93| Neuropsych Bite: Clinical Case 8 – With Dr. Kira Armstrong

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Speakers: Kira Armstrong, John Bellone, Ryan Van Patten

Intro Music 00:00

John Bellone 00:17
Welcome, everyone, to Navigating Neuropsychology: A voyage into the depths of the brain and behavior, brought to you by INS. I'm John Bellone...

Ryan Van Patten 00:26
…and I'm Ryan Van Patten. Today we speak with Dr. Kira Armstrong once again. Kira is a board certified neuropsychologist in private practice in Massachusetts.

John Bellone 00:37

Today Kira presents a case of an 11-year-old with difficulties in attention and reading. This is a longer Bite with a lot of good content so we won't waste any time here. And now we give you our discussion with Dr. Kira Armstrong.

Transition Music 00:52

Kira Armstrong 01:02

So this is an 11-year-old girl that I had previously tested four years ago and, at that time, diagnosed her with ADHD, specific learning disorder with impairment in reading, and what I write in reports is "i.e., dyslexia" because parents want the "D word." So, if it's relevant, I'll provide that as well. She lives in a suburb. Parents are both college educated and have professional careers. We have a family history of learning difficulties, language delays, and autism spectrum disorder. Birth history and early development were unremarkable. Same with medical history, with the exception that she's been taking methylphenidate since 2nd grade. She will say that it helps, but she doesn't like taking it. I just want to highlight this point because mom says she doesn't like taking it because it reduces her appetite. But when you ask her, it's not that it reduces her appetite - and this is such a common symptom for kids with ADHD. She absolutely feels hungry, but she can't make herself eat. And that's just so much worse. Can you imagine being hungry and not being able to eat? I find time and time again, kids don't know to verbalize that distinction. So I just wanted to take a quick side note and mention that because it's an important question to clarify, which may change intervention choices and recommendations.

John Bellone 02:33

And, sorry, that's a side effect with the methylphenidate?

Kira Armstrong 02:35

Yeah.

John Bellone 02:35

Oh, interesting.

Kira Armstrong 02:36

Well, of any of the stimulants. Which stimulant is going to affect that. Yeah. But they don't think to describe it that way. They just say, "I can't eat." So that extra layer is a little bit more distressing. She's a sweet kid. She's a pleaser. She wants to please,

and she's got some anxiety about pleasing. She does have friends, but she doesn't initiate things because [of] the anxiety that goes along with that. But she can also be immature and dysregulated when she's not on her medication.

She is exquisitely sensitive to perceived criticism, quick to see judgment even when not as intended. So, constructive redirection is difficult for her to feel comfortable with. She's defensive if she feels like somebody is blaming her for something when they're not. And then, on the other hand, she also has ADHD. So she has a long history of difficulties with distractibility, attention, and dysregulation. And both of those can combine to a low tolerance for frustration and emotional dysregulation. She stopped taking her medication during COVID, during the quarantine time, because of the appetite suppression and started taking it again when school started. And, again, she will say, "Yeah, it helps, but I hate how I feel."

She's been on an IEP since 1st grade. When I tested her, she was in 6th grade. Teachers adore her. Teachers and parents feel like she gives 110%, which she does, but that's a little bit of the performance anxiety driving her and the fears of not doing well. And, despite this, her parents also say learning doesn't come naturally to her. So she's a slow worker who does well when she has extra time, but is challenged when she has to think off the cuff. This is a kid who did really well with remote instruction because she had as much time as she needed to think about things and process things and do it. But when she has to keep up with the class, that's when she starts to fall apart. And I should acknowledge that, in many of the communities in Massachusetts, remote instruction was much more robust than other states were. So we do need to factor that in. And in her community that would certainly have been true. Teachers - I saw her in September, but we booked in June, so we got teacher reports from the previous year, which is nice. So we had the teachers from the year before talk about, "She's very conscientious. She's neat, she's organized. She's appreciative of help." She's actually not only appreciative, she's an over-advocator. She checks in all the time to make sure that she's doing it right, but the teachers aren't quite seeing it through that lens yet. She has a low confidence and hesitancy to start a task until she can clarify. And the teachers note that she can become nervous or shut down and become teary if she feels a little bit confused.

Let's see. Like I said, she had an IEP. She has been tested multiple times because she's got that IEP since 1st grade. At the time I was seeing her, the school was wanting to pull services for reading and the parents were really concerned about that because she had been needing help for so long. They needed to know whether or not this was the school just wanting to find a way to pull services or whether she really didn't need as much as what they had been giving.

