Fruit and vegetables as adolescent food choices in New Zealand

LINDA HILL, SALLY CASSWELL, CAROLINE MASKILL, SHEILLA JONES and ALLAN WYLIE
Alcohol and Public Health Research Unit, Faculty of Medicine and Health Science, University of Auckland, Auckland, New Zealand

SUMMARY
The consumption of fruit and vegetables has been shown by nutritionists to have preventative effects with regard to cardiovascular disease and cancer, and recent health promotions in New Zealand have emphasised the need to eat ‘5+’ a day. This paper examines interaction between 20 New Zealand teenagers and the parent responsible for food purchasing to identify factors affecting teenagers’ consumption of and attitudes towards fruit and vegetables, both at home and as snacks away from home. Although the teenagers believed fruit and vegetables were ‘good for you’, consumption was affected by the teenagers’ perceptions of the desirability of different foods, and the degree of independence or parental control in different eating situations. Possible health promotion and marketing strategies are suggested.

Key words: adolescence; fruit; nutrition; vegetables

INTRODUCTION
Recent longitudinal studies show how food preference patterns established by mid-adolescence continue on into adult life (Kelder et al., 1994; Sweeting et al., 1996). Encouraging the early adoption of ‘healthy eating’ practices can have long-term benefits in reducing diet-related diseases, which feature so strongly in health care expenditures and mortality statistics in New Zealand and other Western nations (Hay, 1990; Statistics NZ, 1993; Lester, 1994; Bidlack, 1996; Ashwell, 1997). Fruit and vegetables, in particular, have been proven to have preventative effects with regard to cardiovascular diseases and cancer (Germann, 1992; Valstar, 1994; Hansson et al., 1994). This means that health researchers, health promoters and policy-makers need to prioritise what has been a perennial parental problem: how do we get the kids to eat their vegetables?

Nutritional education programmes commonly aim to increase young people’s consumption of foods such as fruit, vegetables and some cereals, and to reduce, but not eliminate, the kinds of high fat/sugar and low fibre foods which are heavily advertised on television at times when children and young people are most likely to be watching (Morton, 1990; Dibb, 1996). Such programmes in New Zealand have included the National Heart Foundation’s ‘5+ a day’ campaigns promoting fruit and vegetables, and widespread promotion and use in schools of food group ‘pyramids’ which show the ‘eat more’ group of foods, including fruit and vegetables, at the wide base of the pyramid. This tells children what we think they ought to eat, but it is a strategy based on medical knowledge rather than knowledge about how teenagers make food choices as their responsibility for their own eating habits grows.
Most survey research on adolescents has related healthier eating to nutritional knowledge and also to parents’ education and income (e.g. Woodward, 1986; Worsley et al., 1990a,b; Anderson et al., 1994; Lowry et al., 1996). By age 18, the teenager’s own socio-economic and educational status has become part of the equation, as researchers in a major Scottish study have noted (Sweeting et al., 1994). However, studies in some countries have shown family socio-economics as less crucial in children’s nutritional intake (Gibney and Lee, 1993; Shatenstein and Ghadiran, 1996), and variation in consumption even between neighbourhoods shows the need to take cultural and supply factors into account (Forsyth et al., 1994).

Moreover, the identification of appropriate health promotion strategies aimed at influencing teenagers’ food choices requires detailed research into cultural and environmental constraints in local contexts and other factors affecting behaviour around food choices (Bidlack, 1996). As Scottish researchers note, a comparison between 15-year-olds and 35-year-olds showed that significantly fewer teenagers were likely to eat diets associated with long-term health, but it was unclear whether this reflected personal food choices, preferences or constraints of parents or other suppliers, or peer pressures (Anderson et al., 1994). These are some of the issues explored in the New Zealand study described in this analysis and elsewhere (Maskill et al., 1996; Fuamatu et al., 1996).

In focusing on fruit and vegetables with an eye to possible health promotion strategies, the adolescent’s food consumption, both at home and away, was recognised as the outcome of a family group interaction. The teenager’s choices at home and to a lesser degree in school lunches were made within the context of parental influence and from the range of foods made available by the parent shopper for the whole family. Teenagers’ independent purchases of snack foods outside the home were also influenced by environmental factors such as availability, advertising and market strategies—and these environmental factors also influenced consumption in the home.

Contemporaneous with this New Zealand study, Western Australian researchers surveyed teenagers about food, tobacco and alcohol consumption, health beliefs and perceived barriers (Gracey et al., 1996), drawing on insights into psycho-social factors in making healthier choices (Bandura, 1977; Strickland, 1978). These include nutritional knowledge and perceptions of risk, and a sense of control, both personal ‘self-efficacy’ and in interactions with the environment. The inclusion in the New Zealand study of interviews with parents has made possible an analysis of environmental factors which includes family interaction. This suggested that personal autonomy is a factor influencing teenagers’ consumption of fruit and vegetables.

