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A CHILDREN'S BOOK ABOUT VEGETABLES AND
NUTRITION TITLED *CATS DON'T EAT QUINOA*

By

LuANN B PARKER

B.S., High Point University, 1991

A Master's Project Submitted to the Graduate Committee
in the Department of Nutrition at Georgia State University in Partial
Fulfillment of the Requirements for the Degree

MASTER OF SCIENCE

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MASTER'S CAPSTONE PROJECT

By

LuAnn Parker

Literature Review

Statistics for Childhood Obesity in the United States

According to the Centers for Disease Control and Prevention (CDC), childhood obesity is a serious problem in the United States and puts children at increased risk for poor health both when they are young and as they get older.¹ Obesity prevalence among children 2-5 years old has been reported at 13.4%.² Obesity is defined as a body mass index (BMI) at or above the 95th percentile for children of the same age and sex, while overweight is defined as a BMI at or above the 85th percentile and below the 95th percentile for children of the same age and sex.³

Childhood obesity is caused in part by unhealthy behaviors including consumption of high-calorie, low-nutrient foods. Eating nutritious foods is one way to help children grow and maintain a healthy weight.⁴ The consequences of childhood obesity can be both immediate and long-term. Immediate health risks include high blood pressure, high cholesterol, insulin resistance, increased risk of type 2 diabetes, breathing problems (asthma, sleep apnea), joint discomfort, anxiety, depression, low self-esteem, and being the victim of bullying.⁴ Children who have obesity are more likely to remain obese as adults.⁵ Many of the consequences of adult obesity are the same as childhood obesity, with the addition of an increased risk of cancer. In addition, children who are obese are likely to have greater health consequences as adults than those who became obese as an adult.⁴

It is generally well known that eating fruits and vegetables provides important nutrients, helps control weight, and reduces the risks for many of the serious illnesses mentioned previously.⁶

Encouraging young children to eat a variety of fruits and vegetables may take many attempts.¹ One way parents can help their children eat more of these foods is by modeling healthy eating habits themselves. Another method is providing fruit and vegetables as snacks instead of less healthy items. Thirdly, parents can include their children when shopping for and preparing fruits and vegetables to encourage healthy eating habits.¹

Statistics on Vegetable Consumption Among Young Children in the United States

Fruit consumption in children has been rising and research shows that whole fruit consumption by children in the U.S. increased by 67% between 2003-2010.¹ Unfortunately, in that same time span, the amount of vegetables that they ate remained unchanged, with 93% of children consuming fewer vegetables than recommended.⁶ Of the vegetables consumed, white potatoes accounted for an average of 30% of total vegetable intake over the study period and were consumed mostly in less healthy forms, such as fried potatoes and potato chips.⁶ Instead of fried white potato products, children should eat a variety of colorful vegetables prepared in healthy ways.⁷

The 2020 *Dietary Guidelines for Americans* (DGA) recommended daily intake range for vegetables for both boys and girls ages 5-8 years are 1.5-2.5 cup-equivalents (CE). Both groups have average intakes that fall below 1 CE per day.⁸ The DGA also breaks down the vegetables into sub-groups with recommended weekly intakes. The first sub-group is dark green vegetables such as collards with a weekly recommendation of 1-1.5 CE, but both groups fall below 0.5 CE.⁸ The next sub-group is red and orange vegetables such as carrots. The weekly intake recommendation is 3-5.5 CE, but again both groups fall below 2 CE per week on average.⁸ Next is legumes (e.g. cannellini beans), with a weekly recommendation of 0.5-1.5 CE, with both groups

falling below 0.5 CE. The sub-group labeled “other vegetables” includes cucumbers, cauliflower, and cabbage and totals 2.5-4 CE recommended. Again, average consumption for all of these “other vegetables” for both groups falls below 1.5 CE weekly.⁸

The benefits of eating fruits and vegetables and childhood dietary patterns are associated with food patterns later in life. Therefore, encouraging children to eat more fruits and vegetables can be viewed as a public health priority.⁹ Increasing the attention paid to the food environments where children live, learn, and play, and increasing the opportunities for children to learn about fruits and vegetables, may help continue the growth of fruit intake and improve vegetable intake.⁶ For these reasons, the CDC has established a policy to incorporate fruit and vegetable activities into schools as a way to increase consumption.¹⁰ Childcare centers and schools can include fruit and vegetables whenever food is offered, train food preparation staff to make fruit and vegetables more appealing, and offer nutrition education and hands-on learning opportunities about preparing fruit and vegetables.⁷

