Vision Therapy

[00:00:00] **Delphine:** Welcome back to the access to education podcast, where we talk about everything having to do with learning disabilities and learning differences, vision. It's one of those things that many of us don't think much about. If you can see, you can see as parents, many of us take our kids to the eye doctor before they start school.

I did for my own kids just before they started each one, just as they started kindergarten. For me, it was a way to ensure that they would be able to see the things in the classroom that they needed to learn. Also is their dad has had glasses since he was five years old and is as blind as a bat. We need to make sure that we watch their eyes for any vision issues.

Recently, I've been hearing a lot about learning disabilities and learning differences that can be affected or supported by the eye's ability to track and function correctly. The eye is like a muscle and sometimes it needs help to do its work well. I don't know much about vision therapy, but I thought it would be a great conversation to have with someone who knows a lot about it Today on the show I have with me, Dr. Fabian Tai, he's a vision specialist practicing in Mississauga,[00:01:00] Dr. Tai works with patients to help improve and support good eyesight. Fabian, welcome to the show. I'm , looking forward to this conversation to learn more about the eyes and kind of how we can support that.

[00:01:11] **Fabian Tai:** Well, thank you for having me.

[00:01:13] **Delphine:** So I think we'll just kind of start right in at the first question, because I'm sure many of the listeners are thinking well, vision therapy.

What is that? So can you start by telling us a little bit about what vision therapy is and what you do.

[00:01:24] **Fabian Tai:** So vision therapy is like, um, a set of visual exercises that's been programmed by your optometrists and optometrists that actually subs specializes in vision development or vision therapy. So think of it as like physio for your eyes. Before we kind of get into vision therapy or when we get into

that, if your child needs, you know, to do these vision training exercises, they'll optometrist just needs to first diagnose whether or not your child has a vision.

You know, and then we can kind of go through what different types of vision dysfunctions there are. But once there are visual dysfunctions, that's [00:02:00] been kind of diagnosed and been specifically, , I would say reported,

Then the series of exercises kind of build from there. So if your child has vision dysfunctions, ABC, then my whole vision therapy program would be based on treating the dysfunctions of ABC versus if your other child has dysfunctions of X, Y, Z, then the whole series of, , vision related exercise would be treating XYZ.

So, you know, in that sense, it's a bunch of exercises that were, we use presumes lenses at different filters. , we use, metronomes, we use balanced boards, we use digital devices to kind of help retrain your vision and essentially retraining your vision is like retraining your brain because your brain is really where vision results.

[00:02:48] **Delphine:** Okay. I've so many questions. I almost don't know where to start. Let's talk about vision dysfunctions. What are the vision dysfunctions that might be well-suited for. Vision therapy is like, can you give an [00:03:00] example of one,

[00:03:00] **Fabian Tai:** The origins of vision therapy,

, comes from lazy eye. So kids who have a lazy eye. For example, if one of their eyes turns inwards or turns out words, or if one of their eyes doesn't work, as well as the other eye, those are classic examples of a lazy eye, where essentially when you get only one eye working, the brain doesn't really know what to do.

It doesn't really know how to use both eyes in conjunction. And then what had eventually that what the brain has to do is that's has to shut off one. But shutting off one eye is actually really tiresome for the brain. It's like sort of like trying to study and you're trying to kind of, you know, you have music in the

background and you have people talking in the background at the same time and you're trying to kind of focus on your work.

You can do it, but it takes a real special person to do it for like consistently for eight hours straight. So, think about, someone with a lazy eye they're kind of living their life like that. And their brain is kind of constantly being drained as quick, quicker than usual, then their attention kind of when [00:04:00] dwindles faster as well.

[00:04:01] **Delphine:** So what are some of the exercises? So like, I, I know balance boards, right? It tends to be the thing that wobbles from side to side and you have to use, I would use not my eyes to balance. I would actually use my core to balance. So when they're using this wobble board, are they attempting to use their eyes to balance or to balance out what they see?

[00:04:20] **Fabian Tai:** A hundred percent. So when you're balancing, so think of it as like you're on the ship. So when you're in a ship and you're up on the deck, , the first thing is if you get sea sick, everyone kind of says, look off into the horizon. And the reason why you look at the horizon is that it's. And then once it's stable, that's where your, you can kind of trick your brain that, okay.

I'm not moving up and down. The world's not kind of shifting, , but your vestibular system, which is your ear, it's kind of picking up that there is movement, then your body's kind of moving with the boat, but your vision, if you can kind of stabilize it, it kind of trumps the whole, the rest of your, your other senses.

And that's what can kind of helps you kind of stabilize your gaze and then [00:05:00] hopefully kind of make you less seasick. So when you're balancing yourself, like you're on a wobble board or you're surfing, , you're, on your surf board and you're trying to stay up and balanced. Like you have to kind of set your eyes on a target and that's what helps you keeps your balance more.

I have one quick exercise everyone can easily do is you can kind of. Know, stand up, stand on one leg and then your eyes are open. And then what you can do then is you can either close both eyes or one eye and you can kind of quickly see how your vision kind of affects your balance. , it doesn't significantly affect it or does it, , are you really using your core for example, instead?

[00:05:34] **Delphine:** Okay, so that relates to the body. So let's look at vision in terms of education. So I'm thinking of seeing the chalkboard, being able to read the words on a page. How does the eye's ability to function on say a passage and reading kind of play into this idea of vision therapy and how do those things support, , the eyes to read better?

I don't know if that makes sense.

[00:05:57] **Fabian Tai:** So a lot of the times as [00:06:00] parents, we take things for granted. Like you automatically assume that if you're a good reader, that your child must know how to read or they're kind of faking it, , but.

