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Increasing Parents' Knowledge of a Healthy Lifestyle for Children with Down Syndrome

Celeste Villagrana

A Capstone Project for the Bachelor of Arts in Human Development and Family Studies

Introduction

Following a healthier diet has been a struggle for the general population but is now being noticed within the population of special needs. Down Syndrome is a chromosome disorder which children are born with, meaning they are born with an extra chromosome. Unhealthy diets can lead to several health problems, but diabetes exists alongside hypothyroidism in people with Down Syndrome (Waldman, 2007). I presented my workshop on a healthier lifestyle to parents of children with Down Syndrome at Seaside Middle School. The workshop covered nutrition and exercise geared for this population.

Needs Statement

Some distinctive physical characteristics of Down Syndrome (DS) include a round flat face, small nose and mouth with a large tongue. Children with DS tend to be shorter than most of their peers because their growth spurt is not the same as in the general population (Karlberg, 1987). They tend to walk or move awkwardly and slowly, due to having low muscle tone at birth (Fergus, 2019). These children are born with weak muscles, and the condition can worsen later in life if the weak muscles are not addressed. Children with DS are born with high-leptin resistance, meaning they have an increase in cravings. Children with DS also have higher rates of obesity than the general population (Pierce, Ramsey, & Pinter, 2019).

Infants with DS have been described as less active than their typically developing peers and have a significant delay in motor development (Burghardt, Dale, Ulrich, and Angulo-Barroso, 2010). Children with DS are at risk for low muscle tone, ligamentous laxity, poor postural control, and balance (Burghardt, Dale, Ulrich, and Angulo-Barroso, 2010). Due to

being born with low muscle tone, exercise is important to help build strength. When their diets are high in sugar, high-fat foods, and junk food, children are less likely to perform at age-appropriate levels in school and extracurricular activities. Daily physical activity can involve different exercises, like: walking, swimming, dancing to music, and gardening. Daily physical activity may begin as early as 2 years old, so the child with DS is getting stronger as they develop in life. Family support is another way to persuade children with DS to start and finish physical activity throughout their day.

Excessive weight gain is also an issue for many children and adults who have DS. Gaining weight is normal for this population because their metabolic rate tends to be slower than the general population. Research suggests that children with DS may have a genetic predisposition to more severe leptin resistance (Magge, O'Neill, Shults, Stallings, & Stettler, 2008). Therefore, it is important that special needs programs in schools promote healthy living to the students and their families (Hinckson, Dickinson, Water, Sands, Penman, 2013).

Teaching early intervention in healthy eating habits to parents of children with DS is crucial because these children have a higher chance of becoming obese. Eating a healthier diet will help children with DS digest better than will other unhealthy options. Children with DS become comfortable with a routine, it is important that once it is being changed it starts small. For example: if the child with DS drinks apple juice every morning, the parent may add some water to that cup of juice and eventually increase in the water every few weeks. Reducing energy-dense snacks and increasing physical activity will lead to weight loss. A beneficial diet that can be followed is using the food pyramid as a guide to healthy food choices and appropriate food portions. Early life prevention is one of the most effective ways to improve physical and

psychological health and reduce social and financial burdens for families, communities and health care services.

My capstone project was specifically designed for parents of children with DS. Good nutrition, daily physical activity and family support are the three main factors for reducing the percentage of overweight children with intellectual disabilities. As healthy habits begin, it then becomes easy to continue throughout their lifespan. The focus of my workshop was to increase parents' knowledge by providing tips on how to make healthy food appealing and how to add physical activity into their child's life.

Theory and Development

Vygotsky's Sociocultural Theory describes learning as in a social process. Vygotsky believed there are two levels to learning. The first level would be through interactions with adults and then that knowledge would be integrated into the individual's mental structure. The second aspect of Vygotsky's theory is The Zone of Proximal Development (ZPD). The "zone" is the area of where the learning is taking place. "Proximal" means the learning takes place nearby. If needed, the educator will provide "scaffolding" to support the child's understanding. Scaffolding means the adult or educator provides method to support the student understand and achieve their goals.