Programs to Encourage Vegetable Consumption Among Children in the United States

The United States Department of Agriculture (USDA) sponsors the Fresh Fruit and Vegetable Program (FFVP) which provides fresh fruits and vegetables to children at eligible elementary schools during the school day free of charge.¹¹ The goal of the FFVP is to introduce children to new and different varieties of fresh fruits and vegetables and to increase overall consumption of produce among children. The FFVP also encourages healthier school environments by promoting nutrition education.¹¹ This education may come in the form of interactive websites and games, coloring books, and MyPlate materials to teach kids about healthy eating and the importance of nutrition.¹²

The American Academy of Pediatrics (AAP) has a special division known as Healthy Children.org that provides advice for parents about raising health-minded children. Parents are encouraged to cook and prepare meals with age-appropriate input and help from their children as a way to lead by example and help children understand wellness and the family's focus on leading a healthy lifestyle.¹³ Additionally, learning to cook at a young age can help solidify math concepts, introduce scientific processes, expand vocabularies, and build life skills.¹³

Another important focus for young children is consuming enough daily fiber. At this age, children are pickier about what they eat and tend to limit their choices to foods like chicken nuggets and macaroni and cheese. The result of this type of diet can be constipation, which is very painful for young children. Encouraging more high fiber containing foods such as fruits, vegetables, whole grains, and beans can help with digestion and prevent constipation.¹⁴ Some suggestions for getting children to eat more of these high fiber foods are to provide fruits and vegetables as snacks, serve salads more often, and adding a fruit or vegetable as part of every meal. Additionally, research shows that children eat more vegetables and fruits and less fried foods when they eat with the entire family.¹⁵

Plant-Based Diets for Young Children

A plant-based diet is one where the majority of food consumed comes from plant sources such as vegetables, fruits, nuts, legumes, beans, and grains and does not necessarily mean that all animal products are excluded.¹⁶ Children that eat a plant-based diet that includes eggs and dairy receive the nutrients required for healthy growth, including vitamin B12, calcium, iron, zinc, and vitamin D.¹⁶ Adopting a plant-based diet can be beneficial for the entire family. Not only does this way of eating increase vegetable consumption but choosing a more plant-based way of eating

such as the Mediterranean Diet has been shown to lower the risk of heart disease, diabetes, and high blood pressure in both children and adults.¹⁶

Reading as a Learning Tool for Young Children

Reading books aloud to young children is one of the best ways to help them learn to read.¹⁷ Stopping to look at the pictures, asking the child what they see in the pictures, and showing the child how the events in the book are similar to events in their real life are all ways to engage the child in the learning process and increase their enjoyment of the reading experience.¹⁷ Reading books with preschoolers can also help them learn to talk better and prepare them to listen and learn in school.¹⁸

Educating young children about nutritious, healthy food preferences includes many factors such as involvement and modeling by the parents, as well as what the children are exposed to in their environments both in the home and outside of the home. Books are an important medium for children because they can be read over and over, at the child's pace, and allow for interactive communication between the child and parent about the concepts in the book.¹⁹ Storybooks about vegetables have been shown to increase intake of that same vegetable in a study of over 300 preschool aged children in the United Kingdom.²⁰ The influence these experiences have not only improve a child's current diet, but their lifestyle choices as an adult as well. The eating patterns established in childhood can greatly impact their health in the future.¹⁹

On the USDA ChooseMyPlate.gov website there is a page titled MyPlate Kids' Place that contains resources for teaching and engaging children to eat healthier. These resources include games, activity sheets, videos, and songs, but no books.²¹ A search on Amazon for children's books, ages 3-5, picture books, English language, vegetables produced 356 results.²² For

comparison, the same search criteria with the exception of “animals” instead of vegetables produced over 20,000, while “sports” in the place of vegetables produced over 3,000.^{23, 24}

Conclusion

In summary, childhood obesity is a serious problem in our country with long-lasting health consequences. Vegetable consumption among young children is well below the recommended daily intakes established in the DGA. Education plays an important role in the life of a child with reading being a fundamental skill as well as a primary means of learning. Parents reading with and to their children helps to form relational bonds as well as improve the child’s communications skills. The purpose of this project is to create a children’s picture book that tells a fun story with engaging characters and encourages vegetable consumption in young children.

This project has three goals: 1) to develop and publish the book, 2) for the book to be read to children by parents in the home and teachers in the school setting, and 3) for the book to be chosen for Dolly Parton’s Imagination Library.²⁵ To achieve these goals, I will research appropriate learning styles for this population, evaluate children’s books currently available that focus on the subject of nutrition or plant-based eating, and search for available statistics on plant-based eating among children in the US.