You know, take for granted is our ability to track, , so naturally you would expect that when you're reading letters on the page, that normally when you go from left to right, you would expect that you're reading each and every letter smoothly and you're clustering like each group of letters.

So then, then you can actually read more fluidly and the lot faster, right? Able to anticipate the next letter that's approaching, on top of that, then you have to kind of go back to line two and you have to kind of make that Zed movement pattern where you have to kind of go back right to the front, like an old time old school typewriter.

So that's what we call ocular motor, , uh, function or, or you can have a dysfunction of it. And then that's the part where your eyes just don't, , follow words accurately. And that's where kids tend to kind of skip words or skip lines, or they may misread [00:07:00] words or misread words I letters completely, or they might read ward one.

 And we're to backwards, you know, instead of like I saw the cat, they might say I cat saw. And then all of a sudden they're like, wait, that doesn't make sense. And then, , especially with other subjects like science, that where you inverse something can completely make it a different sentence or, or in, in history or in law or any other subjects where, you know, every letter, every word makes a huge difference in the meaning of the sentence.

[00:07:29] **Delphine:** So if we take reading as an example of supporting, . So if we think, okay. , I'll use myself as an exam. So I'm a dyslexic person and sometimes . I feel like, and I know this is very stereotypical, but I do sometimes feel like when I have words that are a lot of words on a page, the writing is very small, nevermind that I'm over 40 and probably need reading glasses.

So let's ignore that. I'll look into that. But even as a child, I remember sometimes sensing [00:08:00] that words were sort of either moving up off the page a little bit, or they were sort of moving up and down a bit that it did sometimes make reading harder because I had to really focus on each individual word to make sure that I was seeing it correctly.

So is that the kind of thing if a family has, and I guess the question is it's sort of a two-fold question, but is that an example of what some of the vision therapy can do in terms of helping to understand where the weaknesses are with tracking? Let's start with that question.

[00:08:30] **Fabian Tai:** Oh 100%. So we do have a lot of tracking, diagnostic tools that we can kind of use to kind of ensure that your child has tracking issues. But the other part I wanted to commend you with is like, like you're awesome in the sense of you can actually remember, and also. I would say articulate that the words are floating off the page and that they're kind of swimming through, , as you're trying to read it, because I would say 90% or 95% of my kids that I [00:09:00] actually diagnose, they have no concept that that's happening.

Meaning like you must have been a fighter. You must have been one of those kids that would push through it and wanting to kind of read and finish the passage. Versus what I see typically is most kids, but at time it kind of gets into that realm of like, whoa, something's kind of happening. And it's making me feel uncomfortable.

Most of them just drop it there. Most of them will just stop. They'll take a break or they'll kind of get distracted or they'll just kind of do something else. So meaning that most. So the kids don't actually report it. So as a parent, you're kind of listening for those types of clues. It's unlikely going to kind of surface up and not, it's actually not until like about a few weeks into vision therapy that the child then starts to kind of remark as.

The words don't move anymore. And they all will say it's. I thought it was completely normal. I thought that was completely normal to reread a sentence like 10 times then I finally can get it. And you're like, no, that's not normal. Like, you [00:10:00] just need to read it once and you should be able to understand it, , but sometimes it's for them, it's such a common thing that's been occurring that they don't really have a self-check.

[00:10:08] **Delphine:** I didn't know that it was abnormal for that day. Until I was, I might've been 27 or 28 and I went to a conference for learning disability. And there was somebody there talking about putting different colors on the paper, because that can change with the lighting. It could change the way you saw the page.

And I don't remember what color it was. I know it wasn't yellow. Cause I was like, no, yellow does not work for me, but I put whatever color it was. And I looked up at the person I said, but the words are fine now. And he was like, yeah, it's just because of the way your eye works or now I don't remember, but

[00:10:44] **Fabian Tai:** Interesting. So the reason why you brought up color, so I just have to kind of

add to it. Okay.

[00:10:48] **Delphine:** for sure.

[00:10:49] **Fabian Tai:** Um, colors, either do two things. It actually changes the contrast of sort of, black and white. For example, some kids don't like black and white or some, or some people don't like white on [00:11:00] black.

 Sometimes I've had to kind of print, , a letters on blue

paper, , and that's where you can be, helping with regards to the contrast or what it could be is that colors, believe it or not actually affect your autonomic nervous system,

it actually puts you into a fight or flight or relaxation mode.

And that's why we just naturally tend like when your paint, the colors in your room, in your home, you have certain colors that you tend to kind of gravitate towards that. If you painted your bedroom, , Ferrari red, good luck and trying to sleep, , that that Ferrari red is like, it's such a powerful color that actually kind of stimulates your system and it revs you up for a short time, but it's a, it's definitely not going to be a calming light so that those are things that we kind of.

Take for granted like the colors that you wear on your shirt. You know, there's a reason why you're wearing that colors for today. It could be just , the first piece of clothing you saw, or that color inspires you in certain ways. That's sort of how you want to make you make yourself [00:12:00] feel.

So colors actually have a direct effect from your eyes to your brain or to your autonomic nervous system. So, , pay attention to the colors. And that's where a, be careful about using colors, loosely, because you can actually be turning things on and off in your brain without you realizing what you're doing.

[00:12:18] **Delphine:** Interesting. And I find too for me on the computer, my husband has the dark setting on his phone.

I don't like that. I actually like the lighter setting. I find the dark setting, very hard to read it. Doesn't my eyes. I find it harder. And so it's more effort for me. So I actually prefer the light setting.

So it's interesting that you talk about the color and the, the sort of autonomic kind of response that you have to it based on the reaction that you see. So that's.