By applying Vygotsky's Sociocultural theory to my workshop, the information I will be providing will be understood by my participants. Explaining the definition of scaffolding to the parents will allow them to understand what their child needs during the process of introducing the healthy lifestyle. Vygotsky believed that when a student is in the zone of proximal development for a particular task, providing the appropriate assistance will give the student

enough of a "boost" to achieve the task (McLeod, 2019). As the child gains knowledge, the assistance will decrease as the child progresses to doing each step alone.

As parents apply Vygotsky's theory to their child's life, it'll help the child with DS comprehend on what their daily goals are. If the parents are being supportive to the children with eating healthy and being active it'll give the child more of that boost to achieve the task. If the child feels or shows any frustration toward the healthier lifestyle, the parent may then scaffold the information they are trying to explain. By that, they may start easier and then increase every month with adding something new.

Consideration of Diversity

My project was specifically created for parents with children who have DS. I conducted my healthy lifestyle workshop at Seaside Middle School in Seaside, California. According to the Public School Review (2019-20), Seaside Middle School is 73% Hispanic, 8% Asian, 8% White, 6% Black, 4% of two or more races, and 1% Hawaiian. In addition, 64% of students that attend Seaside Middle School, are eligible for receiving free lunch. Some of the students with DS may live in lower-income homes, making it more difficult to afford healthy food options and to prevent obesity.

Parents from the special needs classroom at Seaside Middle School were invited to attend, meaning it was not open to the public. My workshop took place in more of a hispanic community, which is where obesity rates have been increasing. I intended to speak english during my workshop, but if any language needs to be translated, I will be able to do so. Parents that will be attending have children with DS, therefore they will already have experience on how

to manage their child and know what they may or may not enjoy when it comes to nutrition and exercise.

Learning Outcomes

I intend to present a 50-minute nutritional/exercise workshop to parents with a child with Down Syndrome at Seaside Middle School. My learning outcomes for the workshop participants will learn the following:

1. Parents will be able to identify the three components to a healthier lifestyle.
2. Parents will gain knowledge on how to change their child's diet while still making it appealing.
3. Parents will be able to list three different ways they can implement daily physical activity.

Method

My workshop and the powerpoint slides are a total of three parts. In the first part of my workshop, I introduced myself and thanked the parents for reading my recruitment flyer and attending my one hour workshop. See Appendix A for the flyer. I then explained why I decided to research the category of overweight children with DS. I started my presentation with a question, "Did you know that the percentage of obesity within children with Down Syndrome is higher than the general population?". I then identified the three learning outcomes they should learn by the end of my presentation, and I went into a discussion of the obesity rates within the DS population.

In the second part of the workshop, I discussed physical activity and how to encourage children with DS to become more active. I laid out four different ways parents may encourage

their children to receive daily activity. The four different ways I provided are: walks, swimming, music, and gardening. See Appendix B for the presentation.

In the third part of the workshop, I discussed what a healthy diet includes and how to make healthy food options more appealing to children with DS. I also provided the examples: have the child help cook the food and making the healthier options available. I also mentioned consuming good fats, balanced carbs, vegetables, protein, and water consist of a healthy diet.

Lastly, I gave an overall summary about how the DS population is at high risk for becoming overweight so it is important a healthy lifestyle is implemented early in life. I then followed up with a handwritten post-survey to test my participants knowledge. It was a total of six questions, based on the information presented. See Appendix C for Post-Survey.

Results

Learning outcome 1 was that participants would be able to identify the 3 components of a healthy lifestyle. I assessed this learning outcome early in the presentation by simply stating them outloud. This outcome was fully met by all the participants. Every participant answered: Fitness, Nutrition, and Family support. With these results, it shows me the participants understood and gained knowledge on the 3 components.