So that's the psychosocial history. Any questions before we move on to who she was when I tested her?

John Bellone 06:13

You mentioned that she has been repeatedly assessed. Is that common with the IEP? I'm not a peds clinician. I'm also curious just the circumstances where someone might have a repeat evaluation for ADHD and/or LD.

Kira Armstrong 06:28

So, if a child has an IEP, schools will repeat at least portions of an evaluation every three years as they're going through. They'll do more if something comes up along the way. So she has been tested by the school since kindergarten/1st grade and then every three years, and then I've tested her twice. So we've got that amount of testing. That is not unusual. When I see kids who've been on IEPs for multiple years, especially if they've seen at least one other evaluator, I often say to them, "You're a testing pro. You could probably test me." Because they're tired of it, right? So at least you have to acknowledge that elephant in the room. They'll roll their eyes and laugh because they do get a fair bit of testing. Repeated evals for ADHD specifically aren't going to happen in the schools because their goal isn't to diagnose, it's to determine a disability and necessary services. It could happen when parents are questioning a diagnosis. Or if they're coming back to me and there isn't a language-based learning disorder as well, it's more, "What is it causing now?" You know, how is the diagnosis contributing to their profile of strengths and weaknesses in the academic setting or daily setting?

John Bellone 07:45

I guess with the frequency of repeated evaluation, too, you'd have to be more aware of practice effects as well, potentially.

Kira Armstrong 07:52

To some extent. But, you know, if you think about the test-retest reliability and validity of these measures, they're testing them within three to six weeks and you're not really seeing significant differences. What I see, though, especially in the anxious kids, if you test relatively soon after somebody else you can get a bump. And it's not practice effects, it's comfort. You've taken away the novelty and they're more comfortable with the process, and so you get a bump. But we're not asking the same questions, so it's not true practice effects, right? So I do certainly see that. Yeah.

Ryan Van Patten 08:31
In which case that bump is good in the sense that you're getting closer to their true ability.

Kira Armstrong 08:38
Exactly.

Ryan Van Patten 08:38
Yeah. That brings me to a question that came to mind for me. You haven't yet talked about her testing performance and what that was like, but when you get there I'm curious about, with her and then generally, advice you have for us about developing rapport with an 11-year-old who has performance anxiety where you really want to make her feel as comfortable as possible. One of her main difficulties is fear in performance situations, which is exactly what she'll be doing with you.

Kira Armstrong 09:08
So I do it in a couple of ways. I'm pausing because sometimes I worry that I'm a little bit too good at this with some kids, especially repeat evals, because then I see what they are capable of but not what they're performing day to day. And that's an important piece. I don't get as much anxiety if they know me. But I start by introducing - when I introduce the evaluation, I'll say to kids, "Listen, I want you to do the very best that you can. If you kind of, sort of, maybe, possibly have a guess, I always want you to guess." I'll make a big deal out of it. I say things like, “You know, I find that kids often know more than their brain thinks they know. And I want to be able to tell you at the end what these tests say about your brain." Early on in that introduction I talk about how our tests are made to look at what's easy for our brain and what's hard for our brain. So I'll give myself as an example. I'll say, "You know, like, my brain is really good, sometimes too good, at talking because I can talk a lot and it can get me in trouble. And my brain is really, really bad at drawing. Like, my son was drawing better than I could when he was 8, which is both a testament of what a good artist he is and what a bad artist I am, right?”

Ryan Van Patten 10:28
[laughs]

Kira Armstrong 10:30
So I try to use humor like that. But then I'll ask them, "What are your strengths and weaknesses?" And when kids can't answer that question, I already know we got an anxious kid because they can't. They'll turn to their parents [or] they'll say, "I don't know." That's when I know I need to nourish that a little bit more and reassure them

as we go. Sometimes I will change my test order. I give a fairly traditional test order because, in my head, I know what it means if kids aren't doing well in different stages and places. But if I'm worried about that, I'm going to take open-ended questions off and I'm going to make sure they're doing or pointing or something like that to let them get their groove. I have also found, by accident but consistently since then, if I get them to leave the room or if I leave the room for even two minutes, there's this [deep sigh]. They can perform better. You just have to give them that sense of letting themselves just kind of regroup. So if I'm really feeling it, I will do that. We'll take a break and kind of pause in some way to do that, too. But, again, at the end, though, I'll sit with them, and in this one we'll see that when we get to it, she denied all the anxiety on the measures. "No, no, no, no, no, no, no." And that feedback model that I talked about with the parents, I do it with the kids too in a slightly modified way. What I usually say to them is, "I'm kind of guessing that maybe you're a little bit more of a worrier than you told me on the forms." And they always go, "Well, yeah."

