How the Environment Impacts Individual Choice

“Obesity has been described as a mismatch between human physiology and the environment in which we live.”

Food Availability
There were up to 530 more calories available for each Canadian to consume in 2002 than there were in 1985. This increase in available calories is directly correlated with the rising obesity rate, making increased energy intake the most likely reason that people have gained weight.

Taste and Price
Taste is the most important factor influencing food choice, followed by food cost.
Studies show that price modifications are more effective than educational health messages to motivate people to purchase healthier foods.

Is “pizza cheaper than salad” in your workplace?
Barriers to Healthy Eating

Portion Sizes

Portion size appears to be a major factor for how much food people consume; as the amount of food served suggests that it is an appropriate amount to eat.\textsuperscript{10,12-15} In fact, the ‘French paradox’ appears to be nothing more than smaller portion sizes.\textsuperscript{16}

Meals eaten away from home typically encourage people to eat too many calories because of high calorie density and large portion sizes.\textsuperscript{4,7,17-20} One study showed that when eating out, people purchased meals that contained an average of 827 calories per meal.\textsuperscript{17}

In addition, on days that people eat fast food, they consume about 205 more calories than they do on days they do not eat fast food.\textsuperscript{21}

People often underestimate the calories in food, especially for unhealthy items.\textsuperscript{21} In one study, participants underestimated the caloric content of meals by more than 600 calories.\textsuperscript{22}

Trends in larger portion sizes make it difficult for individuals to resist eating foods that are high in calories, fat, sugar and salt especially when not at home.

Over the past few decades the largest increases in portion sizes have occurred in fast foods such as hamburgers (18\% larger), cheeseburgers (24\% larger), french fries (57\% larger), and sweetened beverages (62\% larger).\textsuperscript{23}
Educating people about the effects of portion size seems to have little to no effect on their food consumption. In an experiment, a group of university graduate students were educated on the effects of portion sizes on food consumption. Six weeks later these students were invited to a party where they knew they would be part of a study. The students were divided into two groups, with each group receiving different sized bowls. The students were allowed to consume as many snacks as they wanted. The group with the larger bowls served themselves 55% more food compared to the group with smaller bowls. When the students were informed of this effect, the typical response was “maybe that happens to other people, but not to me.”

Food For Thought: PORTION SIZE

People who are served larger portion sizes consume more food but do not report greater feelings of fullness. This is true even when it involves food that tastes bad. In one study, people were given stale 14-day old popcorn in boxes twice the normal size. Even though they complained about the taste, the participants who were given the larger boxes of stale popcorn ate 34% more popcorn than participants given stale popcorn in normal sized boxes.

The bottom line: Larger portion sizes cause people to eat more
Television, Media and Advertising

The nutrient content of the majority of advertised foods goes against nutrition education and guidelines and may encourage the development of chronic disease. The pattern of nutrition imbalance found in advertised food mimics the pattern of imbalance in the common North American diet, leading researchers to believe that television commercials have a direct impact on what consumers eat. Approximately 85% of foods advertised in Canada are for foods designated as “Foods to Limit” by Canada’s Food Guide.

Among children, there is an association between watching commercial television and obesity. However, when children watched other forms of media that did not contain food commercials, there was no association with obesity. These results suggest that it is the commercials themselves that stimulate unhealthy food consumption and weight gain.

Social modelling theory predicts that we will mimic the behaviours of other people. This effect was shown when people watched soft drinks commercials and then subsequently drank more pop. Similar effects have also been shown after people are shown fast food commercials.

Advertised foods do not have to be present in order to have an effect. Adults shown food commercials ate more food overall even though the food they ate was not presented in any advertisements they watched. Women who habitually diet and monitor their weight and men in general may be especially prone to increased eating when exposed to advertising food cues. Food commercials may act as a stimulus that can trigger a desire to eat, even when the viewer is not hungry.

Other forms of advertising such as brand logos may also act as food cues, which can also subsequently affect food consumption patterns.
Convenience

“Effort is not required to continue eating when food is present; effort is required to refrain from eating when food is present.”

