

# Reliability and development of a nutrition knowledge questionnaire for Australian children (the CNK-AU)

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## Introduction

- Poor dietary habits are established in childhood and often persist throughout adolescence and into adulthood.<sup>1</sup>
- Increasing children's nutrition knowledge can have positive effects on their fruit and vegetable intake, core foods consumption and can lower their total sugar intake.<sup>2</sup>
- Interventions concerned with nutrition knowledge improvement need appropriate measurement tools.<sup>3</sup>
- However, no sufficient nutrition knowledge measurement tool exists for Australian children.

## THE AIM

To adapt, develop and validate an existing foreign questionnaire, to be used with Australian children: the Child Nutrition Knowledge Australian Questionnaire:

## the CNK-AU

## Conclusion

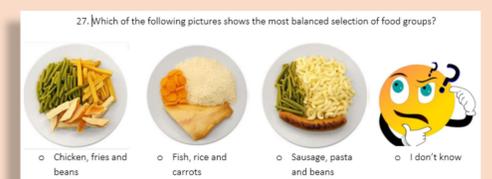
The adaptation and development of a tool to measure Australian children's nutrition knowledge was successful. Some questions and/or categories might have to be excluded. However, further validation should be done on other age groups. The AGHE serves questions were difficult and not answered consistently. However, knowing the recommended serves is considered a vital part of nutrition knowledge. The CNK-AU was useful to expose nutrition knowledge gaps.

## Methods

### THE DEVELOPMENT

- A previously validated Belgian nutrition knowledge tool<sup>4</sup> was translated and modified by a team of experts to represent Australian eating culture and recommendations.
- Several questions to better represent food sources, food safety, balanced meals and food functions were added.
- The CNK-AU consists of 8 categories (see Table 1)
- In total, CNK-AU consists of 47 multiple choice questions, 4 true/false questions, 5 multiple answer questions and 3 matrix questions.

Example question from the CNK-AU category: 'balanced meals'



## Results

- **Content validity**  
A pre-test on children and parents (n=42) showed significantly higher scores for parents
- **Internal reliability**  
The consistency of the CNK-AU within itself is especially strong for the categories 'Food categorisations', 'Food safety', and 'Food sources' (see Table 1).
- **Test-retest reliability**  
Except for 'AGHE serves', all CNK-AU categories were found to have medium-to-high strength significant correlations between the T0 and T1 scores (see Table 1). Possibly, children guessed the answers on the AGHE questions, resulting in a non-significant correlation

Table 1: Means, correlations and internal reliability of total and categories of the CNK-AU at baseline (T0) and after one week (T1)

	T0 mean ±SD	T1 mean ±SD	Δ T1 - T0	Correlation (r)	KR-20
Healthy choices	7.882 ±1.436	7.907 ±1.343	0.025	.616*	.349
AGHE serves	2.183 ±1.496	2.424 ±1.322	0.241	.190	.182
Balanced meals	2.323 ±1.023	2.128 ±1.027	-0.195	.585*	.080
Nutrient & food functions	9.315 ±2.901	9.535 ±3.278	0.220	.582*	.330
Food categorisations	13.527 ±2.673	13.779 ±2.685	0.252	.825*	.686
Food safety	7.108 ±0.994	7.128 ±0.918	0.020	.502*	.530
Nutrition labels	1.054 ±0.614	0.919 ±0.598	-0.135	.595*	.052
Food sources	11.772 ±1.276	12.047 ±1.236	0.275	.455*	.673
TOTAL	55.154 ±6.141	55.800 ±7.013	0.646	.756*	N/A

\*Significant correlation at the P<.001 level

## Methods

### THE VALIDATION

- Primary school students from Newcastle, NSW were recruited.
- 186 year 5 and 6 students (aged 9 to 12 years) completed the CNK-AU at baseline (T0).
- 94 of the students completed the CNK-AU again after 1 week (T1). (the other 92 students were part of an intervention study)
- Analysis:
  - Descriptives (means (M), standard deviations (SD))
  - **Content validity** (team of experts & pre-testing)
  - Item analysis (difficulty (% correct) & discrimination)
  - **Internal reliability** (Kuder-Richardson (KR-20))
  - **Test-retest reliability** (Pearson r correlations) reported per category score and total score on NKQAC

**T0**  
Baseline CNK-AU  
n=186  
M age= 10.87, SD 0.74  
♀= 56%

1 week →

**T1**  
CNK-AU  
n=94 (matched)  
M age= 10.86, SD 0.76  
♀= 53%

## References

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