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# Using First Nations Children's Perceptions of Food and Activity to Inform an Obesity Prevention Strategy

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## Abstract

Obesity and associated health risks disproportionately affect Aboriginal (First Nations) children in Canada. The purpose of this research study was to elicit First Nations children's perceptions of food, activity, and health to inform a community-based obesity prevention strategy. Fifteen 4th- and 5th-Grade students participated in one of three focus group interviews that utilized drawing and pile-sorting activities. We used an ecological lens to structure our findings. Analyses revealed that a variety of interdependent sociocultural factors influenced children's perceptions. Embedded within a cultural/traditional worldview, children indicated a preference for foods and activities from both contemporary Western and traditional cultures, highlighted family members as their main sources of health information, and described information gaps in their health education. Informed by children's perspectives, these findings offer guidance for developing an obesity prevention strategy for First Nations children in this community.

## Keywords

Aboriginal people, North America; children; focus groups; obesity / overweight; pediatrics; qualitative analysis

In Canada, the prevalence of obesity in Aboriginal children is more than double that of their non-Aboriginal peers (McShane, Smylie, & Adomako, 2009; Seto, 2006). This issue has emerged as a public health priority because a number of chronic diseases (i.e., type 2 diabetes, cardiovascular disease) are intimately linked to obesity, especially among Aboriginal peoples (Dean, Young, Flett, & Wood-Steiman, 1998; Young, Reading, Elias, & O'Neil, 2000; Zorzi, Wahi, Macnab, & Panagiotopoulos, 2009). To effectively promote healthy weights and minimize obesity-related health problems, obesity prevention efforts that target young children are required; strategies that begin early in life are believed to be more successful than those that start later in life (Birch & Ventura, 2009; Shonkoff & Phillips, 2000). Successful strategies will likely require a comprehensive understanding of the factors that influence obesity, including Aboriginal children's emic perspective of healthy lifestyles (Pigford & Willows, 2010; Plotnikoff, Lightfoot, Barrett, Spinola, & Predy, 2008; Willows, 2005).

The United Nations' Convention on the Rights of the Child (Article 12) affirms a child's entitlement to express his or her views on matters that affect him or her (United Nations General Assembly, 1989). The perspectives of

Aboriginal children have seldom been used to help inform obesity prevention strategies. Exploring the worldview and context of young participants affected by health conditions might explain the limited success of previous child health programs (Ott, Rosenberger, McBride, & Woodcox, 2011). Historically, researchers have relied on parents or other adults to understand children's activities and behaviors (Irwin & Johnson, 2005; Tudge & Hogan, 2005), despite the recognition that children possess the capacity to create permanent, sustainable changes and contribute substantially to the programs and policies that affect their generation (Hill, 2006). It is particularly important to explore how Aboriginal children perceive and incorporate aspects of both modern and cultural/traditional lifestyle concepts into their everyday lives, because a blend of contemporary and historic factors comprise Aboriginal children's realities (First Nations

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Information Governance Committee, Assembly of First Nations, & First Nations Centre at the National Aboriginal Health Organization, 2005; Gideon, Gray, Nicholas, & Ha, 2008; Isaak, 2008).

It is well recognized that Aboriginal peoples have unique health determinants (e.g., cultural practices, beliefs, and values) that can influence their risk for developing or preventing obesity (Adelson, 2000; Vallianatos et al., 2008; Willows, 2004). For example, culture dictates dietary choices by defining when and how to eat foods that are accepted and preferred (Kittler & Sucher, 2004); therefore, to understand if and how diet and activity contribute to obesity, culture must also be understood. Despite recognizing the importance of culture, few researchers have explored issues that impact Aboriginal children's weight status beyond quantitative and reductionist measures of energy intake and expenditure. To better understand childhood obesity in First Nations children, it is important to explore their larger ecology, including culture, family, and community (Pigford & Willows, 2010). The purpose of this research was to elicit First Nations children's perceptions of food, activity, and health to inform a community-based obesity prevention strategy.