METHOD

This paper focusing on fruit and vegetables is part of a larger multi-cultural project directed at informing policy and programme development by investigating family and environmental influences on the eating patterns and food attitudes of New Zealand adolescents. It draws on interviews with Pakeha (those of European ancestry) teenagers and their families in Auckland, New Zealand’s largest urban area. The sample was selected for ‘maximum variation’ (Patton, 1990) in family type, socio-economic circumstances and geographic location within the urban area.

Separate interviews were conducted with a teenager and the principal food shopper/meal preparer (referred to as parent-shopper) in each of 20 families. A networking process was used to select ten girls and ten boys aged 13–16 from Pakeha two- and one-parent families at different levels of income. Nine households had two caregivers, although in two the male adult was not the teenager’s father. In 17 households the mother of the teenager was the principal food shopper and, with one exception, the principal cook. The other three households comprised fathers only living with sons. Interviews of one to one-and-a-half hours duration were conducted between late December 1994 and August 1995, with most over the summer months. Transcripts were processed systematically using NUD-IST qualitative software, for a cross-household analysis (Maskill et al., 1996) and again for a sharper focus on interaction between teenager and parent-shopper in each household.

The qualitative nature of the research, and of its presentation, shows how the teenagers’ choices are constructed and constrained, and offers insights in to how healthier choices might be encouraged.
ANALYSIS OF INTERVIEWS

Eating patterns
All the teenagers knew that fruit and vegetables were ‘good for you’, could describe a balanced meal, and over half of the sample stated that they wanted to eat more fruit and vegetables, although some responses suggested that this was motivated by a feeling that they should eat more. Dietary knowledge and the variety of food liked increased with the age of the teenager. The younger ones often rejected foods they considered unattractive, particularly vegetables. Appetites also increased with age, as many parents commented, for example:

He has growth spurts, two centimetres at a time . . . and he’s like a permanent hole. I’ve watched him eat for three hours at a stretch, just one thing after another. (Mother of Chris, 15)

There were marked gender differences in consumption and health attitudes, which, as studies elsewhere have noted (Worsley et al., 1990a,b; Sweeting et al., 1994; Kelder et al., 1994), has implications for the targeting, or tailoring, of health promotion strategies. Based on typical daily consumption, the girls tended to be high or average eaters of fruit and vegetables, and the boys average or low. The four highest fruit and vegetable consumers, all girls, reported typically eating four or more pieces of fruit a day. The four lowest, all boys, ate one a day. The boys expressed less interest than the girls in healthier eating, and boys and girls had different preferences in food groups they would like to eat more of. One girl was currently vegetarian; two others had been discouraged by their mothers. More boys said they would like to eat more meat.

Fruit (and occasionally a carrot or tomato) was generally eaten as a snack; vegetables, cooked or as salad, were eaten as part of the evening meal, with green leafy vegetables specifically mentioned by only six teenagers. High-fat, deep-fried or roasted potatoes were eaten about once a week. A few teenagers who disliked many vegetables or ate little fruit regularly ate frozen vegetables or tinned fruit. These were also used regularly by two parent-shoppers who had little interest or skill in cooking.

Patterns of negotiation
The teenagers’ consumption of fruit and vegetables, like most other foods, was strongly influenced by the pattern of negotiation between the teenagers and their parent-shopper. In all households, decisions about the purchase, suitability and availability of food were made by the principal shopper, influenced to varying degrees by the teenager and other family members. In all two-parent households, this shopper was the mother. In several cases, her partner’s ‘meat-and-potato’ tastes or health requirements strongly influenced family meals.

The teenager’s food choices at home were exercised within the constraints of what the parent-shopper considered an appropriate diet, but the detail of purchases could be influenced by the teenager’s tastes and prejudices. The purchase of snack food, particularly what one mother described as ‘lunch box fillers’, was frequently influenced by specific requests:

It’s a bit of a joint thing really and there are things she will not eat, which I take into consideration. . . . I guess I influence those things by telling her that we can or cannot afford them . . . [and] she influences me by telling me she doesn’t like them. (Mother of Amanda, 14)

If Mum’s in a good mood and you say, can you buy this, she says yes. (Chris, 15)

Several of the teenagers experienced different family eating habits in the households of relatives (including separated parents) or friends. These affected the availability to the teenager of different foods, or exposed them to a wider range of influences and information. For two teenagers, contact with the non-custodial parent meant greater access to fast food. Lisa, a 15-year-old girl interested in sport (and a little diet conscious), was developing her own tastes within the context of a mother’s household, where the new partner liked deep fried chips and untrimmed chops, and a father’s new household, where a high-fibre, semi-vegetarian diet was eaten and a great deal of nutritional information was communicated.

