

CONCUSSION

WHAT SHOULD YOU BE DOING AFTER SMALL OR SEVERE KNOCKS TO THE HEAD?

After 15 years in the National Basketball League and a stint in Australia's national team, the Boomers, Jacob Holmes inevitably got his fair share of less severe concussions.

STORY / DR JULIE MILLAND



Dr Julie Milland is a journalist and scientist covering health, science and technology. Her stories have appeared in ABC News, The Science Show on ABC Radio National, The Age, The Sunday Age, the Sydney Morning Herald and The Citizen. Dr Milland has a PhD in biochemistry/molecular biology and a Master of Journalism from the University of Melbourne.

Even at almost two metres tall, Jacob Holmes said he was still “too low” to get a severe knock to the head during his professional basketball career.

“The head knocks were happening up higher... while other players had jumped up high and banged heads up above the ring, I was stuck down below the net,” he said.

“We really didn’t know enough about what is going on in the brain when it gets repeatedly knocked, so we didn’t know exactly what was happening. For me, that was always the scary thing.”

Player welfare

Since his retirement in 2015, Mr Holmes has dedicated himself to player welfare and is now the General Secretary of the Australian Athletes Alliance (AAA), which launched a concussion working group in late 2016.

He is keen for the resources and knowledge gained through the work of the eight major professional players associations in the AAA, to help grassroots adult athletes and children playing sports.

“It may seem like professional sports people these days are only concerned about themselves, but this is definitely not the case. The athletes have a



deep focus on ensuring what they do and also what they learn flows on to positively affect grassroots athletes and kids coming through," he said.

Now with two daughters, Mr Holmes said, like many other parents, he wants more information about the long-term effects of both repeated milder concussions and severe concussions.

"If a kid gets a concussion or a knock on a Saturday afternoon, we want to make sure that we look after them and we are enacting the best processes and protocols we can to protect the kids playing the game."

He said that with all the media coverage of concussion from the USA, more knowledge and understanding about its impacts is essential to ensure an appropriate response.

"We want to make sure we are not flying off the handle and saying 'don't play sport'. We really don't want unsubstantiated fears steering people away from really important social and societal activities such as team sport and sport in general. But at the same time, we need to take a cautious and conservative approach when managing concussions," Mr Holmes said.

Enjoying sport safely

Professor Pankaj Sah, Director of the Queensland Brain Institute at The University of Queensland, agrees that awareness of concussion should not stop people from enjoying physical activity.

"The benefits of sport are huge. And it is not our intention to make people worry about exercise."

Professor Sah said people involved in physical activities should be aware of the potential effects of concussion. But unfortunately, the average person who plays contact sport has little awareness until they get a severe knock to the head.

"My view is that if you are regularly playing a sport that is more likely to cause concussion, like rugby, for instance...or if you are playing a sport like football where you are running into people and things at speed, at least you ought to be aware of concussion."

Professor Sah said concussion fits into the category of mild traumatic brain injury.

"A concussion is damage to the brain as a result of movement, if you like. It does not necessarily mean a blow to the head, but it involves movement of the brain inside the skull."



He said concussion does not have a strict definition like so many other medical conditions, but he suggested people consider the symptoms of concussion and behave accordingly.

In other cases, concussion does not have immediate signs or symptoms but if any appear in the days after the knock to the head, people should go to the doctor straight away.

Professor Sah said concussion without immediate signs can make diagnosis difficult, so it is important to watch for signs and symptoms for the next day or two.

“If you have a fall...you may get up and at first things are fine. But the next day you have a headache, you feel a bit dizzy, you are having trouble concentrating, your sleep is disrupted or there is some change in vision. Then you should go and see your doctor immediately,” he said.

Concussion assessment

Unlike many other medical conditions, there is no specific diagnosis for concussion. Instead, doctors and sports trainers use assessment tools to test for signs and symptoms. Professional athletes are given the Sport Concussion Assessment Tool (SCAT) on the field and doctors use very similar tools.

