# Identification and Management of Post-Concussion Syndrome

Sean Hollis PhD discusses concussion and mild TBI. He shares the frequency of post-concussion syndrome, what factors may play a role in symptom presentation and recovery and why it is important to educate patients and set expectations for recover.

**Featured Speaker:**

## Sean Hollis, PhD

Sean Hollis, PhD is an Assistant Professor. His specialty is Neuropsychology.

Learn more about Sean Hollis, PhD (https://providerdirectory.uabmedicine.org/provider/Sean+Hollis/714494?unified=hollis&sort=networks%2Crelevance%2Cavailability_density_best)

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**Transcription:**

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Welcome to UAB MedCast, a continuing education podcast for medical professionals. Bringing knowledge to your world, here's Melanie Cole.

**Melanie:** Welcome to UAB MedCast. I'm Melanie Cole, and I invite you to listen as we examine post-concussion syndrome. Joining me is Dr. Sean Hollis. He's a neuropsychologist and assistant professor at UAB Medicine.

Dr. Hollis, it's a pleasure to have you join us today. And this is a really good topic. So first I'd like you to give us a little working definition for the listeners, what is post-concussion syndrome and how frequently does it occur?

**Dr Sean Hollis:** Yes, thanks for having me, Melanie. Post-concussion syndrome is having persistent symptoms following a concussion that lasts longer than three months after injury. About three to 4 million Americans sustain concussions annually and most of these people will fully recover within a week or two after the injury. But up to 20% of people who've had a concussion will experience these residual post-concussion symptoms up to a month. And then as I said, if the symptoms persist beyond three months, we're now in the territory of considering this post-concussion syndrome. Typically, these symptoms will peak by six months, but some people can experience these symptoms even beyond one year following their injury.

**Melanie:** Wow. You know, it's so frequent that we're hearing in the media now about concussion, and it seems like there's much more awareness, but not necessarily for post-concussion symptoms. Tell us what those are. And for coaches, other providers, pediatricians, anyone that's listening that might be dealing with the initial concussion, you just mentioned up to a year, but tell us about what symptoms you see and kind of the timeline that you might see them.

**Dr Sean Hollis:** The most common post-concussion symptoms can be divided into five categories. What we call somatic, cognitive, affective, vestibular and sleep dysfunction. So to give you some examples, somatic symptoms might include things like headaches, neck pain, nausea, sensitivity to light or sound. Cognitive symptoms would include things like difficulty concentrating or becoming forgetful. Affective or mood symptoms could include depression or irritability or anxiety. Vestibular symptoms are difficulty with balance or dizziness. And then there may also be sleep disturbance, which contributes to feelings of fatigue and may exacerbate all the other symptoms that I've already mentioned.

There can also be, depending on the mechanism of injury symptoms associated with a whiplash type injury, that neck pain, vertigo, due to those rapid acceleration and deceleration forces that maybe you see in a car crash or maybe you see in certain sports concussions like in football or soccer or other sports.

One thing that is important to note though, is that most of these symptoms are fairly general and nonspecific, and they occur in a large percentage of the population as a whole. So it's not always directly related to the concussion when people are having these symptoms.

**Melanie:** Well, that's so interesting that you say that. And as we're speaking about factors that might play a role in symptom presentation and recovery, we're hearing a lot more about various treatments and about return to play, which we'll get into, and about decompressing and removing yourself from electronics or school or whatever it is. Tell us about some of those factors that could play a role in some of these symptoms that you've described.

**Dr Sean Hollis:** The first thing it's important to consider are specific patient factors and the context of the injury. Some people are going to be very motivated to want to return to activities such as athletes and they might minimize some of these symptoms when discussing their concerns with a provider. On the other end of the spectrum, you might have somebody who might over-report symptoms in hopes of obtaining some sort of gain, if there's a litigation case following a car crash or Workers' Compensation issue. So you have to take into account the context of the injury when you're determining how many symptoms are present and in what severity and then what recovery is going to look like.

There are also factors involved beyond patient motivations. There's some evidence that women may be more likely to have prolonged recovery period. It's unclear whether that is due to a true physical difference or whether it's just that women may be more likely or more willing to report their symptoms and seek treatment than men may be.

There are also factors such as premorbid or post-injury psychological distress. People who are feeling depressed or

anxious, people who are having post-traumatic stress following a traumatic event are going to be much more likely to have post-concussive symptoms. And they're going to be more likely to report these.