Availability and snacking
Choices about fruit and vegetables at home were made within the context of what was made available by the parent-shopper. Shoppers reported shopping for most food once a week. A number shopped twice a week for fruit and vegetables, emphasising the freshness available at specialist shops. Full-time work and other commitments meant some parents relied on supermarkets which provided longer hours of opening and one-stop shopping. However, shopping
patterns could be disrupted by the teenager eating up fruit intended for the whole family:

I get frustrated that they can’t pace themselves, that we might buy a whole pile of fruit and it’s gone the next day and they can’t think, well, I’ve actually had three bananas today, I’ve got to have one for the next five days. (Mother of Liz, 15)

Teenagers could negotiate the kind of vegetables in the evening meal, as long as some were eaten. Parents reported that disliked vegetables would otherwise be resisted at dinner time and disliked fruit left to rot in the bowl:

I just don’t see trying to force feed children at the table. If they don’t want to eat it, you just stress yourself out, there’s no point. (Mother of Joe, 13)

Research from New Zealand and elsewhere has documented the way between-meal snacks contribute to the total calorie intake of growing teenagers (Huenemann et al., 1968; Creswell et al., 1983; Harding et al., 1988; Horwarth et al., 1991; Department of Health, 1993). Snacks consumed by teenagers in this study comprised both mini-meals, such as a sandwich or ‘two-minute noodles’, and ‘snack food’ specifically marketed as ‘fun’ as well as food, such as potato crisps and chocolate bars. In all these households fruit was available as a snack, to be eaten at any time or taken with school lunches.

Except for the hour or so before dinner, parents did not restrict snacking between meals. But many used purchasing decisions and verbal pressure to encourage healthy snacks such as a sandwich or fruit. Less healthy items, although purchased, were often limited or reserved for certain times or occasions. However, much of the teenagers’ consumption of these kinds of snacks occurred outside the home, and outside parents’ control.

For the teenagers, a frequently stated attraction of sweet or salty snack foods and ‘fast food’ was that it was instantly available:

Convenience . . . you don’t have to prepare anything. You can just eat it straight away. . . . It’s easy to get . . . and everything ready for you, and it is nice. (Lisa, 15)

Vegetables, even when liked, were perceived as inconvenient for eating between meals, because they were not instantly available. Although teenagers reported occasionally eating a carrot or tomato as a snack, the preparation time required for vegetables was seen as a disincentive:

If you want to make a salad, you have to chop up all the different things. Sometimes I’ll just grate a carrot or chop a bit of cucumber off, but that would be all really. I mean, I can’t be bothered preparing anything. (Lisa, 15)

Fruit was seen by the teenagers as a convenient snack food, since no preparation was required. However, their expectation was that fruit was a snack that would be provided by parents. Only three teenagers said they had occasionally bought fruit as a snack that would be provided by parents. Only one younger girl reported buying expensive cucumbers when her mother would not, because she was ‘addicted’ to them. The other teenagers said that they did not think of spending their own money on fruit.

However, when less healthy snacks were supplied by parents, this did not appear to discourage the teenagers from buying more themselves. A number of the shoppers regularly supplied potato crisps and similar snacks with school lunches; others took their children to fast food restaurants such as McDonald’s or Georgie Pie. Yet those teenagers also made independent purchases of crisps and fast food with their own money. The teenagers’ consumption—but non-purchase—of fruit as a snack was influenced by other factors, explored here, which interacted with parental decisions.

**Economics and financial independence**

The main shopping criteria cited by parents were ‘price and whether it’s good for you’. Most shoppers’ understanding of ‘value for money’ was based on quality and cost. A few related cost to nutritional value with a more technical discussion of nutrients, while others referred to filling teenage stomachs with bulky food like pasta. At all income levels, shoppers mentioned giving high priority to providing the food they felt their child needed at this stage in their development. However, some shoppers limited the variety of fruit they provided, avoiding higher priced fruits. Others—even high-income shoppers—sometimes rationed the amount of fruit eaten by their teenager because of cost. In particular, stone fruit such as peaches, nectarines and apricots, were relatively expensive during the summer of the interviews:

I actually restrict—it sounds strange—the amount of fruit they have. Julie can eat six nectarines at a sitting, she takes three or four to school and then she comes home and eats more. . . . Yes, it’s the cost with fruit because I spend $50–60 in my major shop of fruit and
vegetables and then sometimes I have to go back again.
(Mother of Julie, 14, high income)

More pure fruit juice was drunk by teenagers in middle- or high-income families. Other families provided mainly make-up packets of fruit drink (with vitamin C and sugar).