## Methods

### Participant Demographics

At the request of a community member, our research team conducted a study to examine schoolchildren's health in a rural Plains Cree First Nations reserve community (population ~1,000) in Alberta, Canada. The study presented in this article was intended to provide qualitative data to complement existing epidemiological data, which demonstrated that 56.2% of children were overweight/obese, and 64.0% were physically inactive (Pigford, Sanou, Ball, DyckFehderau, & Willows, 2011). The community is located 20km from a town of 6,500 people and 65km from a large metropolitan city (population ~1,000,000). To provide context, family income and educational attainment of families living in this community are lower than the Alberta provincial average. Also, the number of people living in each household is almost double the provincial average, and 45% of families are lone-parent families (Statistics Canada, 2010). Aggregate income and educational data are not available to make comparisons to contemporary reserve communities.

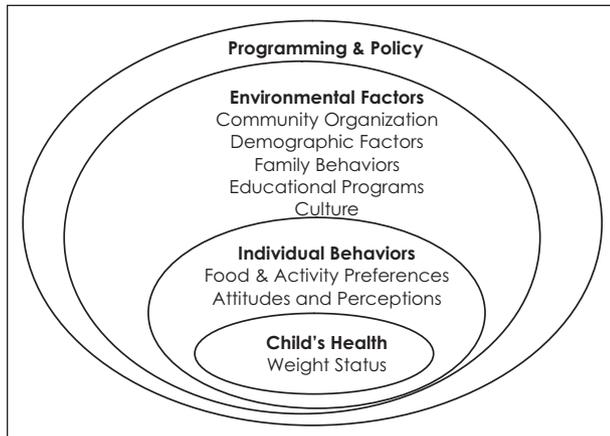
All students attending 4th and 5th grades ( $n = 35$ ) at the community school were eligible to participate in the study. Prior to the research, informed consent (for parents) and assent (for children) was obtained. In total, 15 First Nations students (10 girls; 5 boys) aged 8 to 10

years volunteered to participate in this study. The study was approved by the institutional Health Research Ethics Board, as well as the local band chief and council government. A steering committee that included First Nations elders (respected, experienced advisors), educators, health workers, and several individuals representing different community departments reviewed the research protocol and article to ensure appropriateness and cultural sensitivity.

### Data Collection

Qualitative data were collected in three focus groups led by trained researchers in June, September, and October, 2009. Consistent with recommendations for children of this age, each focus group included four to six participants, and sessions (duration 45 to 55 minutes) were held during school hours in the school library, which provided a familiar setting for the children (Hennessy & Heary, 2005). Eligible children participated in one of the three focus groups based on their availability, as recommended by their teachers. Focus groups were adapted for use with children, and we employed storytelling and narrative, which tend to be highly valued by Aboriginal peoples (Poff, 2007; Rothe et al., 2006). To further ensure cultural appropriateness, the word *activity* was used intentionally, rather than *physical activity*, throughout the interviews, because activity better accommodates the broad nature of health embodied by Aboriginal people's holistic view of health and well-being (Adelson, 2000; Isaak, 2008; Turton, 1997; Warbe, 2005; Wilson & Rosenberg, 2002).

Using the same broad interview guide in each interview, focus group questions were exploratory and progressed from general to specific, which encouraged discussion (Grudens-Schuck, Allen, & Larson, 2004). The interview guide was pilot tested with a group of children ( $n = 4$ ) who were not part of the study sample for methodological appropriateness, and was refined for cultural sensitivity based on steering committee recommendations. Questions were accompanied by drawing and pile-sorting activities to elicit discussion among children (Hennessy & Heary, 2005; Hesketh, Waters, Green, Salmon, & Williams, 2005; Horstman, Aldiss, Richardson, & Gibson, 2008; Krueger & Casey, 2000). Participants and facilitators sat in a circle around a table during the focus groups (Krueger & Casey; Rothe et al., 2006), and each child created two drawings of foods they liked to eat and individually discussed their drawings with the group. Using all of the pictures, children (as a group) sorted the drawings into one of two piles (healthy or unhealthy foods) and discussed their rationale for choosing one pile rather than the other. Identical steps were followed for children's preferred activities.