[00:12:48] **Fabian Tai:** yeah, that type of practice is an optometric phototherapy. So it is actually a subset of vision therapy. So these are things that we do with our patients, because one of the things that we always kind of [00:13:00] look at first is like, you know, does your child come in here charged? For example, did you feed your child sugar before you come in and see me?

And I'm like thinking, no, no, that's definitely no, because they're just flying off the walls and they're not going to learn. So, but you know, another way you can kind of indirectly or directly affect them is by wearing these colored filter goggles that we have. And sometimes that is quite effective for certain.

[00:13:24] **Delphine:** So because I've got you and because you've kind of brought this in dinging, the question went off for me. What about this idea of now getting these blue light glasses? So we've got all of our kids, we're recording this in pandemic. A lot of families, , a lot of kids are now learning they're on their screens from, , nine until three, which even for me as an adult is I don't enjoy it.

My eyes need a break, but I did get some blue whatever blocking glasses and for a bit, I thought they were sort of, okay. And my son has tried them and really likes them. Are they an effective tool or is it just kind of one of those things that you it's trial and error.

[00:13:59] **Fabian Tai:** It is [00:14:00] effective, however, just be careful about the marketing of it. And that's where, some people who market the blue filter, coatings

as sort of the savior to computer vision syndrome or computer eyestrain. I would say not true. , it is helpful in the sense that think about it as like it's, uh, it's, it's a key ingredient to a successful meal.

, so a key ingredient to a successful, , computer vision is that you have the right prescription. Are the optics correct? Has the glass has been cut appropriately? Uh, is the lens quality, you know, optically, is it clear? , just because you can get different clarities, with different types of plastics.

 So just be aware of it, but it is something that I would encourage people to have. But really what's most important is that the blue filter is not going to prevent you from, or is that going to help protect you from having a better night's sleep in the sense that it's usually promoted as something that, , if you don't want.

Then your quality of sleep is going to, , is going to be poor because [00:15:00] when you get too much blue light, , your production of melatonin drops. So basically to blue light causes you to stay awake. So that's where you want to kind of reduce amount of blue light reaching your eyes. So you do produce enough melatonin, which kind of drives your sleep cycle and allows you to kind of sleep a lot better.

However, the coding alone is not going to. The savior or that silver bullet, that's going to kind of get you a good night's sleep. It's really that proper winding down, , what is it that you're doing? Are you kind of caffeinating yourself after dinner with an espresso or are you kind of playing a strategic board game or you can watch a suspenseful movie or did you just get into a fight with someone and that's the part where your brain is going to be around.

So you have to kind of think about the key mediators and the blue filter. Again, tends to be over promoted, just like my I'm really big on nutrition. Just like how, they talk about, , probiotics need to kind of make sure that you have a certain type of gut bacteria. [00:16:00] But if you kind of look at some of the marketing ads, that's out there, they'll say, oh, we have probiotics in our, whatever, you know, foods, , but if you look at it, they'll, if you look at their ingredients and say, oh, it's only we have 1 million, , bacteria in there

, in our, 1 million is really not enough. So that's the part where, again, it's, it's a truth. It's a fact, but you have to kind of look at the big picture if, you know, it's there sort of like if they add it into your box of sugary cereals and that's a definite no-no, so,

[00:16:27] **Delphine:** it's interesting that you talk about eyes and sleep and how the effect of what you see during the day can affect. The production of melatonin. Like I don't think I'd ever connected those together. So I think I'm realizing that maybe our eyes do a lot more than just see what's in front of us.

[00:16:46] **Fabian Tai:** oh yeah. Your, your eyes are, are governs your circadian rhythm. So I think about it as like, when you, , I think we've long dreams. Getting on an airplane and traveling to favorite destination again, but think about it as like it's a time machine. [00:17:00] Like you get into this machine called an airplane and all of a sudden, for eight hours later, you're going boof.

You show up at your magical place. And if you're going to Europe, you're going ahead in time. And they'll, and that's where, you might leave here in afternoon and you get their leg, you know, close to midnight, depending on where you land. Right. And that's the part where you're like it was sunny, then that was also pitch black.

And then also your body goes in, which is what your eyes are telling your brain that goes, it's dark. It's time to go to bed, but then your body goes, wait a minute. We haven't really kind of been up for it. 1216 or whatever, 18 hours or however, you know, hours you stay awake. And then that's the part where your body gets confused and we term it as, , jet lag.

So, but that all stems from your, from your eyes. And that's why some people, when they travel, they'll take a supplement, they'll take a melatonin. For example, as one of them are valerian root, just to kind of help them to kind of ease into their sleep. Again, there to help, you know, sort of bridge that gap of like feeling jealous.

[00:17:58] **Delphine:** So if we get [00:18:00] kind of back on the vision therapy discussion. So I know as an educator, as a parent of two kids with learning differences, I've heard lots of people talk about vision therapy. I've had some friends who have done it with their own kids and have seen progress, but I've also seen a lot in the media online, social media wise, kind of around the controversy of whether or not vision therapy is.

A mode really of therapy that is effective for children with learning differences. So we know that there's all sorts of different learning differences that make children neurodiverse and think outside the box and their brains are just wired differently. Right? They're not wired like the average quote unquote normal child.

So can you talk for a minute about kind of why it seems that vision therapy is controversial? What is it that people are not sure of, or maybe don't believe in? I don't really know what the word is that I'm looking for, but do you understand what I'm trying to ask?

[00:18:57] **Fabian:** think the controversy that lies within vision [00:19:00] therapies, I guess, , no pun intended is it's related to optics, you know, from perspective is like, who are you asking? And what is their approach to the eyes, for example. So when people visit, an ophthalmologist, which is an eye surgeon, , their training and their philosophy is essentially, surgery.