Pure fruit juice, it’s more expensive than alcohol and that’s crazy. (Father of Thomas, 15)

The teenagers had pocket money or earnings which they frequently used to buy snacks—at school, after school or with friends on weekends. Several parents commented on this as part of a growing independence:

She’s got her own money to dispose of, and also she’s that much older. Certainly she’s not under my control any more, I can’t be with her every time she walks into the dairy. (Mother of Liz, 15)

However, the teenagers discussed price in a different way from their parents. The criterion was absolute cash outlay, rather than value for money. Did they have 80 cents, $1 or $1.20 in their pocket, and what could they get for that? One teenager who preferred juice would buy cola two times out of three, because it was cheaper, because that was all the money he had, or because he could then get crisps as well. Within this decision-making framework, if an item cost more, whether it was worth more—in terms of nutrition or flavour—was a secondary consideration.

Although the teenagers perceived fruit as convenient to eat as a snack, they did not perceive it as convenient to purchase. Some said that the fruit sold at the corner dairies and other places where they often bought snacks was not attractive, but it was inconvenient to go to a greengrocer. Several mentioned that fruit was normally sold by the kilo, not the piece.

‘Easy to buy’, however, was a phrase frequently used in relation to chocolate bars and potato crisps, which were readily available at shops near homes and schools, or strategically placed on counters or near supermarkets checkouts. Fast food was also ‘easy to buy’ and the popular chains, such as McDonald’s, Georgie Pie and Kentucky Fried Chicken, have purchasing systems which are fast and easy for teenagers to negotiate. Through television advertising they were familiar with menus and knew what new items would be available at what price before they entered the premises. In New Zealand, take-away food consumption is highest among 15-25-year-olds (Horwarth et al., 1991).

Snack food and fast food bought with the teenagers’ own money was often part of socialising with friends after school and at weekends. Some parents bought takeaways after working late or on shopping night, or would occasionally take the teenager to a fast food chain. But for the other teenagers, fast food restaurants were a social venue. Remaining together with friends was mentioned as more important, and more likely, than a wider choice of food:

If everybody else wants to go to McDonalds, I can’t really say I’ll just go to the supermarket and buy me some vegetables... They’d probably say go for it, but no-one else would come with me. (Amanda, 14)

The interviews indicated that parents did not have full information about what the teenagers purchased with their own money, or with money provided to buy school lunches. Some parents saw no harm in a certain amount of ‘junk food’ as part of a balanced diet. However, most tried to limit less healthy foods, outside as well as inside the home, by pressuring the teenage to eat more of what was ‘good for them’ and by providing health information. Many mentioned that their teenager’s tastes were strongly influenced by what their friends considered attractive food:

It makes a difference who’s proffering the food or who’s trying to induce you to eat it. If Grandma says, ‘Eat the stuff, it’s lovely’, you think yuck, you’d never believe her. But if his friend says it, then it must be right. (Mother of Jim, 13)

When asked if parents would approve of less healthy snack foods purchased with independent money, the teenagers replied that they would not approve. Even the teenagers most interested in healthier eating reported choosing items like chocolate and crisps when buying independently. Within the context of parental opinion, buying fruit may be seen as a less assertive choice:

My kids’ idea of rebelling would be to go and buy ice cream and chocolate and have a bag of lollies in their room. They wouldn’t bother about smoking dope! (Mother of Liz, 16)

Negotiating the school lunch

Studies in New Zealand and elsewhere have noted patterns of meal skipping by adolescents (Huemann et al., 1968; Lee, 1978; Skinner, 1985; Harding, 1988; Anderson et al., 1993). Among this sample, lunch was the meal most likely to be skipped. In most cases parents were present at breakfast time and able to ensure that some food
was eaten. The importance of breakfast to school performance has been promoted in New Zealand, and two boys mentioned adverse effects from skipping this meal.

During the school day, the teenager’s food intake was not fully under parental control. This made the content of packed school lunches an important area of negotiation between teenager and shopper, while lunches and snacks bought at school were an area of discretionary purchase in the control of the teenager. Although the teenagers said they took a packed lunch most school days and most, particularly the older ones, prepared it themselves, several parents expressed concern about children skipping lunch, either because the teenager had not had time to make one, or because in their circle it was ‘uncool’ to take sandwiches. They reported a number of strategies and compromises to ensure sufficient lunch was eaten.