Many studies have examined the relationship between the food environment and weight. A high ratio of fast food restaurants and convenience stores in a neighbourhood is associated with increased weight.32-35

The availability of poor nutritional choices has a profound impact on what people eat.36 For example, many stores sell unhealthy ‘snack’ foods placed near the cash register.36

The mere presence of convenient ready-to-eat foods increases the likelihood that people will consume them, leading to higher overall energy intakes.36

Therefore, the impact of vending machines, food in common areas and foods placed at influential locations such as near cash registers in cafeteria lines should be carefully considered.

Food For Thought: THE LAW OF LEAST EFFORT

In one study, secretaries who had chocolates placed on their desk ate twice as many as secretaries that had chocolates placed only six feet away.37

The bottom line: As effort goes up, food consumption goes down.
Barriers to Healthy Eating

Time Pressures

Forty-one per cent of Canadians say that their life is so hectic that they find it hard to include healthier foods in their diets. The feeling that there is not enough time in the day to do everything has been implicated in the decline of family meals and the increased consumption of convenience and fast foods. When asked, people admitted making ‘quick’ foods because they did not have the time or energy to cook, despite knowing that it was not ‘good’ for them.

Common barriers to making family meals include: being a single parent, working an inflexible job, and working a schedule that interferes with family time such as evening and night shifts.

People are more likely to cook meals at home if they have cooking skills and flexible or reduced work schedules (i.e., they can be home in the afternoon).
Point-of-Purchase Nutrition Information

Most individuals underestimate the calorie content of food. Providing nutrition labels gives consumers an opportunity to improve nutritional intakes.\textsuperscript{3,17,41-43}

However, nutrition information has to be readily available at the point-of-purchase, as only 0.1\% of people look for nutrition information before making their purchase. Websites, pamphlets, and tray liners are not an effective format to promote behaviour change.\textsuperscript{20}

In order to prevent indulgence at a later point in the day, it is also important that nutrition information be provided along with an average estimate of how many calories people need for the day.\textsuperscript{44,45} For example, “this menu item has 500 calories; the average person needs 2000 calories a day.”

Consumers welcome information in the form of nutrition labels and logos.\textsuperscript{46} However, providing nutrition information is not always an effective way to improve dietary intakes.\textsuperscript{4,14,47-49}

Most Canadians report being interested in nutrition, however, 61\% think that there are so many different things to consider when buying foods, (e.g., fat, trans fat, sugar, calories, fibre, locally produced, organic, etc.), that it is impossible for an ordinary person to figure out what to eat.\textsuperscript{38}

Consumers report that nutrition logos assigned to products that meet specific nutrition criteria influence their food choices.\textsuperscript{50} However, studies on this type of labelling fail to show substantial positive effects on actual food choice when logos are placed on healthier food items.\textsuperscript{51}

To complicate matters, nutrition labels are not always accurate. One study analyzed foods in a lab found that the calorie content of packaged food was an average of 18\% higher than what was stated on the label.\textsuperscript{52}

Therefore, providing nutrition information is probably not effective as a stand-alone intervention but may be useful as part of a comprehensive strategy.\textsuperscript{14}

Is it Healthy?

It is difficult for the average person to tell if a food item is healthy.

For example, one very healthy sounding \textit{Raisin Bran Muffin} has:\textsuperscript{53}

- \textbf{360 calories} (almost 20\% of average daily needs)
- \textbf{10 grams of fat} (15\% of average daily needs)
- \textbf{790 mg sodium} (over 50\% of daily recommendation)
- \textbf{6 grams of fibre} (considered a very high source of fibre)
- \textbf{37 grams of sugar} (100\% of daily recommendation)\textsuperscript{54}
Barriers to Healthy Eating

Stress

A stressful work environment where workers experience high demand, low job control, and low social support can negatively influence eating behaviours, and often leads to skipping meals, eating at workstations, extra snacking, and a preference for calorie dense foods.\(^{12,55,56}\) In this type of work environment, health problems are more likely to occur.\(^{12,57,58}\)

Increasing BMI has been associated with work related psychological factors such as fatigue, tension, anxiety, and depression.\(^{58-60}\) It is likely that some workers use food as a way to cope with job strain, which contributes to the development of obesity.\(^{58,61,62}\)

“It’s like a quick pat on the shoulder or something like that. You’ve kept up with your day; you’ve done a great job, here have a cookie”.\(^{12}\)

- Manufacturing Worker
Social Norms and Cues

Eating food with other people can create a sense of belonging, and social norms can dictate individual behaviours. Therefore, individual employee behaviour can be influenced by the health-related norms and values of other co-workers.

