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HYDRATION AND THE HUMAN BRAIN: EXPLORING THE RELATIONSHIP BETWEEN WATER INTAKE, MEMORY, AND ATTENTION

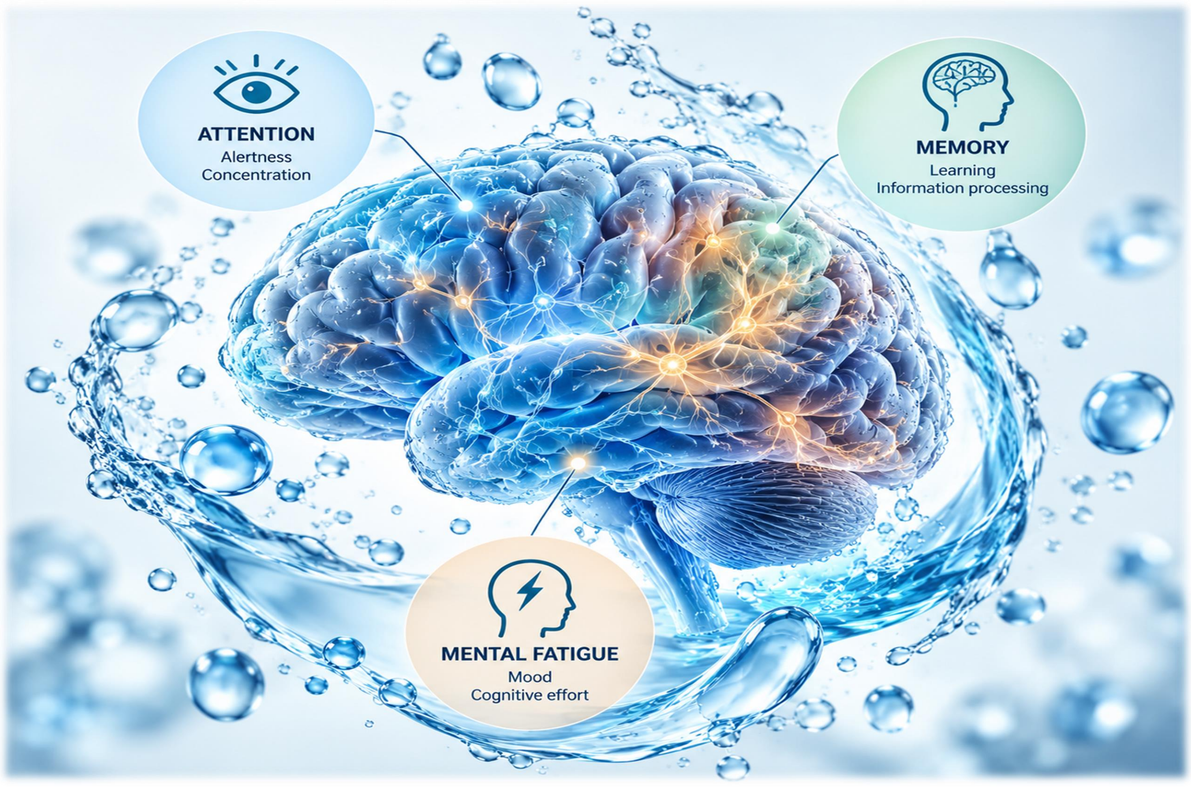
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Abstract: Water balance may influence cognitive performance, particularly attention, memory, and mental fatigue. This review examines physiological mechanisms linking hydration to brain function, evaluates evidence concerning mild dehydration, and discusses the potential benefits of adequate water intake for cognitive performance.

• Introduction

Water supports neuronal function, cerebral homeostasis, and normal physiological regulation. Mild dehydration may affect alertness, concentration, and mood, although cognitive responses vary between individuals and experimental conditions.



• Material and method

A narrative review of scientific literature addressing hydration status, water consumption, and cognitive performance, with emphasis on experimental studies evaluating memory, attention, and mental fatigue.