Parent-shoppers reported that the teenagers were more likely to actually eat the lunch if they chose its contents. This was the reason many parents provided crisps, muesli bars and other sweet or salty snacks, often at the request of the teenager. In several households these items were reserved for school lunches only:

If I don’t have those things, then he’s got an awfully bare looking lunch . . . after years of making school lunches that came home uneaten in the bag. (Mother of Jim, 13)

Other parent-shopper strategies included providing filled rolls, French bread or pitta bread, rather than flat and ‘boring’ sandwiches. Many of the teenagers reported eating at least one piece of fruit with their packed lunch. However, others said that fruit bruised on the way to school and that tomato or lettuce made sandwiches soggy by midday.

Lunches could also be bought from school tuckshops, which sold pies and filled rolls, sometimes sausage rolls, hot dogs or hot chips, as well as a varying range of sweet and salty foods and drinks. The quality of food sold in New Zealand secondary and intermediate schools had been the target of a Heartbeat Awards campaign in 1989–1992 (Peach, 1992; Dehar et al., 1992).

The teenagers spent money—their own or their lunch money—at the tuckshop between once a fortnight and three or four times a week. Most parent-shoppers did not know what was sold at their child’s tuckshop. They could not be sure what the teenager purchased with lunch money, and did not know what or how often the teenager bought at the tuckshop with their own money. Three parent-shoppers did know what was available at their child’s school and disapproved.

Several teenagers reported that their tuckshop did not sell fruit, or only apples. Most of the teenagers, including one who occasionally bought fruit elsewhere, said they would not buy fruit at their school because of its poor quality.

Parents believed that peer pressure affected what the teenagers would eat or buy at school. The teenagers themselves reported that schoolmates would comment on the content of their lunch:

‘Oh, look at Kylie’s fruit, fruit for lunch’. They’re always making comments about it. They’re just hassling me because I mostly have fruit in my lunch. That might just be because I don’t have any bread at home or . . . didn’t have enough time. (Kylie, 16)

The teenagers were asked if they ever exchanged lunch items with schoolmates. Only a few said that they swapped food; most described what they did as sharing food with friends—desirable food, rather than exchanging items they disliked. The extent of this varied between teenagers, from ‘not very often’ to ‘all the time’. Their comments indicated clearly that this was a matter of sociability and friendship, rather than food per se, even when giving food to someone who had forgotten their lunch:

Just everyone does it, shares out their goodies . . . just packets of chips [crisps] and cokes or something like that . . . oh, because it’s friendly. (Joe, 13)

Some foods were more suitable for sharing than others. Sweet and salty snack foods, although known to be ‘bad for you’, were readily available at school, from packed lunches or from the school tuckshop. They were desirable and attractively presented items, and many divided out easily among friends. At school, fruit as a snack had few of these characteristics.

**Nutritional knowledge**

Since information is one factor in behaviour change (Strickland, 1978; Bandura, 1997), the level and sources of nutritional knowledge among the teenagers were explored. All the teenagers stated that fruit and vegetables were ‘good for you’. They reported their family as their main source of nutritional information, in particular the mother. This was borne out by the way the nutritional views and terminology of the parent-
shopper were reflected in the teenager’s knowledge and language; the better-informed teenagers had health-conscious and knowledgeable mothers.

The second most mentioned source of nutritional information was school. Cooking classes at intermediate school covered kitchen skills and basic nutrition for 11- and 12-year-olds. Some also said they had covered nutrition in science classes. However, specifics appeared to have faded from most minds:

The food pyramid and that. And we learnt all about the parts of the body and how if you ate too much of this sort of food it would wreck that bit of your body and all that. But I just can’t remember it right now. (Noeline, 14)

This comment illustrates a typical tendency to a negative focus. The teenagers knew about negative effects on the body and possible negative consequences for themselves, particularly in relation to sugar and high fat in dairy foods and ‘junk food’ like crisps and takeaways. Sugar was frequently mentioned as bad for the teeth; fat put on excess weight or could lead to heart attacks:

[Fat] increases the work your heart has to do, puts on extra fat in your body, it generally makes your skin greasy and your hair limp. I’m a teenager, I’m trying to stop my skin being so pimply, so best not to overdose on junk food. (Kirstin, 15)

Responses from the teenagers indicated an absence of information on the benefits of healthier foods, and on the specific benefits of fruit and vegetables. They were just ‘good for you’. Less than half the teenagers mentioned vitamins, around a quarter in relation to fruit or vegetables; four mentioned oranges as a source of vitamin C. Three mentioned minerals. The teenagers had little knowledge of what vitamins and minerals did in the body. None cited protection against cancer as a benefit of fibre or vitamins.

