



# The PSP Association's International Medical Workshop 7<sup>th</sup> July 2009

## ABSTRACT

**Title of Talk:** PSP AND THE TAU OF TRAUMA

<b>Part 1: Speaker(s) details</b>	
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**Part 2: Abstract (Maximum 400 words)** Please make your abstract easy to understand as it will appear on our website and will be read by people with PSP and their carers who are not scientists but who will want to understand your work and what it means for them.

There have long been associations made between traumatic brain injury and the subsequent development of neurodegenerative disease. Of particular interest is the observation that a history of repetitive head injury, as seen in boxers, can result in the motor deficits of Parkinson's disease and cognitive problems, sometimes described as "punch-drunk" syndrome. In fact there are similarities between the clinical symptoms and pathological changes seen in PSP and those seen in what has recently been termed chronic traumatic encephalopathy (CTE). In both disorders abnormal tau protein deposition can be seen in nerve cells and the supporting astrocytes. However, on closer inspection of the brain at autopsy it becomes clear that there are significant differences in the distribution of this tau pathology. In PSP much of the abnormal tau protein is found in subcortical structures such as the basal ganglia, thalamus and brainstem whereas in CTE the neurofibrillary tangles and astrocytic staining are concentrated in the superficial layers of the cerebral cortex.

In addition to the literature on repetitive injury there are also numerous epidemiological studies suggesting that a single head injury that is serious enough to cause loss of consciousness may also increase the risk for neurodegeneration in the longer term. However, such studies rely on looking at the clinical histories of large numbers of patients and it is almost impossible to say with any certainty for any given individual whether head injury played a significant role in their disease. In conclusion, while there is evidence that head injury can cause widespread tau pathology, as yet there is little direct evidence to suggest that it might increase the risk of developing PSP.