Having other people present while eating can influence both the amount and types of food people eat. Eating with others, especially familiar people, can extend eating occasions and suppress self-monitoring. Individuals use social cues to decide what to eat and how much to eat without attracting negative judgment from others. It has been shown that individuals will eat more when eating companions eat more and vice versa. This effect can be profound, with one researcher finding that meal size almost doubled when subjects ate with seven or more people.

Work related activities that revolve around eating and drinking can promote excess caloric intake. Such activities include workplace celebrations, fundraisers, social events, and entertaining clients.

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**Food For Thought: SOCIAL INFLUENCE**

In one study, two different bowls of crackers were provided to participants. Subjects unknowingly copied another person’s behaviour by eating whichever type of cracker the other person ate.

**The bottom line:** Eating behaviours are unknowingly influenced by others.
Barriers to Healthy Eating

Holidays

"Corporate break rooms need not become repositories for unused Halloween candy and holiday leftovers."  

The holidays are a time when cultural and social influences combine to create high risk environments conducive to weight gain. Factors such as eating with others, longer meal times, easy access to food, and large portion sizes increase overall calorie intake. In addition, holiday celebrations are likely to include alcoholic beverages, which contribute a significant amount of calories.

The increased stress, caloric intake and lower physical activity levels that occur during the holiday season significantly contribute to the weight status of employees.

Most people gain between 0.62 to 0.70 kg (1.4 to 1.5 pounds) per year. Half of this weight is gained between the Thanksgiving and Christmas holidays and is not lost in the summer months as commonly believed.

The cumulative effects of holiday weight gain are likely to contribute to an increase in body weight. Overweight and obese people seem to be especially prone to holiday weight gain.

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Implications for Workplaces

Many of the environmental factors that influence food choice are outside the control of individual employees. This highlights the necessity for creating a supportive healthy eating environment in the workplace. There are many strategies and policies that workplaces can implement to help improve employee’s eating habits.

Refer to the section ‘Part III - Making the Shift: Comprehensive Strategies to Promote Healthy Eating’ for strategies to improve the food environment in your workplace. This resource is available for download at: http://www.projecthealth.ca under ‘Project Health Resources’.
Environmental Influence References


Common Psychological Biases That Influence Health Behaviours

The human mind is extremely complex and influences food choices without conscious awareness. These psychological biases can prevent people from making consistent healthy food choices.

Cognitive Bias

A cognitive bias occurs when the brain allows judgments and decisions to be made based on personal experience, likes, dislikes and cultural experiences without supporting evidence. Several cognitive biases exist that apply to how people think about health.

Optimistic Bias

From a nutrition perspective, optimistic bias causes people to underestimate the consequences of their food intakes. People usually rate their nutrition-related risk to be lower compared to others.1,2 As a result of this bias, people accept the messages in health promotion campaigns but believe them to be more applicable to others than to themselves.

Optimistic bias was evident in the report: Recommendations of the Sodium Working Group.

"Public opinion research has shown that Canadians are aware of sodium as a health issue, but perceive it as everybody else’s problem. Very few understand what a healthy amount of sodium is, and most continue to have high dietary intakes."3

Because of this bias, people do not realize that their diet requires improvement. As a result, they fail to take action.

Tailored feedback from health professionals seems to be the most appropriate method to address this bias. However, research shows that some people receiving negative tailored feedback are even less likely than others to take action on a health issue.2
**Status Quo Bias**

“When in doubt, do nothing!”

People seem to prefer having things stay the same.⁴

Part of the status quo bias is a tendency to feel worse about poor outcomes of changes they made compared to poor outcomes that resulted from not making a change.⁵

Brand loyalty is an example of status quo bias. Once people are relatively happy with a product, they will not seek out alternatives, even if superior products become available.⁴

The status quo bias might help to explain why it is so hard to make changes as an individual. It also might help to explain why people tend to resist imposed changes.

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**Restraint Bias**

“...will buy this bag of cookies and just have one...”