Not only did girls and boys differ in consumption of and attitude towards fruit and vegetables, there were gender differences in the reasons given for considering some foods ‘bad for you’. It was mainly the boys who mentioned the connection between dietary fat and clogged arteries, heart disease or stroke. Some teenagers mentioned such health problems in male family members. Girls made more mention of excess weight and dieting to be slimmer, and girls were more likely to give magazines as a source of dietary knowledge:

They tell you what to eat and what not to eat . . . to keep fit, to have a nice complexion, have thinner thighs, all those things. (Alison, 14)

Nutritional information was also included in some advertising directed at this age group. Advertising was an environmental factor outside the immediate family which influenced the teenagers’ choices. The teenagers referred to television advertising for snack food, soft drinks and fast food chains (unprompted) but did not cite any examples of advertisements advocating fruit or vegetables for teenage snacks.

Some of the teenagers recognised the influence of television advertising on both their own purchases and their family’s. The more sophisticated or cynical views of advertising tended to match similar opinions expressed by the parent-shopper. However, many teenagers commented on television advertising as simply a source of information about what was available, and also tended to take any nutritional information at face value:

On the Cocopops ad, it’s got five vitamins and iron and stuff like that, they tell you that on TV. (Joe, 13)

Such information may compete with nutritional information provided by mothers. Joe’s mother, like a number of others, reported specific resistance to buying Cocopops because she considered them too expensive, with high sugar and low nutritional value, and elsewhere in his interview Joe expressed doubt about their healthiness. ‘Sugar provides energy’ was a advertising message reflected in many teenager’s views, although they also reflected the strong opinions of most parent-shoppers that ‘too much’ sugar was ‘bad for you’. As some parents noted, over the years from age 13 to age 16 the teenagers’ tastes were changing and they were developing their own views of what they should eat:

The peer pressure is huge and the assault by advertising on television and in the silly magazines that she’s into at this age. There’s a strong influence, but in the last few weeks there’s been signs that she’s beginning to discriminate, and that’s really neat. (Mother of Kirstin, 16)

The influence of sports

With both girls and boys, the greatest nutritional knowledge, most interest and highest fruit and vegetable consumption were displayed by teenagers who were keen on sport. Three were the teenagers who occasionally bought fruit with
their own money. More time away from home training or competing in sports appeared to provide more opportunities to purchase food independently; for example, after early morning training and after sports events.

Some of the teenagers reported that coaches provided nutritional information, and interviews suggested that they were retaining what they learned from this source. One mother commented on marked behavioural changes in her son as a result. The teenagers’ comments suggested, however, that much of this information was sports specific, and orientated towards extremely high energy output. As well as emphasising the importance of fruit and vegetables, they spoke of increasing sugar intake and ‘carbo-bulking’ with rice and pasta immediately before competitions. Some were requesting parent-shoppers to buy special sports drinks. A boy who did regular weight training with his non-resident father expressed concern that he was not eating the recommended five fruit or vegetables a day, because he didn’t like them. He spent his own money on dried fruit roll-ups because he felt he should eat more:

For my image, my strength and that. I’d be growing a lot faster, I’d be getting stronger quicker. Instead of eating too much junk food, if I was eating fruit, juice and stuff, if I liked lots of other vegies, that would make it better. (Tony, 13)

One mother’s comment suggested that her daughter’s interest in what she ate reflected stereotypical ideals of the female body as well as her interest in sports:

She’s at a stage where she’s watching what she’s eating for two reasons. One is that she’s a teenager and she’s watching her figure to a certain extent. . . . And the other is that she’s very much into athletics and so she has to watch what she eats for that. (Mother of Julie, 14)

**Participation in food preparation**

Other researchers have noted that the ‘self-efficacy’ which leads to changed behaviour is increased by gaining the appropriate practical skills (Bandura, 1977; Strickland, 1978; Gracey *et al.*, 1996). These interviews with parent-shoppers suggested that greater participation in food preparation and, in two cases, gardening led to a greater interest in vegetables, and in nutrition generally.