**Figure 1.** Diagrammatic representation of an ecological lens. Adapted from "Treatment preferences of overweight youth and their parents in western Canada," by N. Holt, B. A. Moylan, J. C. Spence, J. M. Leink, and G. D. C. Ball, 2008, *Qualitative Health Research*, 18(9), 1206-1219. Copyright 2008 by Sage Publications. Also adapted from "Preventing childhood obesity: What works?" by L. L. Birch and A. K. Ventura, 2009. *International Journal of Obesity*, 33(Suppl 1), S74-S81. Copyright 2009 by Macmillan Publishers Limited.

## Data Analysis

Focus groups were recorded using a digital audio recorder and transcribed verbatim into electronic format. To ensure accuracy and completeness, transcripts were checked by the primary facilitator against the voice recording and compared with field notes made by a secondary facilitator. Data were analyzed using Hennessy & Heary's (2005) procedure for children's focus groups. Transcripts were read and a coding system using color codes (Bertrand, Brown, & Ward, 1992) was created; line-by-line analysis was used to categorize the data. Categories were compared to the preliminary themes and then themes were reevaluated. Themes and subthemes were discussed with the research team throughout analysis and refinements were made after these discussions. Data were shared with the steering committee to solicit feedback and validate themes.

During this process, the steering committee requested that culturally sensitive information be removed and presented in a different manner, which totaled less than 1% of the total words from the three transcripts; this included quotations from children that referred to spiritual or sacred cultural practices, foods, and activities. The withdrawal of this information reflected respect for the community's cultural practice of using oral transmission to share spiritual and sacred cultural knowledge. As a result, the details of sacred or ceremonial foods and activities mentioned in the interviews are not included in this article.

After themes were agreed on, an ecological lens (see Figure 1) adapted from previous childhood obesity research (Birch & Ventura, 2009; Holt, Moylan, Spence, Leink, & Ball, 2008) was used to structure our discussion. Children's descriptions of individual determinants of health (i.e., food and activity perceptions) were considered, while recognizing that these factors were influenced by the contextual environment (i.e., community organization, family behaviors, physical environment, and First Nations culture; Birch & Ventura; Holt et al.; Plotnikoff et al., 2008).

## Results

Our analyses revealed that three key themes emerged across all focus groups. In relation to children's perceptions about food, activity, and health, the importance of family and the meaning of health were grouped under an overarching umbrella principle of a cultural/traditional worldview.

### *Umbrella Theme: Cultural/Traditional Worldview*

The majority of discussions in all three focus groups revealed the influence of a First Nations cultural/traditional worldview on perceptions and behaviors. A sense of pride and ownership of one's culture were evident throughout. Children spoke about their First Nations cultural practices, preferred cultural foods, and activities, and considered many cultural foods and activities to be healthy. Children identified with their culture by referring to "us natives," "we," and "our culture," which illustrated a shared understanding of what constituted their cultural identity. Cultural identification also resulted when children clarified what was included as part of their culture. For example, when asked if they liked traditional foods, one child answered, "I like Chinese food," which led another child to offer the correction, "No, like our culture." It was common for children to suggest that traditional foods were important for identification purposes; this was highlighted by the following exchange:

Child 1: [Traditional food] is gross. I don't like it.  
 Child 2: So you're not Indian? [Although *First Nations* is the preferred term for Native Americans in Canada, many First Nations use the words *Indian* or *Native* to describe themselves.]  
 You don't eat good foods?

Similarly, children identified with traditional activities. For example, one participant explained that the reason children like to powwow dance (a variety of cultural dances performed at a gathering) is simply because "It's part of our culture."

Knowledge of traditional foods and cultural activities were integrated into children's discussions. Traditional foods were described as being eaten in everyday life as well as at cultural events, such as culture camps (a gathering of old and young people to exchange and share cultural knowledge), powwows (a social gathering or fair that usually includes competitive dancing), and ceremonial events. Descriptions of sacred cultural practices have been omitted to respect the tradition of oral communication in this community, but the handling and acquisition of sacred and ceremonial cultural foods were discussed by the children. Children explained that when traditional foods were incorporated into a ceremonial event, they took on a new meaning and were treated differently. Children also described the cultural practices and protocols that must be followed at cultural events.

