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### Cognitive impairment due to biological ageing process related to DNA damage assessed by the comet assay

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Cognitive impairment is costly and invalidating. While age is the strongest known risk factor for declining cognitive function, other risk factors include environmental exposure to pollutants, unhealthy diets, or toxic habits, among others. Since these risk factors have been related to DNA damage, the promising potential of comet assay to explore the association between DNA damage and cognitive dysfunction due to biological ageing was examined. We reviewed and summarized recent studies exploring the relationship between DNA damage evaluated by means of the comet assay and cognitive function both in animal models and in humans. A general overview of studies determining cognitive dysfunction related to DNA damage due to the biological ageing process is provided. The review confirmed the potential of the comet assay to further explore the link between DNA damage, as indicative of genomic instability, and cognitive impairment in different research and clinical areas. Studies analysed support a considerable relationship between DNA damage and cognitive impairment, mainly affecting executive functions, working memory and attention. These cognitive domains are crucial to daily functioning and occupational performance, with important clinical implications.

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