 And , they just, they know how to, how to prescribed glasses. And then they're really based on an optical perspective, , as well when a patient, , may ask their local optometrist as, do you know anything about vision therapy? , they may not. You know, give their appropriate answer in the sense that, most optometrists tend to kind of look at the eyes as an optical device, , it's, , you're kind of focusing the rays of light to the back of your eye.

That's going to send a signal to your eye and the processes. It, , and. Um, optometry schools through north America. And there are some optometry schools that do have a, , a [00:20:00] focus in vision training, , but most trained optometrists in the sense of we specialize in optics, which is what we're known for eye disease management, ,

so when they go see their optometrist, , they're getting an answer from an optical point of view. Versus when I look at a patient's eyes, I look at it from a functional and neurological point of view because the eye and the brain is essentially all in one piece. So I look at him. Their eyes and their brain must be interpreting, you know, the environment around them, how the eyes and the brain is looking at a piece of paper and how they're imagining or seeing, or I'm imagining, I'm imagining what they're seeing their world looks like based on a number of tests that would run for the patients that can kind of give me clues about how their eyes are functioning such as are they.

No skipping over lines or skipping over words because their eyes don't really follow the same cadence as their thought process. For [00:21:00] example, their eyes and their thoughts don't match. It's almost like patients or that your child will always tell you. Yeah. Oh, I, I was about to say that, but it just couldn't come out.

Or I said the wrong thing, or I said it back backwards and that's where they get their selves confused and that kind of took, takes away completely their self-confidence and that's pretty much the end of it, especially if it happens in the classroom. Yeah. They don't really want to be sort of humiliated in front of their friends, if they feel like they've kind of mismatch or, or, or said that completely incorrect answer to a question that teachers asked,

[00:21:34] **Delphine:** Okay. Say one more time. An ophthalmologist

[00:21:37] **Fabian:** ophthalmologist is trained for surgery. So their primary role is to, you know, surgically or treat, you know, I.

[00:21:45] **Delphine:** Okay. And then an optometrist does the prescription of glasses of seeing how the light reflects back to

[00:21:52] **Fabian:** yes, both kind of focus more on the optics and both will conclude that. Say when they're looking at a child's eyes, that [00:22:00] their eyes are anatomically or structurally sound or safe, like, meaning that there's nothing physically wrong, but what they're both missing depending on again, their training and their background is that right?

Are they functioning a hundred percent? Are they performing to their full capacity? Just like how, when you're looking at that child developing, , yes, they have two hands, two feet, you know, and it looks like they're appropriate size, you know, but how come they can't sit? How come they can't walk or how come they can't run or how come they can't catch a ball?

So that's, from my perspective, when I look at someone's eyes as why can't they read the chart appropriately? Why can't they read the chart? When I ask them, do you need to read the fifth row down from the top? Do they understand what that instruction is and do they actually read the line properly and do they read it from left to right?

Or do they read it from right to left? And again, it's appropriate sometimes to read it from right to left. If you speak a second language, that kind of goes [00:23:00] the other way. But if English is your only language, then you should do, you should. Technically, we'd be reading everything from left to, right. So these are like the little clues or cues I'm looking for.

That kind of gives me like the red flags or yellow flags up as well. Why did they do this? Or why did their eyes do that? Or why did they say that? Or why are their parents saying that this is how they behave at home versus behave at school?

[00:23:25] **Delphine:** So you look after the function of the eye in terms of how it, how the eyes work together to understand what they're seeing. So the, the other two were kind of dealing more with the immediate, your dealing with more the long-term and the function of how strong, how well do they work together as a

team?

[00:23:43] **Fabian:** A hundred percent correct. And that's where I think that's where the controversy lies in is that when people ask their practitioner, um, you know, what is vision therapy? They're just saying, okay, the eyes are fine. You don't need a prescription. Or this is what I see. This, the [00:24:00] educational piece is missing because when I went to school at the university of Waterloo, their primary focus was optics and disease and contact lenses.

That's what we're known for. We did kind of touch base, , on sort of how your eyes work, binocular vision. That's what we would deem. We would term it as, but we really didn't really feel it. The Elvis dive into, you know, what is, , binocular vision and how do we treat these appropriately and successfully.

And that's where I've spent, the past eight to 10 years of my career now, , traveling through the world and try and giant trying to find all these different courses or gems from different teachers of how do I resolve this case? You know, depending on who comes in through my doors,

[00:24:43] **Delphine:** and I think so much of the therapies that, I mean, listen, I've done all sorts of occupational therapy, speech therapy, naturopathic therapy. Like I've done a lot in my listeners who listened to me drone on about it, know that I've done this, but with so much of it, there is [00:25:00] work involved. Like in order to support your child with a learning challenge, it can't just be.

I'm going to use my ADHD years as an example, it can't just be, I go to the psychologist or the psychiatrist and say, I want you to give me a riddle in Pelham using that one, because it's the first one on the top of my head, give me the pill for my children. And they'll be forever saved from ADHD. That is not really how it works.

They take the pill to support their need in the moments. But at the end of the day, I still, as the parent, I still have to provide them with the tools that will support them and understanding their emotional regulation, their impulses. And I've done that through various therapies of speech, language pathology, occupational therapy, you know, we've done some different things.

So I think it, it all sort of goes together. And as a parent, I had to, in some cases, get my kids to buy into what we were doing. Or I was working with therapists who were able to in a really great way, explain to them why it was, they were doing the thing that they were doing and how it was going to help them.

[00:25:59] **Fabian Tai:** , good point [00:26:00] about, , add or ADHD. , that's a part where, , parents should know that if you've been diagnosed with ADHD or add, there's a higher, higher likelihood that your child has a visual dysfunction. So then that becomes a discussion is what's kind of causing that the appearance of ADHD. Is it the fact that their vision doesn't work well?