John Bellone 12:08
[laughs]

Kira Armstrong 12:09
Which is so important, right? Because how many times do people - I've had schools say, "Well, her scores on her questionnaire say she's not anxious." And I'm like, "Yeah. But she told me she didn't tell me everything she meant on those questionnaires." Like, we can't look at those as face value proof there's no anxiety.

Ryan Van Patten 12:29
Right.

Kira Armstrong 12:29
So I get at it from the back end that way, too.

John Bellone 12:32
Yeah.

Ryan Van Patten 12:32
Great.

John Bellone 12:32
Those are good tactics.

Ryan Van Patten 12:34
Well, why don't you move forward and give us the results of the testing?

Kira Armstrong 12:39
Okay. She was delightful. She remembered me and readily engaged in the testing, although she did show some ongoing anxiety. She asked for lots of clarification. She didn't like to guess, but didn't like to say, "I don't know." So she would sit and wait and wait until I asked her if she had a guess. And, like many kids I have found throughout COVID because I do hybrid testing, I test remotely and in person for the manipulatives and D-KEFS and stuff like that, she was more anxious in person than remotely. They also tend to be much more physically contained in person than remotely. I mean, I've had kids practically upside down remotely sit beautifully still in their chairs in person. And, it's COVID. It's because we have masks on, we're six feet apart. Before COVID, they'd be rolling on the floor. [laughs] You know, it's not all of it, except I bet they'd still be more active at home. But, you know, COVID is what's doing that and she was definitely anxious in person.

She struggled with attention, but she did something that was really important in that she could pull herself together and pay attention if she knew she had to. But she couldn't sustain that pattern over time. Almost always moving, even on her medication. Struggled with working memory and sustained mental effort and needed more breaks than most kids her age as well. The last thing that I want to emphasize about her is performance speed. I make a distinction between “processing speed” and “performance speed” because she understood things quickly even when they were complex, but her output was slow. Perfectionistic. Double checking, disorganized, as well as time lost from disorganization and double checking and correcting errors. So her output was exceptionally slow in many but not all tests that I gave to her.

In terms of testing, she's got an average IQ. Subtest scores on the WISC ranged between 7 to 12. The 7 was Block Design where she had to self-correct rotational errors, but she did. It was slowed by decreased organization, planning, and then having to fix impulsive errors as she placed them. Relative difficulties with some kind of open-ended types of questions. And, again, difficulties with attention and working memory and follow through but no real - I'm just trying to remind myself - she doesn't have any language-based versus visual spatial discrepancies in her scores. The variability in her scores are explained by difficulties with executive functioning and anxiety. Until we get to - I was going to say until we get to academics, but even within the academics. But, long pauses and/or impulsivity or both on tests. She's a kid who can go too fast and too slow almost simultaneously, depending on what she's doing.

Academically - the reason I pulled this case is she's a really interesting kid. She really legitimately had some concerns for dyslexia. I don't second guess that diagnosis that I made both because I have the old data and know exactly where it came from and I know what that school system in particular was doing when she was initially learning to read, which was all whole word and no decoding and no emphasis on that. They've since changed, which is good. But her GORT shows an accuracy of 6 and a comprehension score of 6. The GORT is the Gray Oral Reading Test. They have to read passages out loud [and] you score based on accuracy, fluency or rate, and then, again, comprehension. But the reason she scored so poorly is because she read so fast that she was misreading words left and right, words that she had no problems decoding later. The beauty of this test is that the comprehension is based on memory. You take the passage away and they have to answer the questions. I have been giving this test to every kid I see for the last 12 years because, for me, it's a continuous performance test. The ADHD kids can never answer the comprehension questions because they're not paying attention. It also means I know what an ADHD profile of errors looks like on this test versus what a dyslexic profile of errors looks like on this test. She wasn't struggling to decode. She was adding, dropping, replacing smaller words and suffixes. She was repeating phrases which count as errors on this test and losing time to correct herself when she did make some of those mistakes.