Learning outcome 2 was that participants would be able to list 3 ways to encourage physical activity. This outcome was not met. I asked participants to write 3 ways to encourage physical activity. Some parents answered off topic with, "take him to the gym with me" and "get him out the house more". With those responses, it is clear that participants did not gain knowledge on how to encourage physical activity.

Learning outcome 3 was to gain knowledge on how to make the healthy meals appealing. I asked participants what will they do to make healthier options more appealing. Majority answers were: “have my child cook with me” and “make healthier snacks available”. One parent answered with “cut the food into shapes” which was a great response. As the presenter it shows me they learned and were being open-minded by coming up with their own ideas.

Discussion

Overall, I believe my workshop on a healthy lifestyle for children with DS was successful. My participants were engaged throughout the workshop, which they showed by them participating in the post-survey. Although learning outcome 3 was not met, overall I still feel as if my participants gained knowledge on the information that was presented. If I had a longer time frame, I would have looked into holding two workshops.

All of my participants were parents that have a child with DS. The information was geared toward parents that may have heard of this problem for the very first time. My content would have differed if I was presenting to a younger population; like the children of the parents who attended. A younger audience would have needed simplified information to comprehend a healthier diet and how to add daily physical activity. By presenting to the children themselves, I would have needed to demonstrate examples by engaging them. In my opinion, it was important for me to reach out to these parents so they know how supportive they need to be for their child.

In future presentations, I would like to hold two workshops: physical activity and nutrition. I would also like to speak Spanish to the parents that speak limited English. I would begin with a pre-survey to see where the parents stand on their child's health status. For the two workshops, I would like to engage the children in the physical activity workshop so we are able

to see what activities they enjoy more. For the nutrition workshop, I would like to work with just the parents and make a meal plan with them for each of their children. With that, I would also want to make data analysis to keep up with the children and see how my workshop has benefited them in life.

Overall, I feel like the parents that attended the workshop benefited from the information that was explained to them. By providing that information, my hope is that they are now more aware with healthy characteristics their child will benefit from. Hopefully this topic expands throughout the years, so parents with children that have disabilities are informed about the negatives and positives their child may suffer from. This project expanded my knowledge on a good diet for a child with DS and it is clear that it is not talked about enough

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Appendix A

Recruitment Flyer

NUTRITION WORKSHOP TO IMPROVE YOUR CHILD'S HEALTH



Hi parents, my name is Celeste Villagrana and I am currently completing my last semester at Cal State Monterey Bay. I was a service learner in this classroom last semester, which means some of your kids may know me already. I was hoping you all would be able to help me complete my capstone project that is focusing on nutrition within children with special needs. My goal is to hold a workshop you all can attend and listen to the importance of nutrition for your very own child. I plan to present this by November 4th. The only obstacle I am having is setting a time, if you guys can either email me at cvillagrana@csumb.edu or contact Ms. Galosmo for a time you prefer, I would really appreciate it. Please let us know ASAP. Thank you

WHEN?

- MONDAY NOVEMBER 4TH

TIME?

- 8AM OR 3:30PM (IT IS UP TO YOU PARENTS)

WHERE?

- SEASIDE MIDDLE SCHOOL

TOPICS BEING COVERED

- HEALTHY MEALS THROUGHOUT THE DAY
- HEALTHY SNACKING
- BENEFITS OF A GOOD NUTRITION

Appendix B

Powerpoint Presentation

Increasing Parents' Knowledge of a Healthy Lifestyle for Children with Down Syndrome

Presented by - Celeste Villagrana

At the end of this presentation, you will be able to:

1. Identify 3 components of a healthy lifestyle.
2. List 3 daily physical activities that can be added to your child's life.
3. Gain knowledge on how to make healthy meals appealing.



3 components of a healthy lifestyle

1. Fitness
2. Nutrition
3. Family Support

At risk for obesity

Obese people have higher levels of leptin, which suggests that they have some leptin resistance--their bodies do not respond to the hormone properly. Because Down syndrome is a chromosome disorder, children with Down syndrome may have a genetic predisposition to more severe leptin resistance.