“What will happen is your doctor will assess you for ordinary symptoms by asking the same sorts of questions as the SCAT that is used for sports people,” Professor Sah said.

If there are any indications of concussion, such as headache or dizziness, doctors will monitor the

situation. For more severe symptoms, doctors will send the athlete for a scan or for an assessment with a specialist such as a neurologist.

For mild concussion, Professor Sah said rest is the best form of treatment. If the concussion is more severe, doctors might advise a longer period of rest. A doctor is best placed to advise when people can go back to training or playing.

Professor Sah said the future of concussion diagnosis lies in developing objective measures of the severity of concussions and this is the aim of the Queensland Brain Institute’s concussion research initiative launched last year.

Ideally, two types of objective tools would be available: one to diagnose concussion and another to give a long-term indication of the level of damage to the brain. Professor Sah said the best-case scenario would allow the tests to score the level of concussion on the playing field using samples such as saliva or a pinprick of blood.

Preventing misdiagnosis

Associate Professor from the School of Allied Health at La Trobe University, Alan Pearce, said it was time to move away from relying on the judgement of doctors and use objective methods, such as blood markers, to measure how the brain is functioning.

“Something has to happen because there are too many examples of individuals being misdiagnosed or missed completely by clinicians. And this is not to point blame at doctors because athletes sometimes deliberately hide symptoms,” Associate Professor Pearce said.

He said that over the last five to seven years, the media has focussed on the big hits to the head, often showing visions of rugby or AFL players being “absolutely cleaned up and stretched off”.

“And as bad as that is, that’s not really the issue that is leading towards Alzheimer’s disease and dementia or even the condition they are finding in America called CTE, chronic traumatic encephalopathy”.

Associate Professor Pearce said while one or two severe concussions are not good for brain health, they have not been shown to cause early onset dementia.

“It is more these small knocks to the brain that do not show up with signs and symptoms but they might total in the hundreds or thousands or even

Signs and symptoms of concussion may occur straight away or appear in a day or two	
Signs Things that other people can see	Symptoms Things that you can feel or perceive
Confusion	Headaches
Memory problems	Dizziness
Incoherent or slurred speech	ringing in your ears
Disorientation	Tiredness
Dazed stare	Difficulty concentrating
Loss of consciousness	Sensitivity to light
Vomiting	Balance problems

tens of thousands in the career of an athlete of 10 to 20 years. And these smaller knocks could be leading towards Alzheimer’s and dementia.”

Associate Professor Pearce’s current research is studying what happens in community level sports, or the so-called “weekend warriors” who play amateur sport.

Acting on concussions

He said these amateur players often miss two opportunities to act on possible concussions.

“The first missed opportunity happens in a lot of cases when players take a fairly significant impact and then get back up and keep playing. At the elite level they would be immediately taken off to be assessed.”

“The second opportunity is when players may have taken a hit during the game or a few knocks and they will come off after the game and probably get straight into the alcohol because that is what happens with club sport,” he said.

Associate Professor Pearce said simple objective measures of concussion would help amateur players know when they should leave the field and when they should see a doctor.

“But as important as a sideline test would be, it is more important to have a test showing when players can return to play after a break or whether they need another week of rest.”

He said even though the recommendation is “if in doubt, sit it out”, many amateur players just want to go back to training the following Tuesday or Thursday night.

In addition to his research, Associate Professor Pearce is a member of the AAA’s concussion working group. He said the group has talked

about community level sports and has recognised that it can take a leadership role in this space.

He said the field is rapidly changing and the working group will be looking at many aspects of concussion research and guidelines and how they relate to athletes.

“Definitely a case of ‘watch this space’” he said.

Mr Holmes has also noticed the rapid change in concussion management during his professional basketball career.

“It is amazing the difference in how concussions were dealt with in 2001 and 2002 compared to when I finished in 2015. The difference was stark, in a positive sense. By 2015, it was about getting the player off and doing the appropriate tests,” he said.

“I still think that things have improved even in the last two years and we are still getting better. I think that demonstrates how much progress has been made but we still have a long way to go,” he said.

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