Her reading - let's see if I... - so she read "she jumps on the roof" as "she jumps off the roof". She read "raked" as "naked". That was a good one. That was the first one, I haven't gotten that one before. She read "also became" as "almost becoming," and "grape" as "group". Those are not common dyslexic types of errors or decoding types of errors. It's her just going too fast. When testing limits, when I allowed her to go back after the test was discontinued to reread the passages and answer the questions, her comprehension was at the 50th percentile. So she's capable of understanding what she reads, she just has to pay attention to it and not read it so quickly.

Ryan Van Patten 18:24
You mentioned a dyslexic profile on the GORT. Would that profile be even if you allowed her the passage to be in front of her while she was answering the question she still would be unable to answer their comprehension questions correctly?

Kira Armstrong 18:38
She might have been able to understand. Kids like her miss comprehension questions on "Look at Jane. Look at Jane run. See Jane run." I'm making that up. But that had nothing to do with dyslexia at her level of reading. That's attention. A

dyslexic kid - many kids with dyslexia also have ADHD. So their comprehension scores can be lowered because of that. However, they will also have problems decoding and therefore understanding important content. You can see that based on some of their comprehension answers. In other cases, their comprehension may be okay on the passages that they read, but the test is discontinued based on rate and accuracy. So they aren't capable of reading grade level content because their dyslexia is preventing them from doing that.

Ryan Van Patten 19:31
Makes sense.

Kira Armstrong 19:31
The difference really is more, what are their errors? Are they slowly and effortfully decoding words, even if they get them right? Are they slowly and effortfully trying to decode words? Is it half the passage that they have to decode? That's the pattern that you can tell the difference. The last pattern in partially remediated dyslexia is they may do okay and they may do okay and they may do okay then suddenly they hit a wall and that whole paragraph they make mistakes. Some are impulsive and attentive and others decoding, which is why I don't like the WIAT for reading with dyslexia because it predetermined two passages - or, I don't know, it's been so long since I gave the WIAT because I don't like it for reading comp and reading accuracy for dyslexic kids. It predetermines which passages you're going to read and then you stop, regardless of their performance. You miss that ceiling if they're going to hit it.

John Bellone 20:27
When did she get the LD diagnosis? And do you remember what the evidence was?

Kira Armstrong 20:32
Yeah, so I gave her the diagnosis. I gave her that diagnosis when she - so, that was four years previously, so in 2nd grade. At that time, her reading was slow and effortful. She was unable to sound out some consonant sounds. Like, she didn't know that a “C” can be /k/. She hadn't mastered consonant-vowel-consonant and consonant-vowel or "E" words. So there was a very clear pattern of she doesn't know how to read yet. As well as some impulsive stories, or, sorry, impulsive misreads, but that wasn't the bread and butter of what she was struggling with. She didn't know the building blocks for reading. She got good instruction.

Ryan Van Patten 21:21
And then, in the interim, she had, yeah, good instruction, good intervention. [The] IEP worked, presumably, and her reading improved significantly.

Kira Armstrong 21:29
Right. But she didn't have strategies for reading comprehension. So what was nice about this is I could say to the parent, "You and the school are right. She doesn't need as much instruction, if any instruction, on phonemic awareness and decoding skills, but that doesn't mean we can pull everything back. What you're seeing about where she's struggling, is very real. They still need to be providing her with these other services, as well as reading to learn because that's not a strategy she's really mastered. But let's spend the energy there instead of spending the energy on the decoding skill sets as they had been."

John Bellone 22:11
Okay. Just talking through the diagnostic conclusions and summary, so you took off the LD, the dyslexia diagnosis, right?

Kira Armstrong 22:19
So what I said for her is, yeah, so she no longer met criteria for dyslexia. But she still does have what I kind of tribute to functional learning difficulties with reading. And, again, as I was describing before, in terms of paying attention to and being able to actually learn from content. Her writing was still an area of weakness. So I maintained that, I believe, yeah, because the school system was also providing some intervention, but she still needed help in those domains. That's an executive functioning problem that is commonly seen in the ADHD population. Her spelling also was now solidly average, whereas when I saw her and diagnosed her with dyslexia, encoding was a significant problem, as you would expect because she couldn't decode it yet. Although she was struggling with applied spelling, so there was still some decreased automaticity for encoding, but still much more improved.