Metabolic rate- Weight gain has been an issue for many children and adults who have Down Syndrome. Gaining weight is normal for this population because their metabolic rate tends to be slower than the general population.

Cont'd

STATISTICS:

- A total of 20.6% of children with Down Syndrome are obese and have higher rates of obesity than the general population.
- It varies between ethnicities so; Hispanics are at (25.8%) and non-Hispanic blacks (22.0%) had higher obesity prevalence than non-Hispanic whites (14.1%).

Non-Hispanic Asians (11.0%) had lower obesity prevalence than non-Hispanic blacks and Hispanics.

Why weight gain?

- Children with DS appear to have a lowered Basal Metabolic Rate, which is the rate a person burns calories for fuel when completely at rest - or sleeping. This means that children with Down syndrome use less energy when they are resting or sleeping.
- These extra calories - even as few as 50 calories a day - can lead to an increase in weight. For example, 50 calories is equal to a half of a large Red Apple. The calories from half an apple left over at the end of the day for one year will lead to about 5 pounds of increased weight. If that continues for 5 years, it becomes a troublesome 25 pounds. With this in mind, it is easy to see how slender children and adolescents with Down syndrome can change into overweight young adults.

How to help children with DS have a healthier lifestyle

FAMILY SUPPORT

Physical Exercise

- Due to being born with low muscle tone, exercise is important to help build strength.
- Daily physical activity may begin as early as 2 years old, so the child with Down Syndrome is getting stronger as they develop in life.
- With adding 10-15 minutes of daily physical activity, the percentage of overweight children with Down Syndrome WILL drop.



How to encourage physical exercise

- Walks- Having a daily routine of walking around the neighborhood, possibly adding an excitement to it like walking a dog.
- Swimming- Getting involved with swim lessons around the community.
- Dancing- Having daily music times for the kids to dance around.
- Sports- Getting involved with special needs community sport teams.
- Gardening- Being in the sun, learning how to use gardening tools while being flexible. (bending over, sitting, using hands, etc.)

Healthier food options

What does a healthy diet include?

- ❖ Good fats- Avocado, Dark Chocolate, Whole Eggs, Fish, Nuts
- ❖ Balanced carbs- sweet potato, Quinoa, Beans, Oats
- ❖ Vegetables- Carrots, Broccoli, Bell peppers, Tomato
- ❖ Fruit- Watermelon, Apples, Oranges
- ❖ Protein- Pea Protein Powder, shakes
- ❖ WATER WATER WATER

What can parents do to make meals appealing?

- Cook more meals at home- Restaurant and takeout meals have more added sugar and unhealthy fat so cooking at home can have a huge impact on your kids' health.
- Child helping parent cook: Will allow the child to become interested in what they are cooking.
- Make healthy snacks available- Keep plenty of fruit, vegetables, and healthy beverages (water, milk, pure fruit juice) on hand so kids avoid unhealthy snacks like soda, chips, and cookies.

Portions

- Limit portions (keeping it within the family)
- More veggies
- Limit carbs (e.g. not two pieces of bread for a hamburger)
- More protein
- Food pyramid
- Sweets may be added at the end but also watch portions
- Do not use food as a reward or bribe

Tips to healthier snack options cooked at home

French fries: "Baked fries" grilled in the oven and salted lightly

Ice cream: Yogurt; sorbet; fresh fruit smoothies

Fried chicken: Baked or grilled chicken

Doughnuts or pastries: Bagels; English muffins; home baked goods with less sugar

Chocolate-chip cookies: Graham crackers, fig bars, vanilla wafers, fruit and caramel dip

Potato chips: Baked vegetable chips or, for older children, nuts

As we all know, children with Down Syndrome are currently at risk for falling into the overweight/obesity category. Along the lines of this, children with special needs get comfortable with a certain routine which means starting a healthier lifestyle at a young age is very crucial for them as they develop throughout life.

Questions?