So then they have trouble keeping attention with regards to the task at hand. , . Again, there was a higher chance that there is a visual dysfunction. So if your child has been identified with having ADHD or add, or having an IEP, definitely take him to an optometrist that specializes in vision therapy.

So you can properly rule out if they have a visual dysfunction. And then from there, you can kind of decide how much of that visual dysfunction is really contributing to their poor performance, because as you, I agree with you completely because you know, vision is just part of, , the [00:27:00] bigger picture, , even though 80% of how you learn is through the visual system.

Your diet is a huge part to it. Your, your sleeping habits is, and there's huge parts of it. You know, if I find out later that the child does not even sleep a wink at night, then I'm like, oh my Lord, no wonder they can't concentrate, , because there's something else going on in their lives. , or if there is a chemical imbalance, , or if they have a health-related issue, , that could be kind of disrupting their attention or their, their cognitive thinking or their behaviors.

So I would say, , always find someone that kind of has a bigger way of thinking about things is that, always be aware of practitioners that say, this is the solution, , because we

all know. , each individual is such a complex system that, , the way I kind of look at things is that you're looking to kind of see what buttons to press that.

Can I give you the best results? And that's where I work alongside with chiropractors, natural paths, osteopaths, , with different types of [00:28:00] physicians, OTs, PTs. So, , my sort of group of healthcare practitioners I work with, I'm always kind of reaching out, calling them and saying, Hey, something's not really right here.

They're not moving in the right direction. Or as quickly as I think, I think you might be able to help them. And that's where I usually then try to be. Yeah. My gatekeeper in a way of, I try to steer my patients in the right direction afterwards. It's like, okay, there might be something else here because it's not just vision.

Like if it was just vision the loan, then I would expect the re the results to occur a lot quicker. But if it starts to occur a lot slower and there's maybe something else at hand, that's where I kind of phoned up a friend and just say, do you mind seeing this patient because of so-and-so reason?

[00:28:45] **Delphine:** Think you're making me think that I may need to try this as an option. I have yet to have tried vision therapy for both my boys. So they both have dyslexia. They both have anxiety and they both have one is ADHD combined, and one is ADHD inattentive. [00:29:00] And so it would be interesting. I think for me as a parent is I try to find toolboxes, right?

I, what I try to build for each of my kids and all of the therapies that we do is allow them to build a box of tools that they have, that they can pull out and things to kind of work on. And so maybe vision is one of the things that is also influencing. They're ADHD. Right? I don't know that cause I've never explored it.

It had never occurred to me that it could be connected, but as you continue to talk about, , the connection between the eyes and the brain and how they work together, the eyes do not work independently of the brain and the brain does not work independently of the eyes. And so it's really making me see, , kind of why that's connected and how one might influence the other.

So it, I think it's an interesting thing for me to start exploring and looking into at this point.

[00:29:49] **Fabian Tai:** So the eyes of the brain are essentially the same. So the eye is an extension of the brain. We label them as two different things, but just think about it as like the brain is made of events, different lobes of prime

lobe, [00:30:00] temporal lobe, occipital lobe, and frontal lobe. It's essentially the brain. Uh, but the eyes should be considered as part of the brain is not a separate structure.

The other part I was going to add to it, like when you talk about your boys, is that dyslexia. If you look at the meaning of dyslexia, it just means that they just have trouble. You know, and then we have this, , I would say cultural biases of what you think the dyslexia is. And most people think it's like reverse of letters, but when your child actually spells a B in the P or B in the D you know, kind of aside, , interchangeably, they, they think that there's no, that's actually a vision problem.

That's what we call a visual information processing dysfunction of ladder reality. So meaning that again, we take it for granted, like as an educator, when you're reading a book and you've just read the passage and you're about to answer a question and they're going. What did Peter do, with Paul at that, , whatever at that event.

And then you're quickly scan the scanning your paragraph for that story you [00:31:00] just read. And you're looking for the keywords, Peter Paul and that event. And then that's the part where some kids can easily identify versus some kids are like, I don't see it. And then all of a sudden, just kind of glance over it.

And they just, you know, they just skip the question altogether, but that again, that's related to your visual performance. Sometimes that's what we call figure grounds, , meaning like, are you able to kind of spot the tree from the forest? And can you kind of decipher what you're looking through or is it your visual detail, your visual discrimination?

Can you actually see the differences between Peter and Paul? You know, they are very different names, but sometimes some people just kind of mix them up and they're just like, oh my God, you know, they'll mix up the characters accordingly. And again, they get into this, , bad funk of like answering the rest of their essay or rest of their exam incorrectly.

Anxiety. well, we haven't talked about his concussion concussion protocol.

[00:31:51] **Delphine:** That is big topic. Concussions is like a whole other podcast, but go ahead.

[00:31:56] **Fabian Tai:** But, , this is something that's really near and dear to my heart, just because,[00:32:00] , my journey and sort of discovering myself through vision therapy is the fact that I've, I've had several concussions through my life.

And that's the part where I realized that it was, , after one concussion, after the other, that I started to realize that my performance starts to decline, not the point that you can notice it, but to the point that I started to kind of notice certain things about myself that I thought, oh, that's kind of a quirky trait about myself, ?

And then that's a part where what concussions can do is they can cause visual dysfunctions and the number of my concussion patients. No one of the major traits besides not being able to see properly, not being able to work properly or study properly, or even function properly as a, as a person. You know, these are people that just get anxious going to a grocery store is that it can, it can really exaggerate their feelings of depression and anxiety, meaning that I do believe just like how I do believe that we're all on the [00:33:00] spectrum and the, oh, and that's the part where people just label it as depending on what section of the spectrum you are.