I maintained the ADHD diagnosis and the generalized anxiety diagnosis as well. I spent a lot of time in the report talking about how hard she works to hide her ADHD as well as her anxiety. Teachers don't always see that part of her because she's trying so hard to look good. I sometimes refer to parents when I talk about these kids that it's almost like she's a duck, nice and calm and still up on top, but down below her legs are moving like crazy, just trying to look good and be good and do everything. That's why she can melt down when she gets home because she's just, she's out of gas.

Ryan Van Patten 23:59
Yeah, it's very taxing. You mentioned her difficulty with sustained attention that she can pull it together when she knows she needs to, but it requires so many resources for her to do so that she fatigues.

Kira Armstrong 24:11
Yeah. She can only do it for so long.

Ryan Van Patten 24:14

Right. Yeah. We spoke to Robin Peterson about learning disorders and specifically this frequent overlap between a specific learning disorder in reading and inattentive ADHD. It's very relevant to your case, Kira. Can you give us and our listeners any pearls of wisdom about how to approach these situations? Imagine you hadn't already diagnosed ADHD and/or specific LD in reading. We might think about a differential diagnosis, but they're often comorbid. So, generally, how do you assess those two conditions?

Kira Armstrong 24:48
So distinguish between an ADHD profile with lots of errors versus a dyslexic type of profile? Is that what you're asking?

Ryan Van Patten 24:57
Yeah, distinguish between them when that's what you want to do versus identifying when a diagnosis of both is the best conclusion.

Kira Armstrong 25:08

I think we have to be very cautious about the scores on reading measures because I can show you cases of kids with pure ADHD and only ADHD whose scores make them look dyslexic. And I can also give you some, it's a little bit less common, but I can show scores of kids with pretty significant decoding or encoding difficulties, but whose scores are at least low average. But the scores don't reflect that the kid took two minutes to spell, erase, spell, erase, and misspell a word. So it really is to focus on how they get there and look at an error analysis.

You guys have the advantage of actually seeing my reports. I include charts of what kinds of decoding errors they make. The reason I can tell you exactly where the kid struggled in terms of reading is that it was in my first report. I list exactly why the kid is struggling with their reading and how. It's important to really make those distinctions. For reading, you know, do they know the rules? Can they automatize the rules? Can they read it correctly if you show it to them in isolation? Or were they

just rushing too fast and didn't know it? The GORT has, at the end of one of the lines, the word "beacon". I can't tell you how many kids with ADHD read it as "bacon". So, you know, understanding that the ADHD brain is going to go too fast sometimes.

On the flip side, understanding that - I am firmly convinced that whoever created spellcheck had ADHD and got tired of misspelling words all the time. So spelling, if it's only spelling, can be seen in people with ADHD. But when that's the case, they're very phonetically decodable. You can figure out what the words were meant to be without really much struggle. It's usually problems with homophones, it's problems with doubling letters, it's problems with vowels and words where it's not clear if it's an “O” or an “A”. So it's about looking at those patterns and then emphasizing fluency because I don't think that that was emphasized enough. The WIAT-IV finally really put some nice measures on reading fluency that they didn't have on the WIAT-III. That is helpful because it's not enough to know they can read those words. The question is, can they read them as fluently as their peers can? Because, if not, they can't learn from what they're reading.

John Bellone 27:43

I want to quickly ask you about your report writing process because it seems like it's a little different than other clinicians. You have parents generally read a draft and you solicit feedback from them. Is that right?

Kira Armstrong 27:56

Yeah. So I write all my reports as drafts first. I send it to the parents as a draft and then it gives us the opportunity to meet and discuss the report as well as the findings. Because, remember, they've already had a feedback and a half - I gave them feedback and then I feedback with the kids. So they already know who the kid is. But, with the report, I write it as a draft so that I can make one more final review and edit. One of the reports I sent you, I noticed I had had a problem with the word “she,” I kept dropping it. [laughs] So I correct my own mistakes. But it also gives us the opportunity to make corrections, add content that I might not have thought about at the time for recommendations. But, most importantly, it makes sure that if there's issues that the parents are not comfortable with, and I clinically am okay with it, I can take things out or drop the intensity. Sometimes I find that if I change an adjective they're okay and I'm okay. I'm in private practice. These families are paying me a lot of money. If they don't like the report and it goes into a drawer, it doesn't help anybody. I'm not going to change anything I don't personally believe in or can't substantiate. But that allows us to have some ongoing conversation about the diagnosis. If they're not comfortable with the diagnosis, it also helps me to be a little bit nuanced in how I'm writing it. I've actually learned different things that

parents are going to take differently than we intend, so that I can write it in a way - so I speak parent. As a pediatric neuropsychologist, I have to speak parent, I have to speak school, I have to speak doctor, and I have to speak legal, right? We don't always translate that well. This process makes sure that the way I'm speaking in the report is coming across the way I thought it in my head and it gives me that opportunity to do that.

