Background: The health benefits of regular exercise are well established. However, participation in contact sports with frequent head impacts is associated with increased risk of neurodegenerative diseases including dementia. Traumatic brain injury (TBI) can trigger progressive damage in the brain, but it is not clear what type of injuries are most risky or how best to diagnose post-traumatic dementia. Chronic traumatic encephalopathy (CTE), describes a specific pathological appearance associated with some cases of post-traumatic dementia, characterized by the accumulation of an abnormal protein (tau) within the brain and can only be diagnosed at autopsy. There has been increasing media interest in this topic, with numerous well publicized cases of young onset dementia in rugby players allegedly due to “CTE”, as well as documented pathological cases of CTE in people who have played contact sports professionally.

Uncertainties: CTE is a specific pathological appearance (not a clinical diagnosis) associated with TBI. It can only be diagnosed at autopsy and there are established pathological criteria for the diagnosis. There are no agreed clinical criteria for diagnosing CTE in life and there are many unanswered questions including:

- The prevalence of CTE
- Which sporting groups may be at particular risk
- The threshold of TBI severity or frequency required to trigger CTE pathology
- If CTE is associated with a distinctive clinical syndrome of post-traumatic dementia
- If repeated mild TBI increases the risk of neurodegenerative diseases
- The role of other factors, including genetics and other co-morbidities, that may influence risk.

Specialist Clinics for the Management of Long-Term Effects of TBI:
In younger people (< 65), the incidence of neurodegenerative disease is very low; alternative, potentially treatable, causes of neurological symptoms, such as functional cognitive disorder, depression and anxiety, are often more likely explanations. Neurologists are best placed to ensure accurate diagnoses of neurodegenerative disease, using accepted diagnostic criteria. Specialized services are needed in diagnostically complex cases and a number of these already exist offering multidisciplinary input, as well as access to research.

ABN Recommendations: Neurologists have a key role to play in the assessment and management of people presenting with neurological symptoms after TBI, both in acute and chronic scenarios. The ABN encourages neurologists to become more involved and recommends the following:

1. The assessment of individuals with persistent memory complaints and prior history of exposure to head impacts should be led by neurologists.
2. The diagnosis of post-traumatic dementia should not be made without involvement of a neurologist with expertise in TBI and/or cognition. Diagnosing dementia and other neurodegenerative diseases can be difficult and making a wrong diagnosis, or missing a treatable condition, is likely to cause harm.
3. Regional specialist clinics led by neurologists with a particular interest in TBI and cognition should be established for the assessment of complex cases of possible post-traumatic neurodegeneration. These require appropriate multi-disciplinary teams and access to high quality diagnostic investigations, and should facilitate research in this area.
4. We support enhanced efforts by sporting bodies to develop evidence-based approaches to minimising head injuries during participation in sport, to have “return to play protocols” after head injury and to educate individuals about the rationale for these restriction in terms of brain health.

Acknowledgement: we are grateful to the ABN TBI Advisory group in preparing this statement.