I think that's why we all laugh at the big bang theory is that because we can see ourselves in each of these characters, you're like, oh, that's kind of funny, but now you're like wondering why you're laughing at it, because then you're like, it's reminding you of yourself a little bit. But with regards to anxiety and depression, I think we all have it within ourselves and that we all have mechanisms.

That filter out, , the feeling of extreme anxiety and depression. And that's the part where I realized that during COVID and this lockdown, all these feelings have kind of surfaced up again because we don't really have compensations. We don't really our tools that we normally use, you know, to kind of help, , dull it down are no longer there.

So, , it would not surprise me that if kids who have anxiety, for example, or OCD, there's a visual related component to it.

[00:33:59] **Delphine:** [00:34:00] I I'm just, I'm putting so many pieces together right now. Anyway, my, my brain is spinning, and you're helping for me, you're helping debunk some of the ideas. So, I mean, I do come from not a scientific background, but I come from a background of kinesiology and physical education that was. My my degree in university.

So, , we did a lot of talking about the development of the brain and what goes into it, and I'll never forget talking about the ankle reflex and how that decreases as you get older. And that's why older people fall down because they lose the ability to pull themselves back up as they fall forward.

And that's one of those things that sticks with me in an anatomy class, when we would talk about, , how the different muscles were connected and where the tendons joined, because it was very specific to the movement. So as you're talking about vision and kind of how it affects. How people see things in that affect then goes into the brain.

And, and you're right. When I think of anatomy and how the brain and the, the eyes sit together, they really are very [00:35:00] interconnected. They really are a part of each other. And so I think it's not until we've dug a little bit deeper for me that I've understood how it works. So this has been really helpful to help me understand what vision therapy is and why it might be an effective therapy, because to your point, it's not necessarily going to work for every person that you have to have a bit of.

Buy-in you have to have belief that this is something that's going to work, but it also now seems to me like a viable thing to try , I'm a big believer in, you know, you kind of have to try things because every child is so different that what works for one is not going to work for the other, this isn't the kind of system that is going to work for all kids.

This is really specific to certain children.

[00:35:42] **Fabian Tai:** Yeah, for as a parent, , I'll just add three things. , use your intuition. That's the main thing I tell all parents is that you need to really connect to your practitioner. You really need to be able to connect and understand each other well, and that's really what foster is a good patient doctor [00:36:00] relationship is that you need to kind of buy into the doctor's way of practice and the doctor, you know, Their, their ways are set.

 We're, we're trying to practice in our best ways of what we think is the best options for our patients. And you need to kind of find the doctor that kind of aligns with sort of what you believe in the ankle thing. I just want to add to it. I just can't help it. Is that some, the other part, which is another podcast is, , one thing that there is a link and that's the part where I'm really excited to kind of see more literature sort of be published on it, , onset of Alzheimer's and dementia. You can actually find it with decrease in eye movements or eye performance. So that's the part where, you know, one of the things that I can't help, but think is that the concept of vision is that vision guides, motor vision guides your actions, essentially. So if you're about to trip on something, your vision should kind of give you all that.

Cues and clues that something's bad's about to happen and you're going to [00:37:00] react to it. Just like how a baseball player playing out in center field. They may not be able to see the ball leaving the bat, but they can hear it and they can see the swing and they can kind of anticipate who the batter is and how far it's going to go.

That's why sometimes those bloopers that come up in the sports real is like, oh my God, they just totally misjudged it because they didn't anticipate. And that's really the key word is what your vision also does for you. You anticipate lots of things, just like when you're reading, you're already anticipating what that word should be.

You know, especially if you have the context of what it is like your, if it's a geography, you're going to be thinking about certain cities in America versus you're not going to pick a city outside of America. If you're reading about an American history, for example, the other part of, to look at vision is that one, the key thing that I always, I want to make sure that your listeners hear is.

When people go to their eye doctor, and they're just going for a general checkup, most optom just are [00:38:00] looking to see if you have 2020, or if you're a correctable to 2020. So 2020 is good for, for your average person. But if you have a learning dysfunction, having 2020 vision alone is not sufficient, you need to kind of investigate more.

It's sort of like saying that, you know, you have 2020 vision and you're allowed to drive. That's a whole different conversation about what constitutes as driving requirements. Because I think that people need to kind of have a tougher, our rule on who gets a driver or not, because I do see a lot of motor vehicle accidents.

And that's the part where, you know, the ministry's point of view is that if you can see 2050, which is a size of prince and you have like a field of vision of 120 degrees, but you can see like basically this wide, then they say you're allowed to drive. However, as we know, driving as much more

complex, , and that's the part where if you look at the analogy of driving that is [00:39:00] essentially like vision.

So we expect that as soon as you start to, , get on the road and you start to take your driving lessons, that there's a huge learning curve that you need to be stimulated with certain activities or in situations, a certain concepts needs to be introduced to you for you to kind of be properly a great Awan driver.

However, if you don't get trained properly, then you can say your driving skills are going to be horrible. And some people are natural drivers and others. And again, we can kind of debate about that, but driving constitutes more than just pushing a pedal and turning your wheel. You have to kind of include navigation.

You have to also include your concept. 3d or depth perception that at the same time, how fast are there cars coming and going? What's your visual memory? Like, can you actually see what cars are around you? So then when the car turns off, they're not in your blind spot that you realize that, you know, if they're not there, you better [00:40:00] check your blind spot.

It also checks your focusing system is like your focusing system also gives you clues about how far things are away, because as you focus at different distance, Then that's also, um, integrates with your Virgin system, which is where your eyes crisscross, how they cross and uncross, or can you look at your dashboard?