Many cultural practices mentioned by the children required both traditional foods and activities to form a single event. Children's descriptions conveyed fluidity between food and activity when they described traditional events; discussions of traditional food led to traditional activities, and vice versa. Children articulated this point through comments such as, "My friend, she went to a [cultural activity], and after that they had a feast," or

When my *kokum* [the Plains Cree word for grandmother] made bannock [baking powder bread that can be fried, baked, or cooked over a fire, sometimes with dough wrapped around a stick over an open flame], and when I go to my kokum, she makes the best stew when we have our [cultural activities].

Powwows, for example, are social events that combine cultural dances with the consumption of traditional food. Hunting, a traditional activity, provides traditional foods that are eaten at cultural events and in daily life. Thus, a traditional activity (e.g., hunting) was intertwined with food through food procurement. One participant noted,

Um, a month ago, my dad and uncle were driving to a baseball game and then on the way back they saw two mooses. And then, um, my dad called these other people, and then they got down and got those mooses. And then we . . . me and my dad and the whole family still has um, moose um, meat at home.

Another participant noted that "My friend and his big brother, and his father had to go shoot um, had to go shoot animals for the [culture] camp." These statements provide examples of how children's perceptions of food, activities, and health were embedded within a First Nations cultural/traditional framework.

### Theme: The Importance of Family

Most participants indicated that the majority of their experiences around food and activities involved family members. Children mentioned that traditional foods were consumed with family members, such as their kokums, mothers, and uncles, and that they learned to prepare traditional foods from family members. For example, one child mentioned, "Yesterday I helped my mom make bannock." Participants spent a lot of time with family members when doing cultural activities. One child reported having participated in cultural dances with "my brothers and my cousin and my other cousin and my friend," whereas another child stated that she danced with "my cousins," and another with her "sister." The statement, "My kokum and my dad and mostly everybody wants me to dance, and I have sports over the summer, and I help out my dad at my *mushum's* [the Plains Cree word for grandfather] culture camp," suggests that parents and extended family members supported children's participation in cultural activities.

Although children were more likely to report that they participated in noncultural group activities such as soccer and fastball with friends and other nonrelatives, they also reported engaging in these activities with family members. Both cultural and noncultural events occurred outside of the community; however, cultural events outside of the community were more likely to involve family members, whereas noncultural activities outside of the community were more likely to include nonrelatives. Overall, children noted family member participation in most of their experiences with food and activities.

Knowledge gained from older relatives informed children's health beliefs. In reference to traditional foods and cultural events, parents, grandparents, and elders were identified by children as sources of information about healthy foods and activities, and often "Mom" or "kokum" or both were identified as primary sources. For nontraditional foods, family members were identified first, followed by other sources (e.g., "school," "commercials," "TV," "friends from sports teams," "the government"). Similarly, children referenced family members' behaviors and health histories to reinforce their health beliefs. For example, when discussing Indian popcorn (a snack made of fried pork rinds and lard), one child stated, "It's healthy, man. My uncle makes it all the time. He doesn't get diabetes"; another said, "My dad had a heart attack from eating too much unhealthy foods." Many children discussed the behaviors and beliefs of relatives in relation to their own beliefs about fast foods and junk foods. One child shared, "My auntie eats whatever. My auntie eats fast food," whereas another child stated, "My mom told me to not eat anywhere, because this one person ate too much McDonald's every day, every week, and

then he wouldn't stop going to McDonald's, and he died and he got cancer." Another participant stated, "My brother said actually A&W [a fast-food restaurant] is probably the healthiest place you could go." These examples reveal the importance of family members as sources of health information for children.

### Theme: The Meaning of Health

Children recognized nature and the earth as important when assigning the labels *healthy* or *unhealthy* to a food or activity. When asked to describe healthy foods, they replied that food was healthy because of "the seeds," or because "They're from the ground," or it "grows on a plant," or simply, "Cause it's from nature." Cultural dishes and animals were also seen as healthy, "Cause [ceremonial dish] is from nature"; and "Because it's animal, it's part of nature." Applying this logic, shrimp was described as healthy "Because it's fish." It was thought to be healthy because "it comes from the water," and "because it never eats anything wrong or nothing, or never ate anything unhealthy in its time." Children reported activities such as littering as unhealthy, "Cause it wrecks the earth and it makes Mother Earth angry"; conversely, recycling was seen as healthy. The health of the planet was important to these children, and one child viewed paper as unhealthy "cause it kills trees." Because the environment and nature were valued, many sacred ceremonial practices associated with nature were considered to be healthy.