Methods

In order to publish this book, I will meet with a managing editor to find out more about the publishing process. I will also visit the local public library and bookstore to see what is currently available on this topic. To develop the book, I will utilize both paper and online resources for text planning but will not spend time focusing on illustrations. I will present the concept and prototype

of the book to faculty members of a local elementary school to gather their feedback and professional opinions on the project. This will help determine if the book will likely be read to children in the elementary school setting. Finally, I will contact the Dollywood Foundation via their physical address and phone number posted on their website to find out how to submit my book for admittance into their library program.²⁶

Outcomes

Meeting with Managing Editor

When researching the outcome of publishing the book, I was introduced to Jillian Murphy, Assistant Managing Editor for the University of North Georgia Press. Ms. Murphy is an expert in children's literature and educated me on several facets of publishing a children's book. The concept for this project is considered a picture book, which has between 500-900 words and is around 32 pages in length. She said that the publishing company is usually responsible for the illustrations in the book and she provided me with a template for a 32-page picture book. I used this template to map out the content on the pages. It helped to develop the flow of the book and to edit out unnecessary words.

Ms. Murphy suggested that I visit my local library and nearest bookstore to see what types of books are available that focus on this subject matter. At Books-a-Million I found the children's educational section and there were no books on nutrition that would be appealing for young children to read. All of the books on nutrition for children that were available were aimed at parents and were far too advanced. In the children's section of the library, the books on nutrition were more focused on recognition of the food item and its name instead of an engaging story that teaches why the food is good for the child to eat and has a cute cat as the main character.

Capstone Project Outcome

Book Prototype



Cookie is a very curious cat. She wants to see what Mama is cooking.

(Illustration of Cookie watching Mama stirring a pot on the stove.)



**Mama is
cooking
quinoa.**

**Quinoa is a whole
grain that has lots
of protein to help
us grow stong
muscles.**

**Cookie, cats don't
eat quinoa!**



**Now Cookie wants
to see what Mama
is chopping.**

*(Illustration of Cookie watching Mama
chopping collard greens.)*

**Mama is chopping
collard greens.
They have lots of
vitamins and
minerals that
make bones
strong.**

**Cookie, cats don't
eat collard greens!**



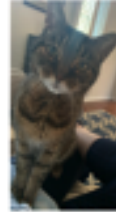
(Illustration of Cookie sniffing collard greens.)

**What is Mama
chopping now?**

(Illustration of Cookie watching Mama chop carrots.)

**She is chopping
carrots. Carrots
are full of vitamins
that keep our eyes
healthy.**

*(Illustration of Cookie sniffing
carrots.)*



**Cookie, cats don't
eat carrots!**

**Cookie wants to
know what Mama
is cutting now.**

*(Illustration of Mama cutting florets
off of a head of cauliflower.)*

**She is cutting a
head of
cauliflower.
Cauliflower has
lots of fiber that
helps our tummies
feel good.**



**Now Mama is
chopping
something else.
What is it?**

*(Illustration of Cookie looking at
Mama chopping red cabbage.)*

It's cabbage. This cabbage is red but Cookie thinks it looks purple! Cabbage has lots of vitamin C to prevent us from catching colds.



Cookie, cats don't eat cabbage!

Cookie sees Mama chopping one more thing. What can this be?

(Illustration of Cookie watching Mama chopping a cucumber.)

**It's a cucumber.
Cucumbers give
our body extra
water. They are
also fun to eat
because they are
so crunchy! Cookie
likes the crunchy
sound.**



**Cookie, cats don't
eat cucumbers!**

**Cookie watches
Mama mix
everything
together in a big
bowl. Mama calls
for the family to
come to dinner.**

*(Illustration of Cookie watching Mama
mix the salad in a bowl. Family
members are walking into the
kitchen.)*

Cookie is happy when the whole family comes to the kitchen to eat together.

(Illustration of Cookie happily purring and looking at the family eating at the kitchen table.)

Cookie is a very curious cat. She wonders what Mama will make next!



Cookie's Quinoa Salad

For the salad:

1 cup quinoa, uncooked
3-4 collard greens, chopped small
1 large carrot, sliced small
1 1/2 cups cauliflower florets, chopped small
3/4 cup red cabbage, shredded
1 medium cucumber, chopped small

For the dressing:

1/4 cup olive oil
1/4 cup fresh lemon juice
1 Tbsp red wine vinegar
2 cloves garlic, minced fine
1/4 tsp kosher salt
ground black pepper to taste

Directions:

- Cook quinoa according to package directions. Allow to cool.
- Chop all other ingredients as indicated. Once all ingredients are prepared, combine in a large bowl.
- Add quinoa and mix just until combined.
- To prepare the dressing, combine all ingredients listed in a bowl and whisk vigorously until thoroughly blended.
- Pour dressing over quinoa mixture and mix until salad is thoroughly coated with dressing.
- Salad may be prepared a day in advance. Keep salad stored in a tightly covered container in the refrigerator. Salad will keep for 4-5 days. Enjoy!

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