There is a tendency to overestimate one’s ability to resist impulsive behaviours, which causes people to expose themselves to temptation.⁶

The assumption that individuals “should be able to” control themselves could explain acceptance of food temptations in the workplace environment. Unfortunately, people are tempted and eventually succumb to behaviours that result in poor health outcomes. A common example is bringing in high-calorie “treats” to share with coworkers, ultimately contributing to weight gain.
Hyperbolic Discounting

"The time to begin most things is ten years ago."

~ Mignon McLaughlin

People seem to be aware of the risks related to eating unhealthy foods but seem to “forget” about long-term health goals when they make food decisions.7

Hyperbolic discounting is the preference for immediate payoffs compared to future gains. For example, eating a tasty brownie now verses enjoying good health in the future. This bias is also evident in the form of other human traits such as procrastination, overspending and failure to save for retirement.8

‘Sin taxes’ such as those placed on tobacco or alcohol products have been used in the past to decrease this bias, as there is an immediate negative consequence to making an unhealthy decision.7

Third Person Bias

“…that might fool someone else, but it won’t fool me…”

The third person bias is the tendency to believe that others are more influenced by media messages than oneself.9

However, simply seeing a logo or watching a food commercial might create a desire to eat!10

The billions of dollars that are spent advertising food products should suggest that they are an effective way to increase sales. Especially since the pattern of nutritional imbalance found in the common American diet mimics the pattern of imbalance in advertised foods.11
The “Halo” Effect

“These chips have no trans fat, so I can eat as many as I want…”

How a particular food is marketed can influence whether or not one chooses to eat it and how much of it is consumed. A halo effect occurs when one judges a food be ‘healthy’ because one component of it is perceived as healthy.

People tend to underestimate the caloric content of foods served at restaurants that market themselves as ‘healthy’. As a result, they often order higher calorie side dishes, which contributes to higher overall caloric intakes.12

Similarly, when snack foods are marketed as ‘healthy’ many people assume that these foods either taste bad or can be consumed in limitless amounts.13-15

Just mentioning certain ingredients or attributes can create positive or negative biases about the perceived taste of food. In one study, the mere mention of soy made people evaluate a product as “grainy” and “tasteless” compared to those who tasted the same product with no mention of soy. Suggesting that the product contained soy made people believe that they tasted it, even though the product did not contain any soy.13

Food product names also have a huge effect on whether people choose to eat them. Descriptive names tend to increase taste ratings and overall sales. They also make people think that they contain more calories and are more satisfying than menu items with plain names.12 For example, “Traditional Cajun Red Beans with Rice” verses “Red Beans with Rice”.13

Implications for Workplaces

The psychological factors that influence food related behaviours occur outside the conscious awareness of individuals. Educating people about these psychological influences does little to change the individual perception of health and lifestyle behaviours, as people continue to believe that the messages are more applicable to others than themselves.

It is important for health promoters to be aware of these psychological influences and accept them as part of the human condition, rather than having an expectation that people ‘should’ behave differently.

The most important strategy to counter these psychological biases is to ensure that the workplace food environment is structured in such a way that healthy eating is ‘just another part’ of the average workday. For strategies to implement supportive healthy eating environments in workplaces, please to the section ‘Part III - Making the Shift: Comprehensive Strategies to Promote Healthy Eating’. This resource is available for download at: http://www.projecthealth.ca

under ‘Project Health Resources’.
Psychological Bias References

Physiological Barriers to Healthy Eating

Will Power, Self-Control, and Personal Responsibility

Self-control is required help people follow a healthy diet. But what is will power?

The Self-Control Theory

Researchers have been investigating the ability of subjects to exert self-control under different conditions. There are a wide variety of behaviours that are expected of employees during any given workday that require the use of self-control (e.g., paying attention during meetings). What is interesting is that self-control seems to have a limited energy source.

How Will Power Works

Researchers believe that will power is controlled by the brain. Even though the brain only makes up 2% of body mass, it uses 20% of the body’s energy. Each time participants in studies engage in an effort of self-control, there is a small but measurable drop in blood glucose. It appears that exerting self-control causes the brain to use up just enough blood glucose to make it difficult to complete a secondary act of self-control.

Implications for Workplaces

1. Employees will likely perform better when they are well nourished (i.e., skipping meals will lead to a drop in blood glucose that impair one’s ability to concentrate).

