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**The Development of a Fruit and Vegetable Liking Tool
for Preschool Aged Children**

A thesis presented in partial fulfilment of the requirements for
the degree of

Master of Science
in
Nutrition and Dietetics

at Massey University, Albany,
New Zealand

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2013

Abstract

The aim of this research is to develop a fruit and vegetable liking tool for use in caregivers and preschoolers that is a good representation of the preschooler's actual fruit and vegetable intake. Accurate assessment of young children's dietary intake is increasingly important, as evidence has linked diet with future health and wellbeing. Young children's food intake can be difficult to assess, as they lack many skills and concepts to report on their intake. Food liking may provide an indication of dietary intake. A cross-sectional validation study of 101 children, aged 51.40 ± 6.35 months (mean \pm SD), and their caregivers, was conducted to assess children's fruit and vegetable liking using a newly developed caregiver's liking tool, and a children's liking tool. A 5-point scale was used for the children, and a continuum scale for the caregivers. The maximum liking and disliking scores were 45 and - 45 respectively. The tools were compared and validated against a fruit and vegetable intake record.

The total mean liking score was 18.53 ± 12.34 out of a possible liking score of 45 for the children's tool compared with 17.46 ± 9.65 for the caregiver's tool. The children's and caregiver's results showed a higher liking of fruit (24.20 ± 15.24 and 29.17 ± 10.73) than vegetables (11.06 ± 18.16 and 6.13 ± 12.84) respectively. The children's daily mean intake of fruits and vegetables was 7.27 ± 3.03 servings, composed of 3.87 ± 1.77 servings for fruit, and 3.39 ± 1.78 servings for vegetables.

The children's and caregiver's tools were moderately correlated with each other ($r=0.284$, $P<0.001$). The caregiver's tool was validated against the intake record ($r=0.350$, $P<0.001$), but the children's tool was not ($r=-0.066$, $P=0.512$). Both the caregiver's and children's tools showed high reproducibility ($r=0.874$, $P<0.001$ and $r=0.691$, $P<0.001$) respectively.

This study provides evidence that a caregiver's fruit and vegetable liking tool may be used to assess liking and intake of fruit and vegetables in preschool aged children. The

children's fruit and vegetable liking tool may also be useful to assess their liking of fruits and vegetables.

Preface

This validation study was conducted at the Institute of Food, Nutrition and Human Health, Massey University, Auckland, New Zealand. The child's fruit and vegetable liking tool, the caregiver's fruit and vegetable liking tool and the fruit and vegetable intake record were developed by this candidate. Assessment of validity of these tools and intake record (as part of The Development of a Fruit and Vegetable Liking Tool in Preschool Aged Children study) took place between May 2013 and July 2013, and was carried out by one MSc student, this candidate. The candidate's supervisors, Dr Rozanne Kruger and Dr Kathryn Beck were responsible for the concept and overall study design.

Acknowledgements

This research was completed with the help and support of many people, without which it would not have been achieved.

Firstly, I would like to thank the 101 children and their caregivers, who took the time out of their busy lives and were so enthusiastic about this study.

Secondly, I would like to thank my wonderful supervisors, Dr Rozanne Kruger and Dr Kathryn Beck, for their knowledge, guidance and support throughout this research and thesis process.

I would also like to thank all my amazing classmates, who have been so supportive throughout the past two years.

Finally, I would like to thank my parents, who have supported me my whole life, without them I would not have been able to achieve what I have.

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List of Abbreviations

BMI	Body Mass Index
CADET	Child and Diet Evaluation Tool
CHD	Coronary Heart Disease
CVD	Cardiovascular Disease
df	Degrees of Freedom
DLW	Doubly Labelled Water
FFQ	Food Frequency Questionnaire
FR	Food Record
ICC	Intra Class Correlation
Kw	Weighted Kappa
MUHECN	Massey University Human Ethics Committee - Northern
n	Number of Participants
NZ	New Zealand
NZEO	New Zealand European and Other
OECD	Organisation for Economic Co-operation and Development
P-value	Probability Value
r	Pearson's Correlation Coefficient
SD	Standard Deviation
t	T-test Statistic
T2DM	Type 2 Diabetes Mellitus
TEE	Total Energy Expenditure
UK	United Kingdom
USA	United States of America