

## High fiber cashew juice attenuates brain damage and dysfunction induced by cerebral ischemia in obese rats

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**Statement of the Problem:** Despite the increasing in prevalence of cerebral ischemia in metabolic syndrome, the therapeutic efficacy is still in unsatisfaction level. Based on the crucial roles of oxidative stress and inflammation on the pathophysiology of cerebral ischemia in obesity and the benefit of dietary fiber on brain function, the beneficial effect of the high fiber supplement possessing antioxidant and anti-inflammatory activities has gained attention. Therefore, we aimed to determine the protective effect against cerebral ischemia in obesity condition of high fiber cashew juice.

**Methodology & Theoretical Orientation:** Male Wistar rats, weighing 200-250 g, were Induced Metabolic Syndrome (MetS) by high Cholesterol High Fat (HCHF) diet for 12 weeks. The rats which showed MetS characteristic were induced cerebral ischemia by occluding the right middle cerebral artery. The obese rats with cerebral ischemia were orally given the juice containing the leaf extract of cashew or *Anacardium occidentale* and dietary fiber derived from byproduct of cashew pulp at doses of 1, 10 and 100 mg/kg BW once daily for 14 days. The animals were determined spatial memory and neurological score every 7 days throughout the study period. At the end of experiment, they were determined ischemic brain volume, oxidative stress status, neuron density and AChE activity in hippocampus.

**Findings:** All doses of high fiber cashew juice significantly improved memory impairment, neurological score, brain infarcted volume and edema. The oxidative stress status, neuron density reduction and an elevation of AChE in hippocampus were also mitigated. Therefore, our results suggested that high fiber cashew juice could improve hippocampal damage by attenuating oxidative stress status and AChE activity resulting in the increasing survival neurons and hippocampal dysfunction or memory impairment. The decrease brain infarction and edema gave rise to the improved neurological score.

**Conclusion & Significance:** High fiber cashew juice is the potential supplement to protect against cerebral ischemia in obesity condition. However, clinical trial study to support this effect is essential.

### Biography

Pratthana Srichomphu is PhD student in Neuroscience program of Research Institute of High Human Performance and Health Promotion, Khon Kaen University, Khon Kaen, Thailand. She has received her MSc from Faculty of Medicine, Khon Kaen University. Her research focuses on obesity and cerebral ischemia in animal models. She has experience in research of the functional food and herbal health product.

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