In general, children preferred foods and activities that they considered to be healthy. Children perceived themselves as well informed about the value of healthy foods. Healthy foods were seen as foods that contained important nutrients like "[v]itamin A and vitamin B and vitamin C" and foods that "gives you iron." These characteristics of food were important, "cause you're growing," and "because you want to be strong." Children also emphasized liking the "good" taste of healthy foods "cause they're delicious and they're healthy," "[a]nd they're fruitable. I like them 'cause they're tasty, I guess."

Healthy activities were associated with a number of different attributes (e.g., movement, exercise, learning, strength, and body size). Children associated the amount of movement and exercise involved in an activity to the health benefit it provided. Video games associated with movement, such as Nintendo Wii, were considered healthy; however, sedentary video games were not deemed healthy. Additionally, playing cards and listening to music were considered unhealthy by some participants because these activities require little movement: "Cause you're just sitting there." However, activities such as reading and homework were identified as healthy because they involve learning, which "helps your brain." Strength

was also an important factor in determining whether or not an activity was considered healthy. Running was seen as beneficial because it "gets your legs stronger so you could run longer," and fort building was healthy because it "gets you all strong" and "[t]hen you'll be able to do more stuff if you're stronger." Similarly, children praised exercise because "[y]ou get thinner" and "[y]ou get no more cramps and you lose weight."

In Tables 1 and 2 we present the preferred foods and activities children discussed in the interviews. Data in the tables were sorted according to how children classified the food or activity (healthy or unhealthy). The unclassified category indicates that children did not explicitly state if the food or activity was healthy or unhealthy. Perceived traditional foods/activities were those items that children themselves identified as traditional, even if they might not be historically accurate. When children were asked to describe an unhealthy person, they referred to a variety of chronic conditions including obesity, heart attacks, diabetes, and dental caries. Children considered obesity to be an undesirable trait, and described an unhealthy person as "chubby" and "sloppy." Heart health was addressed by the comments, "If you eat junk food you get a damaged heart. If you eat vegetables you won't even get a damaged heart." Participants discussed diabetes as a disease that develops from eating unhealthy foods, particularly "sweet stuff." When asked about diabetes, one child commented that individuals with the disease might die or get cancer. Although responses varied, children agreed that diabetes was unhealthy. Additionally, some children considered poor dental health to be indicative of an unhealthy person.

### Discussion

In this study, we explored elementary-school-aged First Nations children's perceptions of and preferences for food and activity and understanding of health to inform a community-based obesity prevention strategy. Consistent with findings from Aboriginal adolescents (First Nations Information Governance Committee et al., 2005; Gideon et al., 2008; Isaak, 2008), children in our study discussed health issues in a holistic manner. Viewed through an ecological lens, children's perceptions and preferences are influenced by and affected multiple levels of influence (McLeroy, Bibeau, Steckler, & Glanz, 1988; Story, Neumark-Sztainer, & French, 2002). The perceptions of First Nations children in this study were developed as an intersection of traditional Cree values and the values of the larger society. Children indicated that adult family members were their main sources of health information. Additionally, First Nations children defined health in relation to cultural practices, and their perceptions of "healthy" were primarily influenced by the beliefs and

**Table 1.** First Nations Children's Preferred Foods

Healthy Foods	Unhealthy Foods	Both <sup>a</sup>	Unclassified <sup>b</sup>
Perceived Traditional Foods			
Baked bannock <sup>c</sup>	Fried bannock <sup>d</sup>	Indian popcorn <sup>e</sup>	Pierogi <sup>f</sup>
Ceremonial foods			
Dried meat			
Moose meat, mouse soup and stew			
Rabbit soup			
Perceived Nontraditional Foods			
Fruit (bananas, cherries, apples, grapes, peaches, watermelon, kiwi fruit, pears, cantaloupe, strawberries, pineapple, fruit salad)	Candy	Ice cream	Raw fish
Lasagna	Chips	Pizza	
Meatballs	Chocolate bars		
Milk	Junk food		
Noodles	Soda pop		
Ravioli and spaghetti	Popcorn		
Salad			
Shrimp			
Soup			
Spinach pizza			
Steak			
Vegetables (celery, beans, carrots, potatoes, broccoli, tomatoes)			

Note. Children listed and then sorted the foods that they preferred/liked to eat.