Age was a factor in the extent to which the teenager participated in the organisation and preparation of food in households. Those who cooked meals on a regular basis—perhaps once a week—were most likely to be older teenagers, boys or girls, living in one-parent households. Although many of the teenagers said they sometimes helped with meal preparation, most of these 13–16-year-olds felt unable to prepare a full meal, or said they were unsure how to prepare some vegetables or cook vegetable dishes. Most were able to prepare simple foods—particularly pre-packed foods. One boy mentioned liking pasta and rice:

Because I can cook it myself. Just certain types like rice risotto, two-minute noodles, spaghetti. If mum’s not home I’ll cook my own tea, that’s about it. (Simon, 15)

Teenagers reported that they had learned what cooking skills they had from mothers, either explicitly or from watching, and from school cooking lessons, usually attended at age 11 and 12.

‘Bad’ food for being good

As noted, both teenagers and parent-shoppers had clear understandings of what was ‘good for you’ and what was ‘bad for you’. However, there were contradictions in the way parent-shoppers spoke of, and used, foods that they considered ‘bad for you’. Shoppers limited their purchases, and tried to limit their teenager’s consumption, of foods such as sweets, chocolates, soft drinks, potato crisps and similar snacks, and fast foods. However, in half the households, shoppers also referred to these foods as ‘treats’:

Fast food—not too often, they’re to be used as a treat. . . . Chocolate biscuits I would buy maybe once a month for a treat, same with chocolate bars. (Mother of Carl, 16)

Two of the interviews with teenager girls indicated slippage between eating food that is ‘bad for you’ and ‘being bad’ oneself:

They [schoolmates] make you feel a bit guilty if you’re eating it and they’re sitting there being good. (Lisa, 15)

It’s just not good for you, you should have fruit and stuff. I mean, I’m not a saint or anything but I just don’t like heaps of that [crisps and sweets]. (Kylie, 16)
DISCUSSION

Providing positive health messages
This research offers insights for health education and marketing which take account of the eating practices, psycho-social goals and environmental constraints affecting Pakeha New Zealand teenagers' consumption of fruit and vegetables (Thomas, 1991; Anderson et al., 1994). In this study a number of the teenagers who were best informed about nutrition indicated a concern with fitness, fatness or other aspects of physical development. American researchers have noted that physical appearance was the characteristic most valued by teenagers, and that this value grew in importance over time, while the value placed on family, presumed to mean parental approval, faded (Prokhorov et al., 1993). Some comments in these interviews indicate that body image may be as important to boys as to girls, which suggests that their differing food preferences and attitudes may in part reflect stereotypical ideals for the male or female body.

Among these teenagers, nutritional knowledge and good eating habits were related, but all the teenagers were able to say more about why some foods were bad for them than about why fruit and vegetables were good for them. They had little specific information about how fruit and vegetables provided benefits for physical development or for disease prevention. Improving knowledge about their specific nutritional role in physical development as well as disease prevention could resonate with typical teenage health concerns such as physical growth, healthy body image, a clear complexion, etc.

Sports appear to provide both motivation and a successful vehicle for delivering nutritional information, but it may need to be ensured that general, as well as sports-specific, information is provided. As well as education about what vitamins and minerals actually do, one promotional strategy, suggested by a teenager, might be to provide more nutritional information about particular fruits or vegetables, in the way that citrus and kiwi fruit are commonly known to have high vitamin C content, which helps prevent colds. A few supermarkets in Britain and New Zealand have used high vitamin content labelling on their vegetables as a marketing strategy (Wyllie et al., 1990).

Sports appear to provide both motivation and a successful vehicle for delivering nutritional information, but it may need to be ensured that general, as well as sports-specific, information is provided. As well as education about what vitamins and minerals actually do, one promotional strategy, suggested by a teenager, might be to provide more nutritional information about particular fruits or vegetables, in the way that citrus and kiwi fruit are commonly known to have high vitamin C content, which helps prevent colds. A few supermarkets in Britain and New Zealand have used high vitamin content labelling on their vegetables as a marketing strategy (Wyllie et al., 1990).

Mothers were the teenagers’ main source of nutritional information in this study. However, in referring to food they considered to be unhealthy as ‘treats’, they may be giving mixed messages. The use of food as treats and rewards is common, and is analysed in depth in the literature on dieting and eating disorders (Chernin, 1983; Wardle and Marsland, 1990; Worsley et al., 1990b). Directed more positively, it presents the possibility of promoting some fruits and vegetables, such as mangoes, grapes, avocados or artichokes, as treats and foods for special occasions. Christmas strawberries are already seen in this light by many New Zealanders.

Marketing fruit and vegetables to the teenage market
The research suggests a number of practical ways of reducing environmental barriers to teenagers' own purchase of fruit and vegetables as snacks, as well as their consumption of those provided at home by parents. Since snacking is a normal part of the dietary pattern of growing teenagers, the challenge for nutritionists is to promote snacks which are nutritious as well as attractive to teenagers (Thomas and Call, 1973; Anderson and McIntyre, 1993). It is also an important challenge for marketers.