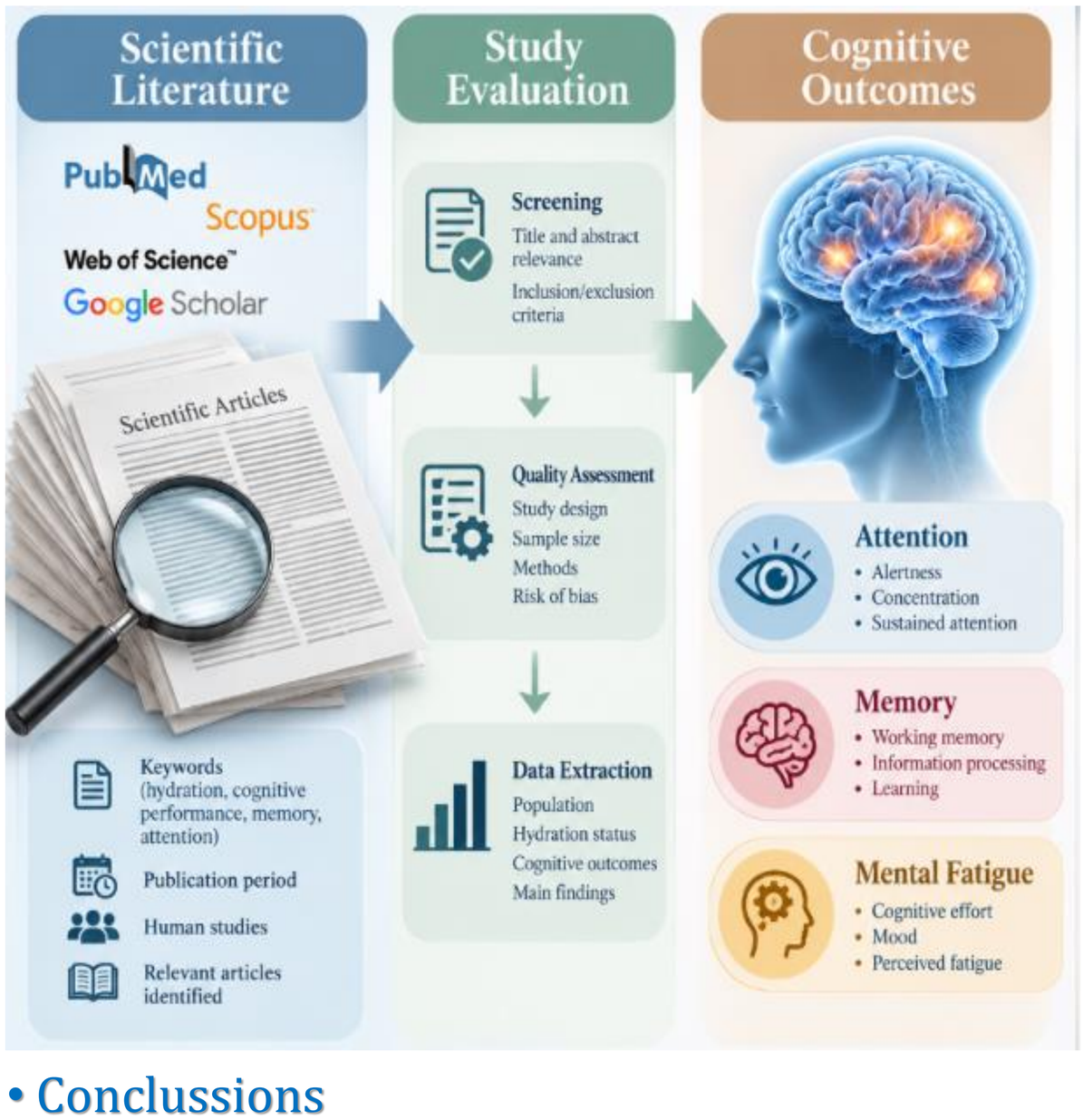
• Results and discussions

Hydration and Attention: Mild dehydration may reduce alertness & increase perceived mental effort.

Hydration and Memory: Experimental findings concerning working memory and information processing are inconsistent, with outcomes influenced by hydration status and study conditions.

• Results and discussions(continue)

Dehydration and Mental Fatigue: Mild dehydration has been associated with increased fatigue, reduced alertness, and mood alterations, sometimes without measurable cognitive impairment.



• Conclussions

Adequate hydration supports brain function and cognitive well-being. Mild dehydration may affect alertness, mood, concentration, and mental fatigue, although its effects on memory and attention remain inconsistent. Maintaining appropriate water intake may support cognitive performance, particularly during prolonged intellectual activities. Further research is needed to clarify these relationships and identify optimal hydration strategies.