

Is there a relationship between breakfast consumption and the attention and concentration of 18-27 year-old students?

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Background

Current research suggests that breakfast consumption can improve cognitive function, especially amongst children and adolescents (Adolphus *et al.*, 2013; Hoyland *et al.*, 2008). However, there is a lack of studies investigating the impact of breakfast on the cognitive function of young adults and students.

Despite the possible benefits, breakfast is the most commonly missed meal, with as many as 30% of the European population failing to eat breakfast on a daily basis (Rampersaud *et al.*, 2005). 19-24-year olds were found to be the age group omitting breakfast the most (Williams, 2007). Additionally, students of this age group face many barriers to eating breakfast, such as the cost, lack of nutritional knowledge, time and their lifestyle living away from home (Pendergast *et al.*, 2016).

The primary aim of the current study was to determine whether breakfast consumption amongst non-breakfast eating students (aged 18-27), undertaking higher education, effects their attention and concentration levels.

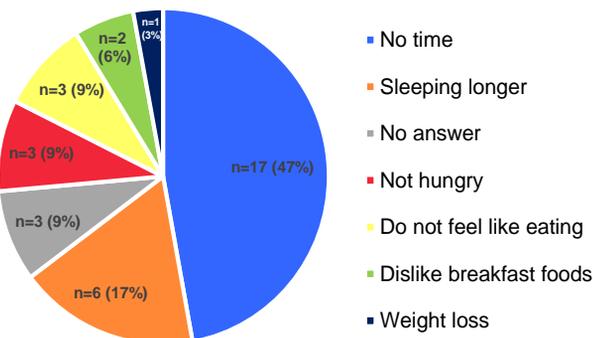
Methodology

With ethical approval from the Cardiff Metropolitan University ethics committee, participants were recruited by snowball sampling to complete a one week intervention study. Participants were introduced to the consumption of breakfast, based on options providing 50g of carbohydrates. Attention and concentration levels were tested pre and post intervention with the use of an attention span test created by Psychology Today (2017). A questionnaire was also completed to assess their intakes, mood and physical feelings post intervention.

Results

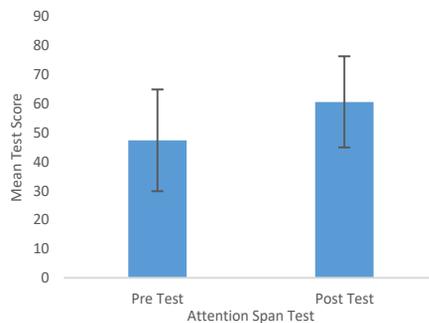
35 students completed the intervention study, representing a response rate of 94.6%. 18 females and 17 males took part, with a mean age of 23.4 years (+/- 2.626).

Reported barriers to consuming breakfast:



Top 3 chosen breakfasts during the week compared to weekend:

Rating	Weekday		Weekend	
	Breakfast Option	Frequency of consumption	Breakfast Option	Frequency of consumption
1	Cereal	56 (32.0%)	Cereal	16 (22.9%)
2	Toast	24 (13.7%)	Sausage/ bacon bap	15 (21.4%)
3	Porridge	17 (9.7%)	Eggs on toast	7 (10.0%)



Mean improvement in attention span test scores of 13.25 after eating breakfast for a week. The Paired T-Test provided a significant p value of <0.01

68.5% (n=24) reported moods greater than normal after breakfast
74.3% (n=26) reported positive physical feelings after breakfast, such as more energy, greater satiety and feeling healthier.

Discussion and Conclusion

The results highlight that time was the greatest reported reason for skipping breakfast, a finding also stated by Pendergast *et al.* (2016). This barrier links to Mintel's (2016) finding, revealing that convenience is the greatest determinant of breakfast choice, due to the fast-paced lifestyle of the 21st century, as was also found by the present study. Quick breakfasts were chosen on weekdays, whereas cooked breakfasts were chosen on the weekends, supporting previous research by Marshall (1995) and Mullan *et al.* (2011), who found that the academic and work routine of the average UK population directly impacted eating habits.

The main finding of the present study was the overall improvement in attention span test scores after a week of eating breakfast, specifically amongst 18-27 year old students who do not habitually eat breakfast. Suggesting that breakfast may improve certain cognitive domains. There are many theories as to why breakfast may improve attention and concentration, including alleviating hunger (Rampersaud *et al.*, 2005), nutrient provision to the brain after a period of fasting, as well as improving nutritional status (Deshmukh-Taskar *et al.*, 2010). Therefore, to conclude, further research is required to promote breakfast consumption and its cognitive effect.

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