

Nutrition Intake of Children at the Caribou Child Care Centre

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FNH 370

December 05, 2016

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Nutrition Intake of Children at the Caribou Child Care Centre

FNH 370 Group 14: Nutrition for Kids

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December 5th, 2016

Executive Summary

Our case study specifically looked at improving the nutritional quality of the snacks served at the Caribou Child Care Center following the steps of the NCP. We used a combination of the results from the nutrition questionnaire prepared by FNH 370 students and direct observations to do our dietary and ecological assessment. Although we noted that fruits were provided on a daily basis, we found that most of the common snacks that they served including pasta, pizza, rice and cereal were disproportionately high in carbohydrates compared to proteins and fats.

According to the AMDR values for the two age groups at this child care center, about one-third and one-fifth of their daily calories should come from fats and proteins respectively. In order to ensure that more sources of fats and proteins are included, we proposed the practice of weekly meal planning. Through our ecological assessment, we recognized that the staff at this child care center had varying levels of nutrition education and value convenience so we designed a simple dietary guide with suggestions on how to increase the protein and fat content in snacks that they commonly serve as well as new snack ideas.

To monitor the progress of implementing weekly meal plans with the use of our dietary guide, we would initially compile three day food records monthly for the initial six months. To assess the overall impact of the intervention plan, a food frequency questionnaire with less than 50 items will be administered every four months and validated with either a 24-hour recall or a three day food record.

While we acknowledge that there were many limitations to our nutrition assessment including not obtaining information on the meals consumed outside of the child care center, inter-individual variability of intake and not knowing why weekly meal planning is not

implemented at this center, we believe that increased mindfulness of macronutrient distributions when planning snacks will be a positive step towards improving the nutritional quality of snacks served.

Introduction

The Caribou Child Care Services Center is one of twenty child care centers located on UBC Vancouver campus at 2329 West Mall. This center is responsible for providing daycare to 13 toddlers (1-3 years old) and 17 pre-schoolers (3-5 years old), and also focuses on providing nutritious snacks throughout the day. The same snacks are provided for both age groups, but differ in portion size as the children can decide how many snacks they want to consume. The care center requested an evaluation of the nutrition quality of the snacks being served, and are looking to improve on their current situation. Our case study focused primarily on the nutrition intake of the children at the Caribou Child Care Center, and what type of role the snacks play in the children's diet. The children arrive at the care center daily from 8:00 am to 5:30 pm, and the snacks the care center provides are served at 9:30 am and 3:30 pm respectively. Some assumptions we had in this project were that the children of the daycare have met their nutritional intake while outside of the care center (breakfast, lunch and dinner), children spend the whole day at the care center, and that food intake increases with age.

It is crucial to apply nutritious eating in children as child malnutrition can lead to poor cognitive development as well as emotional and social development (such as shortened attention span, apathy and anxiety) (Engle & Huffman 2010). Therefore it was important to focus on the nutritional quality of the snacks at the child care center as foods served at childhood centers can influence the nutritional intake of a child, shape a child's acceptability towards different types of food, and also develop a child's eating habits (Gangé *et.al*, 2013). An interesting fact that came to light in our research included the idea that care centers with a fixed menu plan can offer nutritional stability in the children's diet (Gangé *et.al*, 2013). Therefore our recommendations for this project were implementing a meal plan after a three day food record and an eventual in depth

Food Frequency Questionnaire (FFQ) to develop snacks that fit the dietary needs of all the children who attend the care center. We determined these outcomes through a specific nutrition care process that follows a typical “ADIME” model. The nutrition care process is implemented in five stages. These stages include assessment, diagnosis, intervention, monitoring, and evaluation. The assessment focused on two methods: Dietary and Ecological. Dietary and ecological were used as other methods such as anthropometrics, biochemical, and clinical were found to be too invasive, and also difficult to implement. Our diagnosis provided the result of the possibility of unevenly distributed macronutrient intake. The intervention we implemented was to provide dietary guidelines for the meals consumed at the daycare center. Our monitoring and evaluation includes a three day food record and observation, and then an eventual in depth FFQ. By following this process, our group believes the Caribou Child Care Center can improve on the nutritional quality of their snacks, and provide a positive upbringing for the children who attend the care center.

Main Body

Assessment

Information for our ecological assessment was obtained through a nutritional questionnaire developed by FNH 370 students. From the results of the questionnaire, education, convenience, budget and acceptability to new foods were factors contributing to the preparation of snacks at the care center. Though staff that responded to our questionnaire had varying levels of education, ranging from high school completion to bachelor’s degree, they have all taken nutrition related courses. We are interested in the staff’s nutritional knowledge as it can greatly

influence the types of snacks that are prepared (Cole et al., 2016). We found that one staff at the center is responsible for sourcing the foods, and that on average no more than 15 minutes was set aside for snack preparation. Taking convenience into account, we were interested to know what kinds of food would be more favoured by the staff. We were surprised that the child care center lacked a budget allocated for food, and found that children at the center are generally open to trying new foods. These results were worthy to consider when planning our intervention strategies.

