing Dr. Furlan because you have helped me with my pain. And when I get a comment like that, I really feel touched and privileged and blessed that I can just invade these people's houses and privacy and have an impact on their lives.

BTB

How is the med school curriculum, addressing this issue of chronic pain nowadays?

DR. ANDREA FURLAN

Yeah fortunately, things are getting better. I am proud to say the University of Toronto has been a pioneer in this area for almost 15 years. Not all medical schools are still on the same page teaching this but University of Toronto has a great program. It's a whole week that we teach a class of 1200 students. So this 1200 Students means for one week, it's called the pain week. We have students from medicine, nursing, pharmacy, dentistry, physiotherapy, occupational therapy, social work, and physician's assistants, all in the same class learning about pain, acute pain, chronic pain, cancer pain, neuropathic pain, treatments with medications, treatment with cannabinoids, treatments with exercise, so it's all crammed in one week, but they are bombarded with the best evidence with the best studies with the most recent studies, scientific studies. So I think we are forming a better generation now in terms of pain at least from the U of T.

BTB

You're also a longtime advocate for National Pain Strategy. How would that work? And how would it help?

DR. ANDREA FURLAN

Yes, yeah. So fortunately, the federal government has requested a task force. And a lot of people with lived experiences of chronic pain, combined with professionals, clinicians, scientists have come together in a three year plan and they released the Canadian pain task force report, which is for a National Pain Strategy. And the National Pain Strategy has recommendations for the federal government. And those recommendations are starting to be put in practice. And there's also a national push to do more research in pain because believe it or not, even though pain affects 20% of the population. Of all research funding that is awarded in Canada, less than 1% involves pain. So we need to improve that, we need to find better treatments, how to access treatment, how to educate the generations who are coming out of university, but also those who are already practicing and they don't have this knowledge. So there is so much that we need to do children with pain there's a lot of opportunities there. Seniors with pain they're neglected and actually there are a lot of studies showing that people don't even care if a senior complains of pain. They think it's normal aging, which it's not there are so many good treatments for chronic pain in elderly population, and they don't need to suffer unnecessarily.

BTB

You're listening to behind the breakthrough, the podcast all about groundbreaking medical research and the people behind it at Toronto's University Health Network, Canada's largest research and teaching hospital. And on this episode, we're speaking with Dr. Andrea Furlan award winning senior scientist at UHN's Toronto Rehabilitation Institute Research Center called KITE. Dr. Furlan is a renowned pioneer in the study and treatment of chronic pain. Andrea, you were born and raised in Sao Paulo, Brazil, and as a child, you were in and out of hospital, I understand due to bronchitis. And as a result, you grew up admiring, and looking up to healthcare workers. And that inspired you to enter med school in 1987. Five years later, you achieve that dream. Talk to us about the medical practice you built up in Brazil starting in 1992.

DR. ANDREA FURLAN

Yes, so my mom said that when I was a child, I finished one antibiotic and started another one never was out of antibiotics. I was always sick. So I had to be a lot in, you know, visiting hospital and I really admired in Brazil, all the physicians, nurses, they wear white, white shoes, white, not white coats, white clothes. And I really found that was so beautiful. And all these people knew everything, and I wanted to be one of them. My grandfather told me that by age of four, I was saying that I wanted to be a physician. So my dream came true. When I was just 23 years of age in Brazil, you get to be a physician at much earlier age, because you finish high school and you get straight to medical school. So by 23, I was a physician and by 26, I was a specialist. And I always been fascinated by pain for me when I was choosing which specialty to select from so many that I liked. I was intrigued by pain, especially because of a patient that I saw when I was on my fifth year of university medical school. And she had pain all over her body. We admitted her to the Internal Medicine ward. I was the intern. Nobody knew what she had. They ordered all kinds of exams. And here comes the physiatrist Dr. Wu and he came with his acupuncture needles, he stick needles on her. And she the next day we discharged her. She was pain free and she was so happy. And then I said, What is this? I stick to Dr. Wu and I said, what is physiatry I never heard about physiatry. So he convinced me and that's what I did physical medicine rehabilitation is a specialty of medicine that I chose. And I really enjoy.

