CUPS: A TEACHING UNIT INTEGRATING NUTRITION AND MATHEMATICS TO IMPROVE PRIMARY SCHOOL CHILDREN’S PORTION SIZE ESTIMATION

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BACKGROUND

» Schools provide an ideal environment to implement nutrition education interventions for improving children’s dietary knowledge and behaviour1
» However, crowded curricula mean teachers find it challenging to implement nutrition education as a stand-alone subject2,3
» Addressing this barrier by integrating nutrition with core subjects across the curriculum may be helpful3,4

OBJECTIVE

» The current pilot study aimed to investigate the impact of a teaching unit on portion size estimation skills when nutrition is integrated within the mathematics curriculum involving volume and capacity

METHODS

Design & Participants
» Cluster randomised controlled trial in Primary schools from the Newcastle-Maitland area with five Year 3/4 classes

CUPS Intervention
» An integrated teaching unit on nutrition and mathematics involving 6 lessons of 40 minutes each delivered across 1-4 weeks
» Experiential approach using mathematics linking cubes and food models to learn about portion size and volume/capacity
» Lessons align with NSW Mathematics and Personal Development, Health and Physical Exercise Syllabus and Australian Guide to Healthy Eating
» Control group continued their usual lessons on volume/capacity

RESULTS

Outcome measure & analysis
» Portion size estimation skills: determining the ability of a student to estimate the correct portion size of a given food using cubes and food models
» Recorded as the number of cubes that matches the volume of the food model
» Pre-intervention, immediately and 4 week post-intervention visits
» Quantitative data was analysed using linear mixed models

» A total of 69 students participated in the CUPS program

METHODS CONT.

» Intervention n=44, aged 9.5±0.6 years, 56.0% girls vs control n=25, aged 9.4±0.6 years, 65.9% girls
» Mean number of cubes for all food models was calculated
» Relative Estimation Error (REE) for the mean number of cubes was used in the model (fixed factors: group, time, group*time)

No significant group-by-time effect was observed
» Students who received the integrated lessons reduced their REE after 4 and 8 weeks (P<0.001 and P=0.01 respectively) whereas students receiving their usual lessons increased their REE (both P<0.01)

CONCLUSION

This trial uses an integrative approach to teach students about serve sizes and estimation skills while incorporating learning outcomes from the NSW Mathematics Syllabus. The findings indicate that this cross-curricular teaching strategy may have the potential to improve portion size estimation skills. As the significance for this result was not established in this small sample, future cross-curricular nutrition education interventions and strategies targeting portion size estimation skills should be conducted with a larger study population to further explore its potential impact.

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