Our dietary assessment was based on both the questionnaire and direct observation. Some positive comments on the care center include the provision of fruits on a daily basis, as well as daily preparation of snacks to ensure freshness. From the types of snacks listed by the staff, we categorized the foods according to their major macronutrient component, and assumed them representing the children's usual snack options. We found that higher emphasis was placed on serving snacks high in carbohydrates, including pasta, rice, pizza, cheerios/cereal, banana bread, apple crumble, toast, oatmeal, crackers, fruits and vegetables. Protein sources include cheese, milk, yogurt, pasta, pizza, and fat sources include pasta and pizza.

Diagnosis

We compared the general trend of snacks consumed to the AMDR values for young children. While children and adults require the same carbohydrate intake ranging from 45-65% of their total calories, more attention should be given to fat intake in younger children (Otten et al., 2006). 1-3 year olds typically require 30-40% of their calories from fat, while children 4-5 years of age require 25-35% (Otten et al., 2006). Protein requirements are 5-20% and 10-30%, respectively (Otten et al., 2006). Comparing the AMDR values to the children's current intake,

we felt there was a need to address the imbalance in macronutrient intake. We conclude with the PES statement:

Risk of unevenly distributed macronutrient intake related to common snacks served focusing on high carbohydrate and low protein/fat as evidenced by the results of the nutrition questionnaire.

Intervention

The intervention method we chose for our case study was to encourage the child care staff to implement a weekly meal plan. We believe it would encourage the staff members who purchase the food for the snacks to buy foods higher in protein and fat so that they are available and can easily be used to make snacks for the children. According to Storfer-Isser and Musher-Eizenman (2013), if healthy foods are available to use in food preparation, the food made by parents/guardians for children will also be healthy. By applying this concept to our case study, it would make sense that meal planning has an influence on how much fat and protein is consumed, which is why our intervention method is valid. A dietary guide was created in addition to give the staff more ideas of how to incorporate fats and proteins into the snacks that they are already making (**please see Appendix**). To ensure that all staff understands how to use the diagram, we would provide a workshop on macronutrient breakdown of food for children of this age and explain how to read the diagram. After doing this, the staff would be able to incorporate foods/ingredients into the snacks that are higher in fat and protein.

Monitoring and Evaluation

To monitor the effectiveness of our intervention method, we would visit the care center at the end of each day for three days to complete a three day food record, which would be obtained

on a monthly basis for the first six months after the implementation of a meal plan. We would do this to ensure that minimal burden is placed on staff members during the intervention process, and that snacks at the child care center can come to incorporate a good source of fats and proteins, not just a source of carbohydrates as we determined in the diagnosis. We would hope to see improvement every month as the staff members get more comfortable using our dietary guide to incorporate a wider variety of macronutrients into the snacks. To evaluate the overall impact our intervention had on the snacks at the child care center, we would administer a food frequency questionnaire (with fifty items or less) once every four months and validate it with a twenty-four hour recall or a three day food record. Bell et al. (2013) found this to be the most effective way to assess the dietary intake of children of this age.

Critical Questions

1. What would change with our assessment if we were able to determine what type of food the children were eating outside of the day care center?

Due to the lack of time and resources, the scope of our case study was focused on looking at the nutritional quality of the snacks provided at the care center with the assumption that all the nutritional needs of the children were being met in their lunches and the other meals that they consumed outside of the care center. If we were able to know the nutritional quality of all the meals the children were eating outside of the daycare, we would require parents' involvement to provide surrogate source of information in addition to the care centre staff. By doing so we could more accurately determine what the children are lacking in their diet, and could develop a more specific intervention plan for the care center. For example, if the general trend was that the

children were consuming high carbohydrate processed foods outside of the care center, the intervention plan would be focused on serving more natural sources of protein and fats (based on our analysis of AMDRs for the two age groups in our report). Since the Caribou Child Care Center does not use a meal plan, we would still propose for them to start implementing a system to plan their snacks ahead of time and our dietary guide would be adjusted to focus on snack ideas with higher protein and fat sources. If the nutritional quality of the snacks can complement the limiting nutrients from the other meals, it can improve the overall dietary intake of children.

In the most ideal situation we would tailor the snacks to meet individual nutritional needs; however, we understand that the care center values convenience and it would be very time consuming to adjust individual snacks. It would also be very difficult to train incoming staff and with new children registering or leaving this care center, it would be very difficult to keep up with tailored snacks.

2. What would happen if the intervention plan did not work in increasing the protein and fat sources in the snacks they provided?

We made the recommendation of implementing weekly meal plans as we felt that it would be a useful tool to reduce the staff's time on the day-of thinking about what kinds of snacks to serve and to allow them to plan consciously to include more protein and fat sources. There is a possibility that weekly meal planning will not be an effective tool for this child care center and this will be seen in the results of the three-day food records. In this case, another NCP focusing on the ecological aspect will be warranted. The assessment step will be focused on mainly the staff to gather feedback, help understand the thought processes and rationale in deciding what to serve and what kinds of ingredients to buy to prepare these snacks, and to

identify any barriers preventing them from making changes. With information obtained in the form of a questionnaire or an in-person interview, it would help in determining the best intervention method, whether it be in a form of a nutrition workshop to educate all the staff, a poster put up in the care center kitchen with reminders of how to maximize the nutritional value of snacks or any other intervention plan that is practical for this care center.