Can you look at your radio can look at your size side mirrors. Can you look at your rear view rear view mirrors all at the same time and look at the front and does your focus change quick enough that it's all seamless because some people that doesn't, some people get really anxious when they drive that when they drive from Mississauga, where I reside to Toronto and it's raining, it's pouring it's in rush hour.

Some people will just not even want to go downtown because they feel like, you know what, it's a dangerous spot for them is because they can't actually navigate through the streets or when there's a traffic jam and you're going to be. And if you don't have say, you know, [00:41:00] your, your smartphone with you and you don't know how to take a detour, the mapping skills are also part of the visual system is like, if the QEW is close, I know I can take like shore or Queen's way.

Or if I really want to, can go up to cute the four to seven, then go around,

which I think takes long. But you, you get my point. But then in general, there's so many different ways that how your vision interacts with your day-to-day world. And that's essentially like when it comes back to a child who is reading, you know, is their focusing system working well, can they cross arise?

Which is the most common diagnosis or dysfunction is that they have trouble with what's called convergence. You know, and that's what we, what we say is convergence insufficiency. So if you have convergence issues, then that's where the words would look like they dance on the page. And then on top of it, besides landing on the word accurately and, you know, And in sync with regards to how you're reading, do you understand the meaning that [00:42:00] the word gives to you?

You know, can you convert that? You know, I would say cluster of letters into a word, into a picture, and then now you have a bunch of pictures in your head and then they kind of derives meaning, but when your brain is. Busy, you know, just decipher, what letter is it? It's like sort of me trying to read French.

I can read French, but I remember in school, like reading, like maybe lip petite, prawns prints in like, you know, and like, it was like maybe a 50 page book. It must've taken me the whole semester just to read through it because you'd have to convert the French to English and then you have to kind of understand, okay, what does that sentence mean?

And what does it, what was it? What was its intention for the, for the author, if you're writing an essay on it. And I remember reading that and I was just like, wow, this is taking me forever. But think about that in people reading plain English, if you feel like it takes you such a long time read through something, it could be the fact that you have a visual processing issue is that we [00:43:00] could understand that when you're learning a second language, that you have to convert it and you have to convert the meanings.

And sometimes it's not easily convertible. We all accept that. We all may not truly accept that your vision didn't develop properly. Like if you look at the milestones of your children, we always ask is, did your child crawl because not crawling, not have the having enough tummy time or rushing through certain things really makes an impact of how your brain is developing.

So then again, we, we expect that everyone who's out in the road to be able to drive properly, but maybe they didn't get driving lessons. Maybe they learned from their mom and dad, which made things worse than you should have learned from a proper, you know, a driving instructor which could properly instruct you.

And again, we have all these assumptions. We have this assumption, that vision must be a hundred percent by age six, but some people don't develop properly or their system needs some help. And that's where we've accepted speech therapy. We ex we accept [00:44:00] OT, but why not vision therapy? And that's just sort of this abstract concept of vision must work properly.

But when you're born, vision is not, PR is not a hundred percent there. You need proper stimulation and they've done scientific experiments back in the day when it wasn't cruel or inhumane to kind of dissect cats and all this other stuff to animals. But they've proven where if you've removed visual stimulation from an animal as they're kind of, , from birth to adult life that actually affects their visual system.

 I believe there was actually a, , project or, , a study in India where, I think it was a hospital. They actually did cataract surgery, , for kids who have been, who grew up with cataracts are born with cataracts. So then they kind of was born not being able to see. They could not see anything at all.

They could only see

shadows. So what they did with these kids is that before they actually did cataract surgery for them, they [00:45:00] kind of, , gave them objects like a cup. They gave him a ball, they gave him a cube and then they said, identify these objects. And then they can identify them appropriately because that's what their world was a sense of touch.

Then after cataract surgery, they presented the same, , objects, but they couldn't touch it. And then they asked the child, what is that? And they couldn't answer what that was because their vision did not understand what they were seeing at the moment, because they just removed the big cataract, which is a cloudy, a cloudiness of their lens.

And now they have clear vision. But guess what? Three to six months later after training and after, you know, interacting with your environment, the child was then able to label those exact same objects and more obviously with ease and precision, which means that the visual system can be trained. And it's something that if you're deprived of certain [00:46:00] visual stimulation, which is the key thing that's happening in education system and in everyone's lives is that kids are being forced to get onto screens.

And they're not properly understanding their environments, or they're not properly interacting with each other, you know? And you know, I just want to add the one thing is vote. I'm glad when kids are able to go back to school because you know, this online learning, I laugh and I was like, I, I think my, my daughter's teacher is like, has a heart of gold in a way.

He kind of made a point to his class one day he goes, listen, guys, all

I see is a bunch of names and with a bunch of silhouettes that goes, I feel like I'm talking to a wall and

I'm thinking to myself, what kind of life is that when you're just talking to

someone and you just can't get that interaction, but essentially you can kind of look at our, how our lives are changing compared to when we grew up.

You need that social interaction. You need that sense of play. Curiosity to kind of challenge yourself in so many [00:47:00] ways, because these are the sort of the developmental building blocks that kind of get your brain to that higher level of state of learning rather than just jumping into social media or devices right away.

So just something for your parents to think about. I always say limit the number of devices that your child uses. I think by age six, there's no reason why they should be on a device. Maybe once they start school, because school starts to introduce it. But other than that, there should be no reason that they should be on an or very limited, less than an hour.

For sure. So, yeah.

[00:47:32] **Delphine:** Yeah. It's one of those. I've certainly been that teacher where I have 30 blank squares. And all I have is the little avatar picture and I'm talking to the screen and I'm hoping that on the other end, there are children watching, listening, paying attention, focusing on, but they could be doing anything.