Appendix C

Post-Survey

1. Do children with Down Syndrome deal with Leptin-resistance?
 - a. True
 - b. False

2. Adding 5 minutes of physical activity will decrease the percentage of overweight children?
 - a. True
 - b. False

3. Are avocados and fish considered good fat?
 - a. True
 - b. False

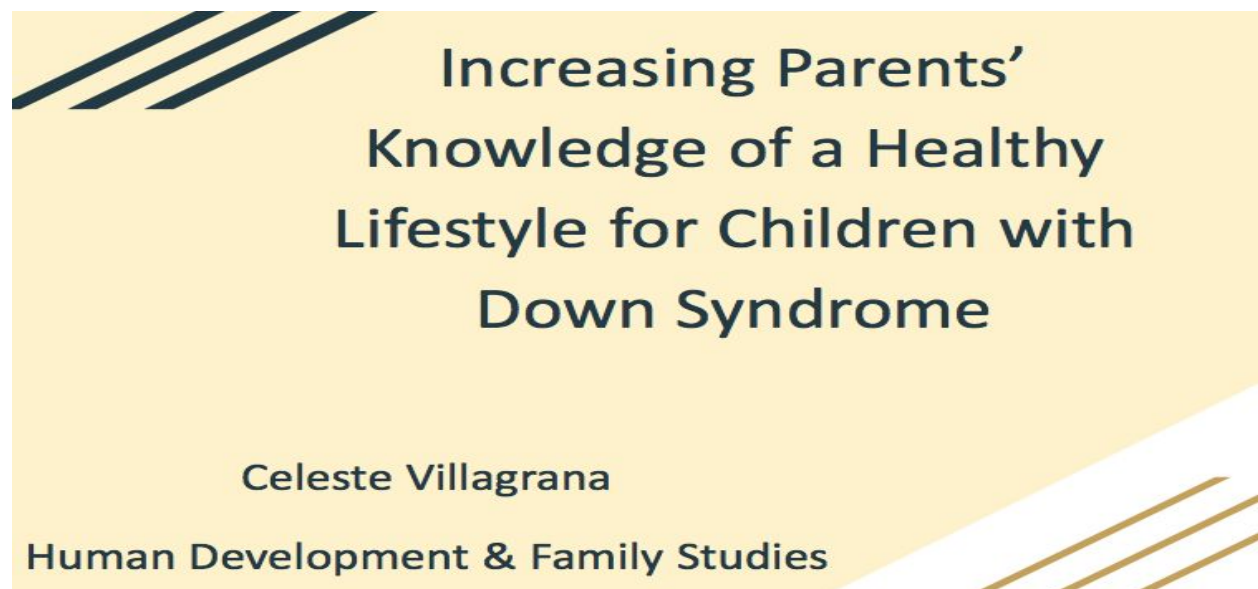
4. Write 3 ways to encourage physical activity.

5. What are the 3 components of living a healthy life?

6. As parents, what will you do to make food appealing?

Appendix D

Capstone Project Presentation



**Increasing Parents'
Knowledge of a Healthy
Lifestyle for Children with
Down Syndrome**

Celeste Villagrana
Human Development & Family Studies

<p>Introduction</p>	<p>Obesity within the special needs population has been overlooked and prevalence rates have been increasing. It is important that these children are eating the appropriate food and being physically active on a daily basis.</p>
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Needs Statement

Healthier diet

Children with Down Syndrome are at risk for obesity because their metabolic rate tends to be slower than the general population (Magge et al. 2008).

- Low Thyroid level
- High leptin-resistance
- Study conducted at Cincinnati Children's hospital
- Children with DS get on routines
- Limited diets

Needs Statement cont'd

Physical Activity

Infants with Down Syndrome have been described as less active than other infants and as having a significant delay in motor development. Children with DS tend to have low muscle tone, ligamentous laxity, poor postural control, and poor balance (Burghardt et al., 2010).

