



## School-based Education Programs to Promote Healthy Eating

The Canadian Association for School Health [222] has described the desirable learning outcomes about nutrition in a paper for the Inter-American Heart Foundation.

### **Key Learning Outcomes About Nutrition**

#### Curriculum Goals, Content

##### Knowledge of:

- Long-term impact on health
- Short term impacts on appearance, capacity to play sports
  - Dietary guidelines and principles
  - Recognize healthy foods, food groups
  - Recognize food allergies, eating disorders
  - Unsafe weight loss

##### Skills

- Able to plan healthy meals
- Able to prepare healthy snacks, meals
- Can select healthy foods from fast-food restaurants
  - Understands food labels
  - Records and assesses daily food intake
  - Able to influence parents food choices
- Can recognize media and other social influences

##### Attitudes and Beliefs

- Positive perceptions of body image
- Healthy foods are linked to enjoyable social experiences
  - Sets simple goals for changes in diet
  - Places value on healthy eating
- Recognize warning signs of using food for stress, depression etc.
  - Willing to help others with food-related problems

The Canadian Association for School Health [308] has also described strategies and conditions for effective health education. These criteria for effectiveness include:

#### Supports for Success

- linking instruction with other parts of a comprehensive approach having learning outcomes associated with skill development, attitudes/beliefs, as well as knowledge about nutrition.
- having a minimum number of hours of instruction, well-prepared teachers, active parent involvement and at-home activities, peer-based informal learning to supplement the curriculum, coordination of classroom teaching with community awareness programs and community expertise
- reinforcing classroom teaching with healthy school policies

#### Goals/Content

- emphasizing generic skills
- focus on student perceptions about the health issues
- matching instructional methods for learning goals [e.g. decision-making taught through role playing]
- adapting programs and materials to meet diverse needs
- balancing general health messages to all youth with specific messages to high-risk youth
- ensuring a planned scope and sequence, not simply presenting a collection of prevention units

#### Methods/Techniques

- recognizing different learning styles
- using a variety of instructional techniques
- emphasizing cooperative learning
- emphasizing active learning
- making good use of information technologies
- making good use of multimedia

All of the strategies can be applied to nutrition education. This body of knowledge was reflected in the research items located in preparing this paper.

Weiss & Kein [309] prepared a synthesis of research on nutrition education at the elementary school level. Their findings reflect many of the points in the summary on health education. Contento et al [310] also reviewed school-based nutrition education. They found that most studies involved only 10 to 15 hours instruction over 3 to 15 weeks. These short studies resulted in a positive effect on nutrition knowledge, diet-related skills, behavioral expectations and self-efficacy. The effect on attitudes was inconsistent but generally positive. However, the impact on general nutrition behavior was minimal. Multiyear programs, however, were successful in achieving behavior change. Teacher preparation increased the time spent on nutrition education. Parental involvement supported classroom instruction for younger children. An earlier study done by Rothman & Byrne [311] found similar results for health education for cardiovascular risk factors. This meta-analysis of school-based health education found mixed results.

The studies reviewed for this paper noted that implementation was a key factor to success. Grunbaum [312] noted that the characteristics of successful health education programs often centered on the training provided to teachers. A similar finding [314] comes from a heart health project in Montreal. The characteristics of the teachers and the program explained the level of implementation of the heart health curriculum. Hausman[317] suggests that implementation of school health education should focus on teacher concerns.

Sancho [313], in a summary of effective health education, suggests that cultural factors need to be infused into the health curriculum. Pikes & Banoub-Baddour [315] report that a cardiovascular health education program facilitated by the public health nurse was successful in changing health knowledge of adolescents. Schall [316] reports that studies have shown that school-based health education programs that start early and continue for several grades provide significant and sustained effects on health knowledge, attitudes and behaviors.

Our review found some references showing that peer and parental involvement improved the chances of classroom instruction effect. Hern et al [318] reported that high school biology students can be educated by older peers drawn from undergraduate nursing students. Johnson & Johnson [319] report that when cooperative learning is implemented effectively in peer-based learning, long-term modifications of nutrition knowledge, attitudes and behavior result. A report on the Chicago Heart Health Curriculum [320] reported that the parent participation component had no effect on student knowledge or behavior with regard to cardiovascular disease prevention. However, Gordon & Haynes [321] report that parental involvement with homework in nutrition education at the elementary grade level was successful.

Other case studies showing the effectiveness of health education in promoting healthy eating were found in our review. The Health Canada report on innovative practices describes an example [322] within an Inuit community. Another [323] reports on the impact of the nutrition education program sponsored by the BC Dairy Foundation. Health Canada has also [324] reported on a program in Ottawa that aims at body image and healthy eating. Another case study [326] shows how teens can be taught shopping skills.

Carleton et al [326] report on a similar focus on food preparation skills as part of the Pawtucket Heart Health Program. Walter et al [328] report on the success of the "Know Your Body" curriculum. Perry et al [329] report on an example based on social learning theory that was successful. Way [330] reports on Project Super Heart. The Feeling Good Program in Michigan, [332] reported improvements in cholesterol values and BP. Gans et al [333] reporting on the program in Pawtucket, Rhode Island, showed reductions in blood cholesterol and in changed diet for the students. Similar success was reported by Howard et al [334].

Buddeberg-Fischer et al [335] report on an unsuccessful school-based instruction to prevent eating disorders among students in Switzerland. The Cardiovascular Health in Children's study [336] reports success in improving children's cardiovascular disease risk profiles. Harrel et al [337] report on a combination out of classroom instruction and counseling for higher risk students, concluding that both interventions can improve the risk profile of children with multiple risk factors. Olson et al [338] reporting on the dissemination of the nutrition program in New York State secondary schools reports that home economic teachers were more likely to receive and use the program than health teachers. Fardy et al [339] report on a combined intervention of weight training and classroom instruction in an inner city school setting. Results suggest that this approach is beneficial and effective with inner city adolescents, especially females.

Smolak et al [340] report that knowledge on how to prevent eating disorders changed in elementary school programs but behaviors, including eating patterns and exercise patterns, were not changed. Wallin et al [342] also reported changes in nutrition knowledge. Holund [343] examined the classroom instruction of adolescents in Denmark and suggested that to be effective the focus should be on attitudes rather than knowledge. The limits of instruction-only approach are also reflected in the report on the Chicago Heart Health Curriculum [344].

Combining instruction with other interventions in the school was found to be effective in a case study involving 2 school districts in California [345]. Students in the treatment group were more likely to choose healthy snack items and treatment effects were observed for Body Mass Index and other heart related factors. Coates et al [346a] report on the impact of the Great Sensations Program, a nutrition education project developed for high school students. The school-wide program was designed to provide peer supports, parent involvement and health education. Only students who received classroom instruction maintained healthy behavior changes until the end of the school year.

Other case studies indicate that nutrition education can be successfully delivered in subjects other than only health classes. Gans et al [346a] reported on the successful heart healthy cook-off in home economics classes with junior high school students. A similar program, Food Styles, was reported to be effective in a secondary home economics class. This program is offered by the BC Dairy Foundation. A math curriculum in a school in Florida was used to convey nutrition science concepts [348] with some success in changing nutrition knowledge. An additional list of the studies and journal articles is also appended to this report [349].

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