The other thing that's important is initial presentation. Certain markers of severity of brain injury that we typically think about like length of loss of consciousness, post-traumatic amnesia, Glasgow coma scale score, these are not consistently shown to be predictive of post-concussion symptoms. But what is predictive of post-concussion symptoms are initial presentation of symptoms immediately following injury. So the more symptoms somebody has right away, the more likely they are to continue to have symptoms several months down the line.

Melanie: That's so interesting. Dr. Hollis, you've made so many good points there about looking at the context that the concussion really happened with. So now tell us about treatments that you're offering whether it's for the concussion acutely or for post-concussion syndrome. We're hearing about things like Botox. Tell us a little bit about what therapies that you do recommend and when you recommend them, because not all concussions are really emergent or even require anything, correct?

Dr Sean Hollis: That's correct. And so symptom management really should be initiated if symptoms persist beyond one to two weeks post-injury and treatment should focus on specific symptoms. You would address these things by the domain. So if somebody has mood disturbance, perhaps you need to make a referral for psychotherapy. If somebody is having vertigo, they may benefit from vestibular therapy. If somebody is having chronic headaches following concussion, maybe there's medication management needed.

And so for a provider, seeing somebody with post-concussion syndrome, you're going to want to address individual symptoms and make referrals as necessary. You may also consider referrals to a multidisciplinary concussion clinic in challenging cases or with patients who have multiple symptoms. The other thing that we want to do is encourage our patients to resume regular routines as much as possible. And the reason for this is so that we avoid deconditioning our patients and so that we don't contribute to symptom intolerance or fatigue. So the goal is to slowly increase activity over time, to rebuild stamina and tolerance to any persisting symptoms and not to let our patients engage in avoidance behaviors where they're not going out in the sunlight or they're wearing sunglasses indoors because they're sensitive to light. The more they do these types of behaviors, the more sensitized they will get. And that's exactly what we want to try to avoid.

Melanie: And that's pretty much the answer to my next question, which is educations and expectations for patients, for recovery. Why is it so important to educate them about just what you were just discussing?

Dr Sean Hollis: What we will frequently see is that if patients don't know what to expect, they're going to potentially be hypersensitized to their symptoms. If they have an expectation that their recovery may be prolonged, then they are much more likely to experience these symptoms. And this is known as the nocebo effect. It's basically the opposite of a placebo effect. Patients with a placebo effect improve because they expect treatment to be effective. When we see post-concussion symptoms and a patient doesn't know what to expect, there may be a nocebo effect, which means that they will experience additional or worsening symptoms because that's their expectation that they will get worse or their symptoms or remain for the long-term.

And so it's very important for patients who have had a concussion or who are having post-concussion symptoms to receive information from their providers about what to expect in terms of which symptoms are normal and expected, what a timeline for those symptoms is in terms of symptom resolution and that these things are expected to resolve over time. All these symptoms should get better for most people within weeks or months. But for everyone one, the expectation would be 100% recovery from a concussion. And we want people to hear this from their medical providers, rather than seeking out potentially disreputable sources, like the internet or asking non-experts for advice and hearing things that really may not be accurate.

**Melanie:** What an interesting area of study that you're in, Dr. Hollis. As we wrap up, what would you like other providers to take away from this discussion on post-concussion syndrome, when you feel that it's important that they refer to a specialist? And kind of reinforce the importance of education and understanding these symptoms and even really the methods by which concussion occurs.

**Dr Sean Hollis:** The number one takeaway is just stay up-to-date on the most recent treatment recommendations. There is still a widespread understanding that after a concussion people should significantly limit activities and have a period of extended rest. And that's really no longer the recommendation, even though a lot of people continue to get this advice.

So current recommendations are now typically you should have relative rest, not absolute rest, for 24 to 48 hours. And then after that, we should start increasing activity so that we avoid any deconditioning or symptom avoidance. You also want to reassure your patients and normalize any initial symptoms. Give them a sense of what recovery should look like. And then if they do continue to experience post-concussion symptoms, make those referrals to specialty therapists or multidisciplinary clinics as needed after about one to two months following a concussion.

**Melanie:** Great information. Thank you so much, Dr. Hollis, for joining us today. A community physician can refer a patient to UAB Medicine by calling the MIST line at 1-800-UAB-MIST. That concludes this episode of UAB MedCast. For more information on resources available at UAB Medicine, please visit our website at UABMedicine.org/physician. Please also remember to subscribe, rate and review this podcast and all the other UAB Medicine podcasts. I'm Melanie Cole,