DR. ANDREA FURLAN

Because physiatry is the medicine is the physical medicine, rehab is a special treat of the person with disability. People who have amputations, stroke, quadriplegic, paraplegic, or any other condition that they lose a function of their body. And physiatry is the I think it's an amazing specialty for pain because the person who has chronic pain is disabled, they just have an invisible disability, they don't have anything to show, but they behave and they function like a disabled person, because they are losing a function. And when you lose a function, you need a rehabilitation physician. And we in physiatry, we learn about neurology, rheumatology, orthopedics, internal medicine, pharmacologist, so we are very rounded to be a physician for the person with chronic pain.

DR. ANDREA FURLAN

So when I finished my specialty, and I was doing acupuncture there, I had a practice that I was doing private, I couldn't actually acupuncture, what it does, the needles don't do anything, actually, it just stimulates your inner pharmacy to release those endorphins, pain killers that we have in our brain. That's what it does. So I started having a pain clinic there as soon as I finished, but then my husband decided, let's leave Brazil, and let's immigrate to Canada. And here we came in 1997 without knowing, you know, what we were going to face here starting from scratch, and leaving everything behind there, starting a practice or medical practice that was going really well and had a job offer at the University. And I said, Okay, let's see what's going to happen in Canada.

BTB

Well, to that end, I'm curious, I understand. You landed on a very cold December day in 1997. And you landed in a country that did not recognize your medical degree, you've left your family, your homeland, what's going through your mind that day that you arrived?

DR. ANDREA FURLAN

I remember that day very well. I remember it was dark, because our plane landed, I think six o'clock in the morning, on a December 3rd, 1997. And I said, Where am I going to live? Where will be my house? Where am I going to work? What am I doing here? Nobody knows me here. But I didn't give up. I didn't. I said okay, if we are here, I'll try to do my best. And everything that people gave for me to do. I did my best. My philosophy is, no matter what the job is, if they give you my first job was just to read some papers and summarize, it was a volunteer job. They gave me a pile of paper said, Can you summarize this paper scientific publications and make some sense out of this? I took that as a very important task. And when I presented those results to my mentor, she said, Oh, Andrea, we need to publish this. You just did a systematic review. I did not even know what that was a systematic review was, and I had done one. So I study a lot. I self teach a lot. If I don't know the answer, and I can't find someone who knows the answer, I will go everywhere to find the answer.

DR. ANDREA FURLAN

I had two amazing mentors who opened the doors for me and guided me and both are at UHN. Dr. Claire Bombardier is a rheumatologist at UHN and Dr. Angela Mailis-Gagnon is a physiatrist, who just retired a few years ago. And now she works in a private practice of physiatrist pain medicine specialist. So those two women and a lot of other people in my path. That helped me immensely and saw some potential. They gave me advice. But one thing is you take the advice, and you do it when they ask. So when Claire Bombardier asked me to go back to school, I did not want really, I want to have my family. I want to have kids, I am in Canada. I'm glad with this. I was a coordinator for the Cochrane Collaboration back review group and I was happy. She saw in me some potential and she kind of said no, you are going to graduate school again. Oh, no masters. I started with Masters move to the PhD. And when I finished a PhD I thought everything was done. And then Dr. Gaetan Tardif and Dr. John Flannery at UHN, they invited me to come to be a physiatrist at Toronto Rehab. But before I did that I had to do a clinical fellowship, I said two more years of school. Oh no. My mother one day she called me I was almost 40. And she called me said, Andrea, when are you going to really get a real job and

stop being a student? Yes, so I think I started with a real job when I was 39. But that's okay. I took me a lot of years, but it was worthwhile.

BTB

Do you ever feel pressure in your work?