Executive Summary

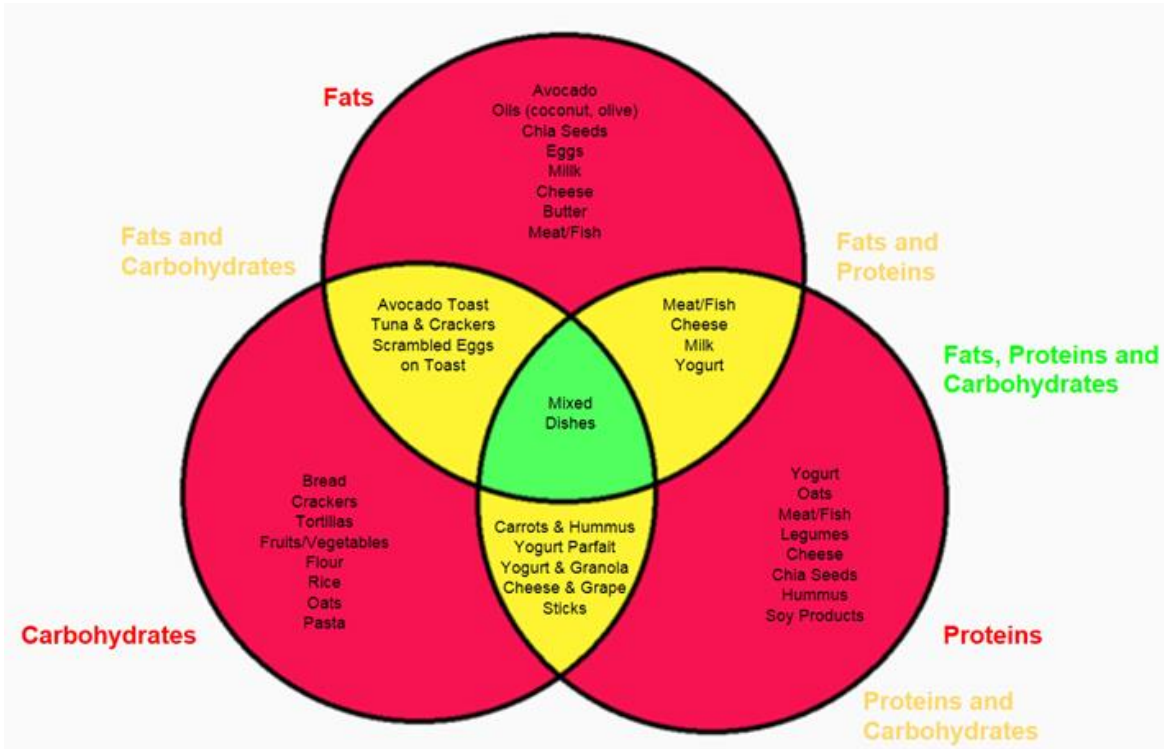
This specific case study looked at improving the nutritional quality of the snacks served at the Caribou Child Care Center following the steps of the Nutrition Care Process (NCP). A combination of the results from the nutrition questionnaire prepared by FNH 370 students and direct observations were used to do dietary and ecological assessments. Although it was noted that fruits were provided on a daily basis, most of the common snacks listed by the child care staff in the questionnaire including pasta, pizza, rice and cereal were found to be disproportionately high in carbohydrates compared to proteins and fats.

Based on the Acceptable Macronutrient Distribution Range (AMDR) values for the two age groups at this child care center, about one-third and one-fifth of their daily calories should come from fats and proteins respectively. In order to ensure that more sources of fats and proteins are included, the practice of weekly meal planning was proposed. Through the ecological assessment, it was noted that the staff at this child care center had varying levels of nutrition education and value convenience when choosing snacks to serve so a simple dietary guide was designed with suggestions on how to increase the protein and fat content in snacks that they commonly serve in addition to new snack ideas.

To monitor the progress of implementing weekly meal plans with the use of the dietary guide, we would initially construct 3 day food records for each of the initial six months. To assess the overall impact of the intervention plan, a food frequency questionnaire with less than 50 items will be administered every four months and validated with either a 24-hour recall or a three day food record.

While there were many limitations to this nutrition assessment including not obtaining information on the meals consumed outside of the child care center, inter-individual variability of intake and not knowing why weekly meal planning is not implemented at this center, increased mindfulness of macronutrient distributions when planning snacks will be a positive step towards improving the nutritional quality of snacks served at the Caribou Child Care Center.

Appendix - Dietary Guideline for Caribou Child Care Centre



Macronutrient Breakdown

Try making mixed dishes/snacks that include CHO, FAT and PRO.

- Fried Rice - rice, eggs and peas
- Pasta Salad - pasta, cheese, and beans
- Banana Bread - flour, banana, coconut oil and chia seeds
- Smoothies - berries, milk, yogurt

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