

## Executive Summary

It is often assumed that New Zealand children are well nourished and that overweight children receive more than adequate nutrition. However diets high in energy can be low in important nutrients and a significant proportion of New Zealand children are affected by a number of nutritional and dietary problems: food insecurity at home, low vitamin and mineral intake, high fat and sugar intake, and obesity. One in three New Zealand school children is overweight or obese.

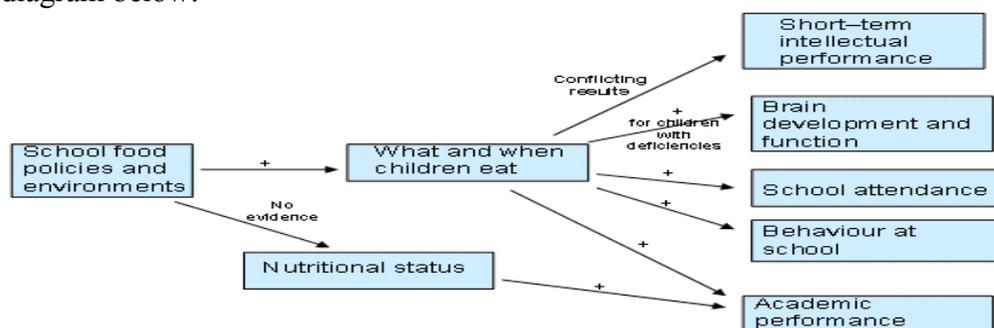
Nutritional problems disproportionately affect Maori, Pacific and children in families with a low socio-economic status, and have direct and indirect impacts on their achievement at school. Good nutrition education and food policies in schools that encourage good nutrition help children to learn important life skills, establish good eating habits and, particularly for the at-risk children, can improve nutritional status.

Anecdotal reports from teachers in schools that have improved nutrition education and introduced food policies which influence what children eat during school times are positive. The teachers believe that when children's diets improve, even just over the school day, many children become more attentive and easier to teach.

This report looks for the scientific evidence to support the theory that improved nutrition assists children to be more successful at school.

The literature review examines the relationship between nutrition and children's academic performance. The review looks at how school food policies and programmes influence what children eat. It also examines the connections between what children eat and brain development, short term intellectual performance, school attendance, behaviour at school and academic performance. Although research in some areas is limited and some of the results conflicting, overall the review clearly indicates that improving what children eat is likely to improve their school performance.

The causal links found between food and children's school outcomes are shown in the diagram below:



Obesity Action Coalition

A Rapid Review of the Literature on the Association Between Nutrition and School Pupil Performance.

December 2005

The review process found strong evidence that children's diets affect their attendance and behaviour in school. Research indicates that habitually disruptive children and children with other behavioural or emotional issues may well be suffering from poor nutritional status, which is reversible with dietary changes or supplementation. Research also suggests that food insecurity at the household level has an effect on emotional and behavioural wellbeing in children, independently of nutritional intake and confounders such as socioeconomic status.

There is a clear and consistent relationship between nutrition and academic outcomes in the long term. Children who eat regular meals and have an adequate nutrient intake do better at school than those who skip meals and have inadequate nutrient intakes.

Even in the developed world, evidence suggests that a significant proportion of school age children have vitamin and mineral intakes low enough to compromise their mental functioning and conduct. While the overall number of malnourished New Zealand children is relatively small, in schools with a high proportion of children from low SES backgrounds, poor nutritional status may be the norm rather than the exception.

Research on school-based programmes has demonstrated that schools can play important and effective roles in improving what children eat and hence their nutritional status. Nutritional status in turn influences their attendance, health, behaviour and academic outcomes. Classroom-based nutrition education alone has a small effect on children's food choices and eating behaviour but comprehensive, multi-strategy programmes are consistently shown to have a positive effect on what children eat. Multi-strategy programmes include both education through the curriculum and changes to the school environment. Programmes including the following factors are most successful:

- School-wide policies that support healthy eating;
- Sequential, comprehensive health education curriculum that includes nutrition which is fun;
- Coordination between school food service and nutrition education;
- Training for school staff;
- Family and community involvement
- Evaluation.

Evidence also shows that universal feeding programmes reach nutritionally at-risk students more effectively than targeted programmes.

This literature review clearly highlights the important role schools have in improving nutrition outcomes for children. Poor nutrition in childhood is associated with poor attendance at school, poor behaviour at school and poor long term academic performance.

Improving childhood nutrition by ensuring that all schools have nutrition policies, a strong nutrition curriculum and a healthy school food environment is an important evidence-based step toward all students achieving their potential. Students who are well nourished are more likely to attend school, have better behaviour at school and better long term academic outcomes.

Obesity Action Coalition

A Rapid Review of the Literature on the Association Between Nutrition and School Pupil Performance.

December 2005