DR. ANDREA FURLAN

Yes. Some days are better than other days, I have a lot of control of my days, which is good. It gives me flexibility. I choose what projects I want to tackle. I choose my schedule, I have a wonderful administrative assistant that keeps me organized and keeps me on schedule. Yeah, so the answer is I do feel pressured. But I also love what I do. And I think when you love your work, it doesn't feel like work. It feels like play.

BTB

What about failure. How do you manage challenges in your work when things don't work out as a researcher?

DR. ANDREA FURLAN

Yeah. And the ending, though. Yes. So I, my research, some not all the research that I have done, ended up being a nice publication. Some of them ended up being archived in my drawers. And I feel sorry for the team that helped me to do that. And we didn't have the ways to finish the project. Others that we just spent a lot of time and they were published, but didn't get noticed nowhere. I also have failures with my patients, I have to acknowledge not everybody who comes to me will be happy, satisfied, and will get better. And I think we need to acknowledge when what we can do, we are doing our best. I think we are trying with the resources we have today. We are doing our best. And my team is amazing. I have a wonderful, amazing team at Toronto Rehab that help us with our patients. I have a research team that work hard and we get grants and we publish. But it's also hard because time is limited. People get other jobs, they leave, they graduate, you have graduate students who leave and they they're gone. And I think failure is part of our life. Everybody faces it, you need to acknowledge that it's not everybody is super successful. But if you think only about the failures, and don't try anything new, you never know what's going to be successful, like the YouTube channel.

DR. ANDREA FURLAN

I thought about that for a long time. And I never had the guts to Okay, here is I'm going to start I was always afraid of how people will see me my image. What people think about me becoming a YouTuber, because YouTuber may have a bad connotation. I was afraid of my mother, how she will see me I am a physician. And now I'm posting things on YouTube. So actually, when I started posting on YouTube, I only told my patients I didn't even tell my colleagues, I didn't tell my family only my husband knew. I was kind of scared of telling people that I had a YouTube channel. Now my mom is the first one to watch. And to spread the word to her friends. She distributes my videos to all over Brazil. But I think

you have to try new things, even if they scare you, if you don't know how you're going to be received. As long as you're not putting yourself in a in an unprofessional situation.

DR. ANDREA FURLAN

And you're doing things with the best intentions to help your patients or in the progress of science or other students or the next generation that will come after you. If it doesn't go well. If it's a failure, okay, just close it. I could have closed my YouTube channel and nobody would know. Okay, failure, let's close and not talk about it. But you don't know once you try. And I like trying new things. I think. I am a little bit of adventurous so I like trying new things and new adventures and innovating things.

BTB

Mentorship was so critical to helping you get back on your feet with your career journey here in Canada. I'm curious now how do you mentor?

DR. ANDREA FURLAN

I like mentoring because it's not only giving back what I received, which I think it's really important, but I do because the people that I mentor, they teach me more than I mentored them. They don't know this, but they are teaching me, they're teaching me to be a better person. I think they teach me to be more patient and to see the world with their eyes reminds me what I was 20-30 years ago, you know the spark that they have in their eyes and they want to do something new. Sometimes you lose this. Like today, if someone asked me to give a lecture, I have given so many lectures I could give with my eyes closed without looking at slides. So I am good at this, and I will do it. No, Andrea, you need to be ready.

DR. ANDREA FURLAN

And when I see my students, the people that I am mentoring, they're giving their first talk at a conference. It's a 10 minute oral presentation. They're so nervous. And I said, Oh my god, I was like that one day. And I prepared so much for that first talk, 10 minutes in a conference, I rehearsed. And I prepared. And I'm not doing this now, just because I feel that I'm professional, I need to do that too. So that kind of thing, makes you a better person. I think it makes you always want to learn and innovate and be connected. And when they graduate, and you see them flourishing and doing wonderful things. I feel like a proud mom that are so proud for you look at you now,

BTB

Your immigrant journey Andrea and leaving your homeland coming to start over. How does that shape you in terms of say your drive every day when you come into work?