John Bellone 29:57
Yeah.

Ryan Van Patten 29:58
Do you have a quick example or two of speaking parent in your report and changes you've made?

Kira Armstrong 30:03
I don't know that I can think of anything. Well, I haven't had to do this much recently. I think I'm getting better on the front end, or I've had enough experience not to. But one of the things that comes up frequently is parents aren't buying a diagnosis, usually ADHD. "I don't see it", whatever it is. So, in the process, I'll say to them "Well, listen, the truth is I have to see it in multiple areas. This is a kid who's anxious and they're hiding it well. I believe very strongly that they have it, but they're young enough, if you want me to hedge, you want me to call it “ADHD traits” that need to be monitored..." Because they're not going to do anything with it anyways, right? I will say it and I'll make the case for future readers who will be able to read the nuance and go, "Oh, she thought they had ADHD, but this is how it got put across." It's not unusual for me to do that, for them to agree to it, and then by the time they get the report, they say, "Yeah, we've been watching and could you put it back to ADHD now?" [laughs] So that happens. But I think it's that process, right, getting back, we talked about this in our other podcast. How do I get them to buy in? Sometimes it's that breathing room. Rather than forcing, “This is what your child has and you must believe me and agree with me," giving them that breathing room and that time to sit with that and watch their kid and see it through the lens I'm presenting helps them to get there sometimes. So offering that flexibility often gets them where I wanted them to be from the beginning.

John Bellone 31:42
I'm curious how long it takes you for these evaluations usually? This is incredibly detailed and nuanced.

Kira Armstrong 31:49
Longer than it should. [laughs] COVID was good for me because I caught up on reports. It's not as bad as it looks, because what I usually will do is take a kid who's very similar and I de-identify it and plop it in. I have a whole risk section that, you know, the kid may look like this and that that's all coming from other things. The hardest part for me is summarizing the history. I think that's the hardest thing for most of us, right? Because that's not as easy to be boilerplate if you're going to go into the details that I go into. So not as long as it probably looks but still longer than it really probably should.

John Bellone 32:33
[laughs] Okay.

Ryan Van Patten 32:36
Pediatric neuropsychology and adult geriatric neuropsychology are quite different.

Kira Armstrong 32:40
Yeah. You had also asked earlier - that's what I wanted to point out, you asked how often do these kids get tested and what do we write about in reports. One of the things that I wanted to mention is that it doesn't happen to geriatric adults, but it does happen to adults. One of the things that I've learned to do that I think is really important, is clearly document examples of collateral reports of ADHD so that when these kids go to college and they have a new prescriber who doesn't want to believe them and wants them to be evaluated again, there's a paper trail that shows the characteristics were truly present when they are kids. I think that that does them a huge service down the line. And it's, you know, it's four sentences. It doesn't need to be half a page, but to clearly demarcate examples of ADHD traits that they can use as adults to document their diagnosis.

John Bellone 33:34
Excellent. Well, Kira, thank you so much for going through this case and the other one as well and your time.

Kira Armstrong 33:41
My pleasure. Thanks for having me. You guys are awesome. You're doing such an awesome service. Our field is lucky to have you.

John Bellone 33:49
Oh, thank you for saying that.

Ryan Van Patten 33:50
Thank you so much. Yeah.

Kira Armstrong 33:51
All right.

Ryan Van Patten 33:52
All right. Take care, Kira.

John Bellone 33:53
Thanks again, Kira. Appreciate it.

Kira Armstrong 33:54
Bye.

Transition Music 33:55

John Bellone 33:58
Well, that does it for today's conversation. Be on the lookout for upcoming content on neuropsych rehab after acquired brain injury with Dana Wong, polypharmacy in older adults with Mike Steinman and Matthew Growdon, working memory with Alan Baddeley, and additional clinical case presentations. As always, thanks so much for listening, and join us next time as we continue to navigate the brain and behavior.

Exit Music 34:23

John Bellone 34:47
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Ryan Van Patten 34:58
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