And if there are anything like my own children, , there are lots of other things, distracting them from what they're meant to be doing. I will not go into detail by embarrassing my children on what they have or haven't been doing well doing online [00:48:00] school. So let's cause we're talking about parents. , if parents are considering vision therapy, what are some things they should consider?

So in terms of picking the right practitioner in terms of whether or not it's a good fit, what are the things they should.

[00:48:13] **Fabian Tai:** Good question. First is trust. You know, I would say as a parent, I would just say, get the feel of for the clinic, whether if you like or dislike the clinic. , second thing is, how do you communicate with your optometrist is this person is someone that you can talk to. Is this someone that you can understand?

And is this, is this an optometrist that seems like they're really interested in helping your child, , the hard part for a parent to kind of really acknowledge is what's the expertise of that individual, meaning that you it's hard for you to measure the expertise of medical practitioner. No one really knows, but what you can measure, is there a sense of dedication and sincerity with trying to help you?

And that's all I would, [00:49:00] that's what I tell my patients or my parents is that I may not have all the answers. I'm constantly looking researching. I say, my job is a seven day, week job. , I'm constantly reading on stuff that I'm looking for, tips or tricks of China kind of, you know, solve this problem that I have with this patient.

So I'm constantly like trying to kind of discuss it with my team of how do we get them to get to move forward. , but that's my best advice. , there is a website that people can go to. If you Google vision therapy, Canada, then you'll see a list of practitioners. If you type in your address where, you know, the practitioner offers in-office vision therapy, that's also another key component is that you want to make sure that the practitioner offers.

You know, in office vision therapy, which means that you have to go to their clinic to do vision therapy. , there was a study that was published years ago, where they compared, , in [00:50:00] office vision therapy to placebo, to home computer activities, to placebo in office vision therapy, to, to placebo activities only.

And then they deemed that in-office vision

therapy was six statistically significant compared to computer vision therapy. Or, you know, I'll call it fake vision therapy, you know, like, you know, I would say mismatch of different activities. That doesn't make sense. So they were a coolant as placebo and actually the most important part, which is stemmed from was pencil pushups, meaning that most people, you know, that what the advice that they may be given from different practitioners is that if the person has trouble crossing their eyes with a pencil pushup means is that if you basically take a pencil in front of you, move it towards your nose and you repeat this, like you're lifting a set of weights, then that would help improve your convergence.

The answer is yes. If you keep on doing the one exercise, you will see an improvement. [00:51:00] However, that does not resolve the convergence issue. I can personally tell you that that does not work. Cause then that's sort of what got me in my journey is that I have trouble crossing my eyes. And then that's the part where the classical method is trying to use pencil pushups to kind of resolve the issue.

I resolved that with pencil pushups, but when you would challenge me with another activity that requires my eyes to cross, I can't do it. So it wasn't until actually I did vision therapy myself. That's where sort of, that began my journey. As if you get to know me, I'm quite skeptical and very scientific, I'll love data.

Um, and that's the part where I had to do it myself, for me to kind of acknowledge even in my heart and in my brain that this really works. So I can kind of how would say with conviction and with, you know, my own history, that vision therapy is a very effective tool, but you need to be motivated again. I was motivated to learn.

I was motivated to learn more, particularly at that time in my life for my [00:52:00] daughter. She was two at that time or three. And then when I learned the power of vision and how we can not lock these doors for your children of how it would make them somewhat limitless versus limited with sort of their future jobs.

That was enough for me as a parent to kind of get me going as, okay. You know, what do I do to become the best dad? What do I do to become the best parents in, what do I have to become to, you know, or what do I have to learn for them in order for them to have a better life compared to me? So that's sort of my vision therapy.

[00:52:33] **vision-therapy\_recording-1\_2021-05-29--t05-10-52pm--access2ed:** For sure. , so just before we hang up the call, where can people learn more about your clinic and what you do? Where can they go?

[00:52:41] **Fabian Tai:** Oh, they can then find me at DrFabianthai.com. , again, you'll, I assume you'll provide show notes or you'll provide my contact. So feel free to reach out, send me an email call my office. Someone will reach out, but if you can't reach out to me, , you know, we do see people actually virtually after, since COVID, , we do do virtual [00:53:00] sessions again, that's not meant for everyone.

, I would say 20% of the people don't do well doing the virtual platform, but that has been surprisingly been quite effective. But if you can't get out to Mississauga, please reach out to vision therapy, Canada. I really do want people to be helped. I want people to be properly diagnosed. So this needs to get out there.

One in four kids have a vision dysfunction. So that's 25% of kids in the class. That is a lot of kids that need help. So I tell people I can't do this by myself. I'm more than happy to,

you know, refer people to other clinics just because, you know, I'm really, I'm here for your children. I'm here to make sure that they get the proper help to get the proper tools.

So people come and see me for the, for the diagnosis. And after that, if they can't travel to Mississauga, for reasons based on scheduling, then I'm more than happy to refer them to a colleague of mine that would take good care of them.

[00:53:55] **Delphine:** That's great. Thank you so much. , Fabian, I, my head is swimming with things and I [00:54:00] now need to go and like really consider this is a potential option for the boys, but I'm also now starting to think for myself. , I think I've always, probably had a vision thing connected to the dyslexia that I have had all of my life.

And that reading is a struggle. It is not something I enjoy doing. It's tiresome. It's exhausting for me. Although I can do things like puzzles and I can find where's Waldo really quickly, but when it comes to words on pages and reading long documents, which I sometimes need to do in my job, it's very tiring.

And now I'm wondering if some vision therapy wouldn't help support that. So I'm going to, I'm going to do some more research and, , you may get a call from me.

[00:54:39] **Fabian Tai:** Thank you for having me on the show.