DR. ANDREA FURLAN

Sometimes when I feel discouraged and tired and fatigued, and frustrated, I say oh my god, I'm so blessed with the job that I have the dream job that I dreamed it was my dream. I also wanted to be a teacher, I didn't tell you but my mom is a teacher, she retired, she was a kindergarten teacher. So when I was a kid, I wanted to be a physician and a teacher. And I thought I had to choose one or the other. But look at me, I'm both. So I do have my dream job that I dreamed my whole life.

BTB

Your YouTube page is a great example of making science accessible to a wide audience. I'm curious what your take is on the need for scientists and researchers to make their work understandable to a mainstream audience?

DR. ANDREA FURLAN

That's so important. You know what Christian, I had never thought about that before I had this YouTube channel. The amazing potential, and also the responsibility that we clinicians, we scientists, we professors of the university we have, we have the knowledge, we have the skills, we have the expertise, and we are holding to ourselves and the world is starving. And when they starve, guess what, they will not keep on going starving, they will look for the answer and who is going to feed their mouths. Some people who don't have the right evidence based knowledge. YouTube is an open platform that gives opportunity to every single human being in the world. Anyone can open a YouTube channel and start talking, there is no filters. The filter of who's been successful or not, is just who gets more views, YouTube start promoting them. Okay, that's the algorithm basically. So even if someone started teaching about medicine and pain, and there are a lot of people in YouTube and social media, and in blogs, and internet, who think that they are experts in pain, and they are teaching the wrong things we need to be there should be a counter response. So now I realize the responsibility that we have, because we do have the knowledge we need to be present there. Choose a platform, a website, a blog, a Twitter, Facebook, whatever, choose one platform, and have your voice heard. Start speaking

BTB

25 years ago, that decision to move to Canada. What do you think of that turning point in your life all those years ago now?

DR. ANDREA FURLAN

My parents, my father, my mom, they didn't like that decision when I came here. And it was really sad when we came because you know, leaving your parents behind not knowing where you'll be, what happens when they grow older, you will not be there to take care of them. But I think now they are happy that I'm here. They're proud that the achievements that I made here, and I have the opportunity to give back to Brazil. I have helped to implement Project ECHO in Brazil during the pandemic with COVID. We started a ECHO COVID in Brazil. I have been to many pain conferences in Brazil. I have helped many physicians from Brazil who came to Canada and relocated here, physiotherapists. So I still have connections there. I didn't abandon totally my country.

DR. ANDREA FURLAN

But I think also the research that I do here in Canada has an impact worldwide and It's also impacting people in Brazil. If I had stayed in Brazil, I have no idea what would have happened. But I know research there is hard, because there is not a lot of funding, a lot of opportunity. And I probably would not have had the opportunity to do the research that I did here. Like the guideline that I published here, the opioid guideline can be applied anywhere in the world. So it can happen help people, not only in Brazil, but in any other country because those recommendations apply to anyone who has chronic pain and needs opioid, the systematic reviews, the meta analysis, the Cochrane Reviews that I did, and I'm still doing, they have an impact worldwide, and they can be used by anyone. So I think it was a good decision. Canada was very kind to me and my family. I have two Canadian teenagers. And we love this country despite of the cold, the cold winter, but I always get holidays around Christmas and I go to Brazil to enjoy some summer there.

BTB

Dr. Andrea Furlan award winning senior scientist at UHn's Toronto Rehabilitation Institute Research Center called KITE, thanks so much for sharing your groundbreaking research with us and continued success to you.

DR. ANDREA FURLAN

Thank you so much for inviting me to be here today.

BTB

For more on Dr. Furlan's work and the podcast, go to our website, www.behindthebreakthrough.ca and let us know what you think we crave your feedback. That's a wrap for this edition of Behind the breakthrough, the podcast all about groundbreaking medical research and the people behind it. At the University Health Network in Toronto, Canada's largest research and teaching hospital. I'm your host, Christian Coté. Thanks for listening.