<sup>a</sup>Both signifies that children discussed the food as healthy and unhealthy; a consensus was not reached.

<sup>b</sup>Children did not explicitly state if the food was healthy or unhealthy.

<sup>c</sup>Baking powder bread baked in an oven

<sup>d</sup>Baking powder bread typically fried in lard

<sup>e</sup>A snack of fried pork rinds and lard

<sup>f</sup>Ukrainian boiled or baked dumplings

behaviors of adult family members. These findings emphasize the value of an ecological approach that considers multiple contexts and factors including a traditional worldview (Adelson, 2000, Turton, 1997; Warbe, 2005), the role of family, and children's preferences for foods and activities when developing an obesity prevention strategy for First Nations children.

Culture is broadly defined as the shared ideas, concepts, rules, and beliefs that underlie the way we live (Keesing & Strathern, 1997). It is important to understand how cultural context influences children's views, because cultural beliefs and practices have the potential to contribute to the health and weight status of First Nations children (Wang & Tussing, 2004; Willows, 2004, 2005; Willows, Veugelers, Raine, & Kuhle, 2009). For example, similar to other reports of Canadian Aboriginals (Adelson, 2000; Vallianatos et al., 2008), children in our study indicated that healthy choices were linked to the natural world, which includes traditional foods and food-procurement activities. Traditional foods are generally lower in fat than store-bought foods and can contribute substantially to children's intake of micronutrients, creating a diet that can help to prevent obesity

(Downs et al., 2009; Kuhnlein, & Receveur, 2007). Additionally, children in our study, similar to First Nations children elsewhere (First Nations Information Governance Committee et al., 2005; Gee, Hawrysh, & Wein, 1993), indicated a preference for foods and activities from both contemporary Western culture and traditional culture. This intersection of cultures highlights a unique context and embedded cultural framework that dominates children's perceptions. Because the children live in and are influenced by two cultures, it is imperative that obesity prevention approaches integrate both Western and First Nations cultural elements.

Family and community are highly valued by Aboriginal peoples (Health Canada, 2009; Royal Commission on Aboriginal Peoples, 1996; Warbe, 2005). Because children learn through active participation, engaging children within family and community contexts plays an important role in shaping children's lifestyle behaviors (Birch & Fisher, 1998). Strong familial and community relationships informed recommendations by the First Nations and Inuit Health Committee and Canadian Paediatric Society (2005) that encourage elders and adult community members to be active, healthy role models for

**Table 2.** First Nations Children's Preferred Activities

Healthy Activities	Unhealthy Activities	Both <sup>a</sup>	Unclassified <sup>b</sup>
Perceived Traditional Activities			
Hunting	None	None	Culture camp
Playing on Treaty Day <sup>c</sup>			Making keychains
Powwows <sup>d</sup>			Making dreamcatchers <sup>e</sup>
Ceremonial practices			Making moccasins <sup>f</sup>
Playing at powwow grounds			Making teepees <sup>g</sup>
Perceived Nontraditional Activities			
Chinese baseball	Listening to music	Playing cards	Kayaking
Cleaning	Littering	Playing video games	Martial arts
Eating	Television/movies		Swimming
Fort building			
Homework			
Racing/running			
Reading			
Recycling			
Riding bikes			
Shooting/war games			
Team sports (fastball/baseball, hockey, soccer, volleyball)			
Tag			

Note. Children listed and then sorted the activities that they preferred/liked to do.

<sup>a</sup>Both signifies that children discussed the activity as healthy and unhealthy; a consensus was not reached.

<sup>b</sup>Children did not explicitly state if the activity was healthy or unhealthy.