2. Tempting employees with unhealthy foods when self-control is at its lowest (e.g., right before lunch), or when they are trying to concentrate (e.g., during a meeting) makes it very difficult for them to consistently eat a healthy diet.

The self control theory may also help to explain some other food related phenomenon such as the “What the Hell” and “Token Salad” effects as well as other justification type behaviours described on the following page.

Food for Thought: SELF-CONTROL INFLUENCES HEALTH BEHAVIOURS

Even if employees resist temptation initially, research shows that individuals who are trying to maintain a healthy diet usually have a breakdown in self-control later in the day. One study even showed that smokers were more likely to smoke after being required to resist eating cookies.

The bottom line: Unhealthy food temptations may impact other health behaviours as well.
“What The Hell?”\textsuperscript{7,8}

“I’ve already blown my diet; I might as well keep going”

The “What The Hell” effect is a reaction that dieters have, often causing them to abandon their diets especially in situations where dieters have less control over food choices or feel deprived. Once dieters give in and break their diet, they feel that the day is lost. This results in giving into further temptation and eating more of whatever food is available.\textsuperscript{7,8}

The Token Salad

“I’ll have the burger and fries”

The majority of consumers are health conscious, however, the food industry reports that consumers say they want more salads offered, but when they are added to the menu, salad sales do not increase.\textsuperscript{9,13} In fact, when healthy items are added to the menu, some food providers notice an increase in the sale of the least healthy menu items.\textsuperscript{9,13}

The self-control theory may explain why people seek out nutrition education, request healthy eating programs, demand healthy foods on menus and then fail to actually make healthy ‘choices’. The very thing that people need to exercise self-control when faced with eating decisions is depleted when they are hungry (i.e., blood glucose), causing them to make more indulgent ‘choices’ when they are available.

Justification

“It was a tough day at the office, we should go out tonight...”

People working towards a goal that requires high-personal effort, (e.g., completing a major presentation at work) feel that they can indulge after meeting that goal.\textsuperscript{9,10,12}

Food For Thought: INDULGENT DISTRACTIONS

A group of participants had to resist eating a plate of cookies while completing a challenging mental task. They gave up after only 8 minutes. The group that was allowed to eat the cookies lasted 19 minutes, while another group that did not have any food provided to them lasted 21 minutes.\textsuperscript{6}

The bottom line: The availability of tempting foods when employees are trying to work can be mentally distracting and counterproductive.\textsuperscript{3,13,14}
Physiological Barriers References

Is Eating an Addiction?

“\textit{A loss of control over food intake}“ fits the description of classic substance abuse disorders.\textsuperscript{1} As with drug abuse, people continue to ‘use’ despite knowing about the negative effects on their bodies, feeling the negative physical consequences of use, (e.g., pain or chronic disease), and experiencing feelings of isolation due to the stigma of being overweight or obese.\textsuperscript{1}

Obesity and Addiction

Just as poppies and coca beans are relatively harmless in their natural form, once components are extracted, refined and concentrated, they become potent drugs such as cocaine and opium. Sugars and fats are also found in nature in small concentrations and like drugs, are not addictive, until processed.\textsuperscript{1}

Researchers have found that eating refined grains (i.e., white flour), sugars, and fats commonly found in processed food, stimulate the dopamine system in the brain similar to the reward pathway for drugs of abuse.\textsuperscript{1-5}

Obese individuals have fewer dopamine receptors than lean people, (comparable for drug users compared to non-users).\textsuperscript{6} Eating foods that contain refined grains, fats and sugars causes the loss of dopamine receptors.\textsuperscript{7} The result of having fewer dopamine receptors is that more substance (i.e., food) is required to feel satisfied.\textsuperscript{2} This promotes overeating and a preference for processed, high-fat, high-sugar foods, which increases the risk of developing obesity.

“I just need something sweet.”

The involvement of the dopamine reward system may explain the desire to eat something (e.g., dessert), even when no longer hungry (e.g., after a big meal).

The addictive process is likely a key reason that the majority of individuals have not been able to control their intake of refined grains, fats, and sugars. However, unlike other addictive substances, foods containing refined grains, fat and sugar are heavily advertised, inexpensive and difficult to avoid.
Eating is an Addiction References


