



## Prevalence and dietary risk factors associated to erosive tooth wear in Cambodian adolescents

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## Background

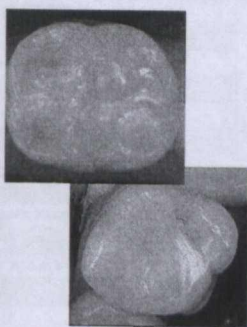
- ❖ Funded by Malaysian Ministry of Education
- ❖ G to G initiative under the ASEAN platform for a few targeted neighbouring countries : Cambodia, Laos, Vietnam and Myanmar
- ❖ Extension of the 2007 – 2009 IADR SEA Division's Regional Development Program.
- ❖ Part of a bigger study that also investigated the general tooth wear and its associated risk factors.



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## Definition

- ❖ Erosive tooth wear is the combine effect of erosion and mechanical wear (abrasion and attrition) on tooth surface.



*Huysmans et al. (2011)*

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## Objective

To determine the prevalence and severity of erosive tooth wear in Cambodian adolescents and to investigate the associated dietary risk factors.



## Study population

- ❖ Multistage cluster sampling
- ❖ 487, 13-15 year-old adolescents attending 4 different secondary schools around Phnom Penh schools that met the inclusion criteria were examined.



## Recording of Erosive lesions

- ❖ Basic Erosive Wear Examination (BEWE) index

Score	Description
0	No erosive tooth wear
1	Initial loss of surface texture
2	Distinct defect, hard tissue loss, <50% of the surface area
3	Hard tissue loss > 50% of the surface area

- ❖ The buccal/labial and occlusal/incisal surfaces of all permanent teeth were examined



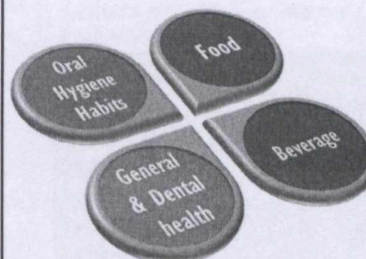


### Intra-oral examination

- ❖ 5 Examiners were trained and calibrated. Inter- and intra-examiner kappa ranged between 0.78 – 0.85
- ❖ Teeth were cleaned and dried prior to examination.



### Questionnaire



- ❖ Administered via Interviews by calibrated interviewers



### Questionnaire



Fresh oranges
Fresh pineapple
Fresh pineapple (added with salt and chilli)
Fresh lemon/lime

#### CAMBODIAN FOOD

Mjeu (eg green mango, tamarind)
Mjeu (added with salt and chilli)
Pickled vegetables
Pickled fruit (sour type)
Samlor machu (tamarind base sour soup)
Ngam nguv (Soup with preserved lemon)
Fermented Fish Paste ( <i>prahok</i> )
Fermented Prawn Paste ( <i>kapi</i> )
Raw Chilli – with other food
Dried Fruit eg; Keam Boiy
Curry/spicy foods



### Questionnaire



Natural fruit juice (100%)(e.g. orange, apple)
Diluted fruit juices
Fizzy drinks (e.g. Coke, Sprite)
Low calorie fizzy drinks (e.g. Diet Cola)
Sports drinks (e.g. Lucozade)
Energy drinks (e.g. Sting, Red Bull)
Sugar cane juice
Sugar cane juice (added with lemon/orange)
Sour palm juice

Syrup drinks / cordial (coloured drinks)
Syrup drinks / cordial (coloured drinks) (added with lemon / orange)
Bottled water
Non-bottled water e.g. from tap or well
Milk
Tea with lemon
Tea without lemon
Coffee

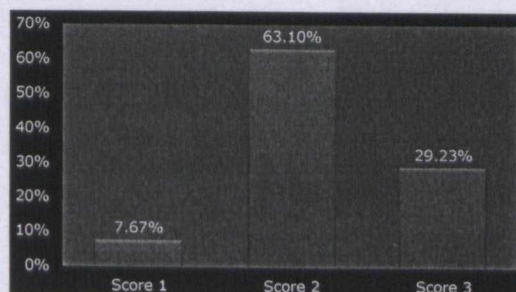


### RESULTS Prevalence of at Subject Level

- ❖ 71.8% of the subjects presented with at least one tooth with BEWE score 1
- ❖ The most frequently affected teeth were the **first molars**



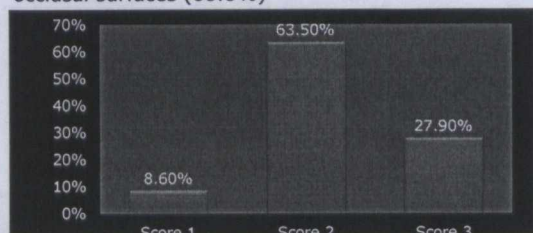
### RESULTS Severity





## RESULTS Surfaces Affected

- ❖ The most frequently affected surfaces were the occlusal surfaces (68.8%)



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## Results – Risk Factors

- ❖ Acidic food that were most popular among the subjects were 'samlor machu' (a tamarind base sour soup)

Food	% of subjects that consumed the food item 1 – 4 times / week
Samlor Machu	72.3
Mjeu with chilli and salt	56.6
Oranges	48.5
Pickled fruit	41.5

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## Results – Risk Factors\_Fisher's Exact Test

Fisher's Exact test was used to evaluate association between consuming each food item or in combination 1-4 times/week and having at least one BEWE score 1 lesion on the occlusal surface.

Food	P value
Lemon/Lime	0.040
Mjeu	0.050
Pickled Vegetables	0.428
Samlor Machu	0.381
Ngam Nguv	0.297
Combination	0.046

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## Results – Risk Factors\_Odds Ratio

Odds ratio was used to determine the likelihood of developing at least one BEWE score 1 lesion on the occlusal surface if a food item or a combination of food were consumed 1-4 times/week.

Food	P value
Lemon/Lime	1.604
Mjeu	1.490
Pickled Vegetables	1.056
Samlor Machu	1.143
Ngam Nguv	1.132
Combination	1.944

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## Conclusions

- ❖ The prevalence of erosive tooth wear is high (71.8%) among Cambodian adolescents.
- ❖ There is significant association between the consumption of certain food item with the development of erosive tooth wear among Cambodian adolescents

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## The Cambodian and Malaysian Team



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**SUMMARY OF RESEARCH FINDINGS****Clinical Examination Findings.****Prevalence (preliminary)**

Erosive Tooth Wear – 35% of 15-16 year olds have at least one permanent tooth affected by erosive wear.

General Tooth Wear – 50% of 15-16 year olds have at least one permanent tooth affected by erosive wear.

