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DICe- Dietary Intervention on Cognition

Aim:

To evaluate the feasibility of a dietary intervention using vegetable oils (coconut vs sunflower oil) on cognition and quality of life in older adults and those with Mild Cognitive Impairment (MCI).

Research Questions



Can older adults and those with MCI adhere to a dietary intervention using vegetable oil?

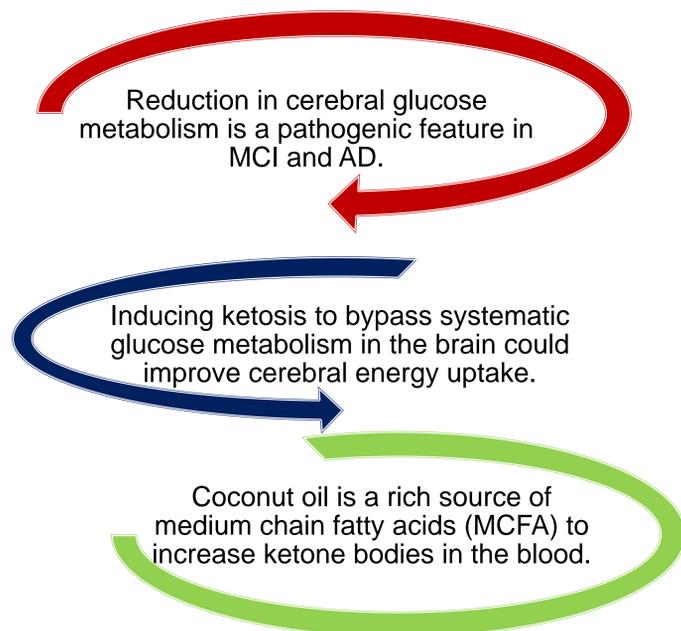


What are the effects of coconut oil intake on diet, memory and quality of life of older adults?

Background:

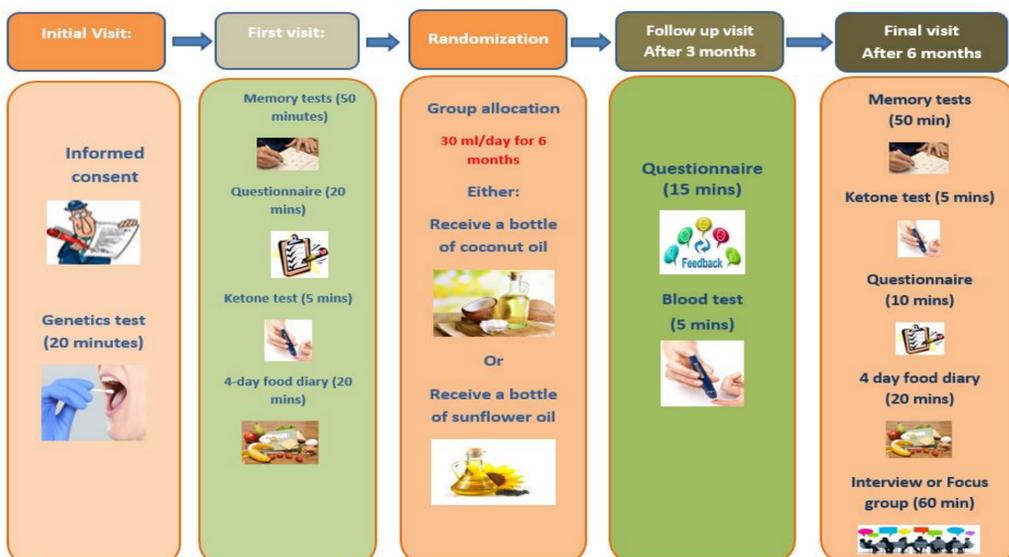
Reduction in cerebral glucose metabolism (brain energy) related to ageing has been associated with memory loss in older adults. Inducing ketosis to provide an alternative source of energy (ketones) could reduce neurodegeneration in older adults and adults with Mild Cognitive Impairment (MCI).

Glucose hypo-metabolism & Coconut oil



Methods/Study Design:

The study followed a randomized controlled trial design. 18 (13 F, 5 M) participants; (2 with a diagnosis of MCI) 65 years old (median 77 years) were asked to incorporate either 30 ml/day of coconut or sunflower oil for 6 months into their diet (with guidance and recipes).



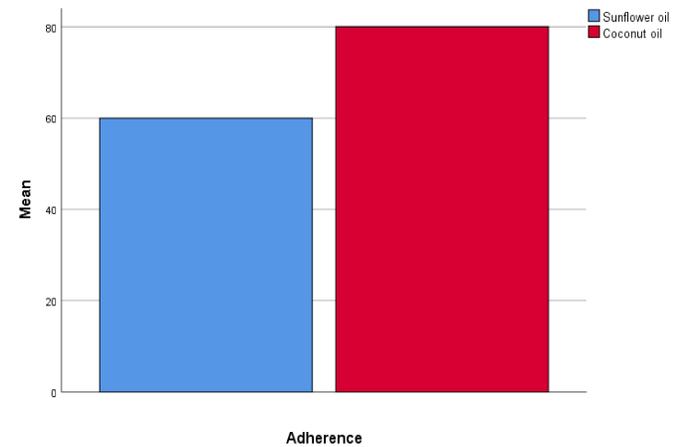
References:

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Cunnane, S. C., Courchesne-Loyer, A., St-Pierre, V., Vandenbergh, C., Pierotti, T., Fortier, M., Croteau, E. and Castellano, C.-A., 2016. Can ketones compensate for deteriorating brain glucose
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Results:

Adherence:

- 2 dropped out (1 M, 1 F) due to the dislike of the flavour of coconut oil (11%)
- 8 participants (1 with MCI, 7 >65 years) demonstrated an 80% adherence to 30ml/d intake of coconut oil.
- 8 participants demonstrated 60% adherence to 30ml/d intake of sunflower oil



Cognitive Measures:

Different aspects of cognition including memory were assessed psychological assessments.

Within the coconut oil group:

- There was a significant increase ($p = .03$) in the number of words people recalled between the pre ($Mdn = 3.5$), and post- intervention ($Mdn = 4.5$)
- Also, there was a significant improvement ($p=.04$) in short delay (which is recalling a list of words that have been recently learnt after they are read a list of interfering words) between pre ($Mdn = 4.5$), and post-intervention $Mdn=6.5$)

- There were no significant differences in other measures for: Overall Cognition (i.e. m-ACE mini Addenbrookes Cognitive Examination) & Executive functions & Verbal memory
- There were no significant differences observed for cognitive measures in the sunflower oil group.

Quality of Life:

The ADCS- MCI- ADL questionnaire was used to assess quality of life; no significant change in Quality of Life was detected.

Diet:

Pre and post intervention, there were no significant differences in the dietary intake for energy, fat and protein intake despite the addition of oil to the diet.

Conclusion:

Preliminary findings from this study demonstrate:

- The ability of older adults and those with MCI to adhere to a 30 ml intake of coconut oil per day.
- Older adults can consume 30 ml/d of coconut oil without increasing their total fat intake.
- There seems to be some effect of coconut oil intake on verbal memory in older adults and those with MCI (however, this is a very small group and results have to be replicated in a larger study).
- There is potential for this dietary intervention to improve cognitive functions for longer in older-adults by delaying the onset of dementia and reducing cognitive decline.