

## Introduction

- Foods with high glycemic index and high glycemic load absorbed faster by our body and resulted in high glycemic response, which promoted fat oxidation and higher fat storage.
- According to Malaysian Food Pyramid, carbohydrate from rice, breads, noodle, cereals, wholegrain products are main component, and we are encouraged to eat the most among the food groups. However, there are links between carbohydrates and fat accumulation.
- Body fat percentage can be determined with 4 sites skinfold thickness: biceps, triceps, subscapular, suprailiac.

## Objective

To study the association of dietary glycemic index and dietary glycemic load with body fatness of aboriginal primary school children in Negeri Sembilan.

## Methodology

A cross-sectional study conducted in 3 Aboriginal primary schools in Negeri Sembilan which involved 320 Aboriginal children.



Semi-quantitative food frequency questionnaire was used to assess their food consumption.

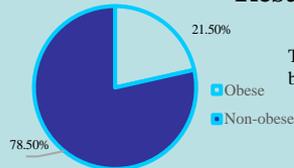


### Software used:

- DietPLUS: To obtain GI and GL of foods.
- IBM SPSS Statistic: Analyzed all the data.



## Results



The prevalence of obesity based on body fat percentage was 21.5%.

	Age Group (years old) 7-9	Age Group (years old) 10-12	Person Chi-Square	Assymp. Sig (2-sided)
Obesity (%)	13.9	86.1	9.072	0.003*

The prevalence of obesity was higher among the children aged 10-12 years old compared to 7-9 years old (86.1% vs 13.9%;  $\chi^2 = 9.072$ ,  $p = 0.003$ ).

	Q1	Percentile Group of TOTAL GI Q2	Q3	Q4	Pearson Chi-Square	Assymp. Sig (2-sided)
Working	51.4%	52.8%	83.3%	40%	9.970	0.019*
Not working	48.5%	47.2%	16.7%	60%		

60% of children with working parents consumed high GI foods compared to non-working parents (60% vs 40%;  $X^2 = 9.970$ ,  $p = 0.019$ ).

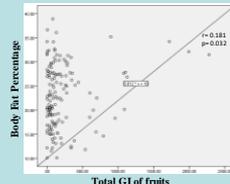


Figure 1.0 Pearson correlation between body fat percentage and total GI of fruits.

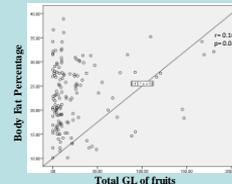


Figure 2.0 Pearson correlation between body fat percentage and total GI of fruits.

There were significant positive but weak correlation between body fat percentage and total glycemic index ( $r = 0.181$ ,  $p = 0.032$ ) and total glycemic load ( $r = 0.167$ ,  $p = 0.047$ ) of fruit group.

## Discussion

- Mean body fat percentage for girls is 29.51% and 19.23% for boys while one study from Robinson and Sutin reported that mean body fat percentage for girls is 11.98% and 8.05% for boys [1].
- A study reported that Malaysian Aboriginal children consumed more carbohydrates than other food group [2] whereby cereals and tubers, especially rice and tapioca as their main foods and fruits such as rambutans, durians and raisins are high in GI [3]. Aborigines often consume cheaper energy-dense food due to financial issue which is likely to increase their body fat [4].
- Foods with high GI absorbed faster, thus break down into glucose faster which then triggers the release of insulin. High glycemic and insulinemic responses can alter appetite and energy metabolism, which promote the accumulation of body fat [5].

## Conclusion

Based on the data analysis, dietary advocations should concentrate on enhancing on fruits with low GI and GL in order to prevent accumulation of body fat.

## Acknowledgement

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## References

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