The most popular snacks among New Zealand teenagers are potato crisps, chocolate and muesli bars (Horwarth et al., 1991), but Pakeha teenagers in this study also found fruit to be convenient and healthy as a snack at home. Over half were interested in eating more. Fruit was preferred to vegetables as a snack, as the time needed to prepare vegetables was considered a disincentive. Yet teenagers are prepared to spend two minutes on noodles, encouraged by intensive television marketing. Ideas for quick and tasty after-school snacks involving vegetables could also be promoted to the teenage market; for example, celery and peanut butter, carrots and other vegetables with dips.

Fruit was a frequent snack at home, although sometimes rationed by parents. The interviews highlighted the difficulties and disincentives in teenagers choosing fruit while away from home. New approaches need to be considered in the marketing, distribution, pricing and presentation which will allow fruit to compete successfully with less healthy foods in the snack and fast food market for teenagers and others.

Key changes suggested by this research are single-item pricing and increased availability of attractive, inexpensive, quality fruit at dairies, tuckshops and sports venues. Since increased
appetites and increased purchases of snack food away from home were associated with heavy sporting activity in these interviews, sports clubs, public swimming pools and other such venues may offer opportunities for promotion and increased sales of fruit and vegetables as snacks. The attractiveness and freshness of fruit sold in these venues could be enhanced by changes in distribution and packaging. Refrigerated compartments at the point of sale would ensure freshness, as well as improving presentation to the customer. Display cartons and other packaging could also enhance the image of fruit in the 'takeaway' venue and reduce the likelihood of bruising before or after sale.

The sociable snacking and lunch-sharing behaviour reported by these teenagers may suggest ways of marketing new, easily shared fruit or vegetable products in tuckshops and other venues. The authors are aware of a few examples of fruit sold in a way that matches teenage consumption and purchasing patterns away from home. In one such example, a fruit stall selling mainly to students in their late teens and early twenties sells fruit by the piece at 50¢ and small, shareable bags of various nuts, dried fruits and banana chips are sold for $1 or $2.

Both pricing and promotion of fruit and vegetables as snacks would need to match the highly successful strategies used to market confectionery, salty snacks and fast food to teenagers and their families. Such marketing can develop an image, attributes and ‘personality’ for products that makes them something special (Rossiter and Percy, 1992), rather than a commodity product lacking social benefits for the teenage consumer. The extent to which fruit and vegetables could be successfully marketed would depend to some extent on the nature and extent of competing messages. Controls that limited the promotion of less healthy food and drink products to children and adolescents would assist this process.

**Improving the school lunch**

The study also has marketing implications for teenage food consumption away from home over which parents retain some control. The research highlighted some parental concerns and strategies in response to poor eating patterns, and the content of the school lunch was an important area of negotiation between parent-shopper and teenager. Not all ‘lunch box fillers’ were considered healthy by parents, but one fruit-based snack which was proving popular was unsweetened, dried fruit roll-ups. These were easy to store and transport until needed. A new product which meets the constraints of the school snack market is currently being advertised on television: ‘tinned’ fruit presented in small yoghurt-style containers.

The research highlighted two areas in which schools themselves play a role in providing food and providing knowledge about food: cooking classes and tuckshops. Information from these teenagers suggested that, despite the Heartbeat campaign a few years earlier (Peach, 1992) there is considerable room for improvement in the standard and range of fruit and food in school tuckshops.

The participation of these teenagers in preparing food for the family was associated with an increased interest in vegetables and in nutrition generally. In the few years since these teenagers had attended intermediate school cooking classes, these classes have begun to focus on simple, low-cost balanced meals, including vegetable dishes, which pupils may be required to cook at home for their family. Over the same few years, however, cookery classes have been incorporated into the food technology component of a new technology curriculum. A limited number of lessons now covers food production, marketing and packaging, as well as food preparation and nutrition. Some nutritional information is, however, included in education on health.

The health promotion strategies suggested on the basis of insights provided by this research may increase teenagers’ consumption of fruit and vegetables at an important period of physical growth, and help lay the foundations of healthy eating patterns for life.

**ACKNOWLEDGEMENT**

The Alcohol and Public Health Research Unit’s work on adolescent food choices is supported by both project funding and core funding from the Health Research Council of New Zealand.

**Address for correspondence:**
Linda Hill
Alcohol and Public Health Research Unit
Faculty of Medicine and Health Science
Private Bag 92019
University of Auckland
Auckland
New Zealand
REFERENCES


page 66 blank