<sup>c</sup>The anniversary of the signing of a treaty

<sup>d</sup>A social gathering that includes competitive dancing

<sup>e</sup>A handmade object consisting of a web woven on a willow hoop that is decorated with personal and sacred items

<sup>f</sup>A shoe made of soft leather

<sup>g</sup>A conical tent made of animal skins or birch bark

children to help promote healthy lifestyles and prevent type 2 diabetes. In general, strategies that have engaged parents, families, and communities have been more successful at preventing obesity than approaches that target children exclusively (Economos et al., 2007; Hesketh et al., 2005; Shepherd et al., 2002). Our data indicate that family members were the main sources of health information for children. Because adult behaviors influence what children learn and expect from themselves with respect to lifestyle practices (Shonkoff & Phillips, 2000), our data emphasize the vital need for adult community members (i.e., mothers, fathers, kokums, aunts, uncles) to be healthy, active role models. This is particularly relevant in this community given that the participants described a variety of unhealthy lifestyle choices made by the adults in their lives.

Through their food and activity preferences and perceptions, children revealed knowledge gaps and information sources regarding health information. Without prompting, children mentioned a number of chronic diseases that disproportionately affect Aboriginal peoples, such as obesity, heart disease, diabetes, and dental caries (Heart and Stroke Foundation of Canada, 2010; McShane et al., 2009; Young et al., 2000); however, their

understanding of these chronic conditions was limited. For example, several children knew that diabetes is unhealthy, but they were unable to articulate what diabetes is or how the disease impacts health. To enhance children's knowledge and understanding, future initiatives should look to include age-appropriate resources (i.e., *The Sacred Circle: Type 2 Diabetes Prevention for Aboriginal Children* DVD; Alberta Native Friendships Centers & Aboriginal Diabetes Wellness Program, 2009) in their programming. It is interesting that participants did not highlight teachers and school administrators as primary sources of health information, which suggests that children tended to rely on adult family members and experiential learning to form their understandings about health. Future health initiatives in this First Nations community would benefit from incorporating school-based resources to provide instruction on healthy lifestyles to increase awareness of and share objective health-related information.

Many of the foods and activities (Western and traditional) that children prefer might not be available or accessible in their immediate environment. Food insecurity is common among Canadian Aboriginal peoples (Egeland, Pacey, Cao, & Sobol, 2010; Power, 2008;

Willows et al., 2009), and restricted access to traditional foods might explain why children's reported food preferences might not reflect the actual intake of these foods (Egeland et al., 2010; Gee et al., 1993). Cultural activities and sports that included exercise and movement were preferred by children; however, our previous research in this community showed that most children did not achieve daily physical activity recommendations (Pigford et al., 2011). Locally, a number of barriers could prevent children from participating in preferred activities. For example, in interviews, adult community members indicated that children might not have access to safe environments and facilities to do the activities they enjoy; furthermore, families' limited economic resources might also limit opportunities to be active (unpublished data). To explore this issue, our research team is currently collaborating with a number of community stakeholders to better understand the environmental factors that influence the availability and accessibility of foods and activities in this community.

Including First Nations children as key informants in this study gave them a voice and provided context to complement obesity and physical activity epidemiologic data collected as part of the larger, community-based obesity prevention study. Our research focus on an individual First Nations community provides an opportunity to generate knowledge specific to this community, which can inform a broader obesity prevention strategy; however, the nature of qualitative research limits the direct application of these findings to other settings (Horsburgh, 2003). Considering the heterogeneity of Aboriginal cultures, children's perceptions and preferences related to lifestyle behaviors and health are likely to vary among Aboriginal communities. Because our study participants lacked the cognitive development to articulate their thoughts and feelings to the same degree as adults (Hill, 2006), our drawing and pile-sorting techniques were used to enable children to express themselves (Horstman et al., 2008). Although we omitted some specific details from the focus group data related to sacred cultural and ceremonial practices, these omissions respected the requests of our steering committee and reflected the ongoing, collaborative nature of this study that includes both academic and real-world perspectives.

In this study, First Nations children's food and activity perceptions and preferences were shaped in response to the context in which they lived. Our findings highlight the need to apply multilevel, ecological approaches when promoting healthy weights in this community. Factors such as culture/tradition, family, and individual (child) perceptions of food and activity must be embedded in a comprehensive obesity-prevention strategy. These factors are key considerations in the design, implementation, and evaluation of a culturally relevant approach to promoting

healthy lifestyles. Our insights into children's descriptions of healthy foods and activities highlight the need to integrate Aboriginal cultural/traditional practices into community programs and the school curriculum. Parents, extended family members, and elders must play prominent roles in future initiatives to prevent childhood obesity in this community.

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