- Exercise is important to help build strength
- Earlier in life

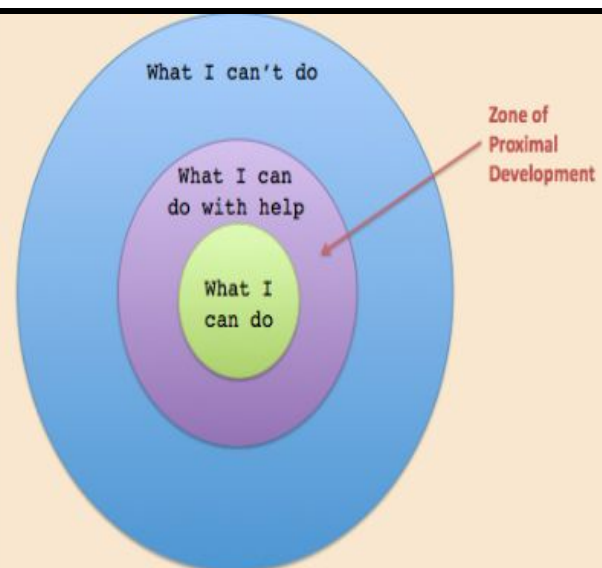
Needs Statement cont'd

Early Intervention

Teaching early intervention in healthy eating habits to parents of children with Down Syndrome is crucial because their child has a higher chance of becoming obese.

- Routines
- Reducing high energy-dense foods

Vygotsky's Sociocultural Theory



Theory cont'd..

Zone of Proximal Development (ZPD)

- Proximal= nearby
- Group work allows the learner to expand their knowledge, complete tasks, and reach the goal as a group
- There is a difference from completing a task alone and with assistance

Learning Outcomes

1. Parents will be able to identify the three components to a healthier lifestyle.

2. Parents will gain knowledge on how to change their child's diet while still making it appealing.

3. Parents will be able to list three different ways they can implement daily physical activity.

Key points

3 components	Making healthy food appealing	Physical Activity
<ol style="list-style-type: none">1. Fitness2. Nutrition3. Family Support	<ol style="list-style-type: none">1. Cook more meals at home2. Children help cook3. Making healthy snacks available	<ol style="list-style-type: none">1. Walks2. Swimming3. Music

Methods

- Location: Seaside Middle School Classroom
- 5 parents: 2 fathers, 3 mothers
- Ages 30-44
- The population of Seaside, CA is 42.4% Hispanic/Latino, 31.1% Caucasian, and 9.46% Asian.

Delivering project

- Flyer
- Meet & Greet Activity
- 45 minute workshop
- Post Survey
- Questions



Methods for Assessing Learning Outcomes

- Emphasize the importance of a healthy lifestyle
- Provided examples on how healthy options can be enjoyable
- Ideas on how to implement physical activity

Learning Outcome #1

Parents will be able to identify the three components to a healthier lifestyle.

Question: What are the 3 components of living a healthy life?

- Fully met
- Answers said: Fitness, Nutrition, and Family support.

Learning Outcome #2

Parents will gain knowledge on how to change their child's diet while still making it appealing

Question: As parents, how will you make healthier food appealing for your child? List 2 ways.

- Fully met
- Answered accordingly with what was presented during the presentation.
- Majority answers: "have my child cook with me" "make healthier snacks available"
- Example: "Cutting food into shapes"

Learning Outcome #3

Parents will be able to list three different ways they can implement daily physical activity.

Question: Write 3 ways to encourage physical activity.

- Not fully met
- Participants answered based off opinions instead of the tips that were provided during the workshop.
- Examples: "take my child to the gym with me"
"get him out of the house more"

Discussion

- Parents were engaged throughout the workshop by participating in the post-survey and asking questions
- Two of the three learning outcomes were met

In the future...

- Create pre-survey
- Schedule two workshops: Nutrition & Physical Activity
- Data Analysis

**Increasing Parents' Knowledge of a Healthy
Lifestyle for Children with Down Syndrome**

Thank you.

Questions?

Celeste Villagrana