

Translating Obesity Interventions for Pediatric Cancer Survivors and their Parents



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Leukemia and Lymphoma
Society





Overview of Presentation

- Brief Background of Rationale for our intervention
- What We Do
- What We Have Found So Far
- Strategies We Have Used to Engage and Retain Spanish Speaking Families in our Intervention



INTRODUCTION

NCI Priorities
Introducing
NOURISH-T+

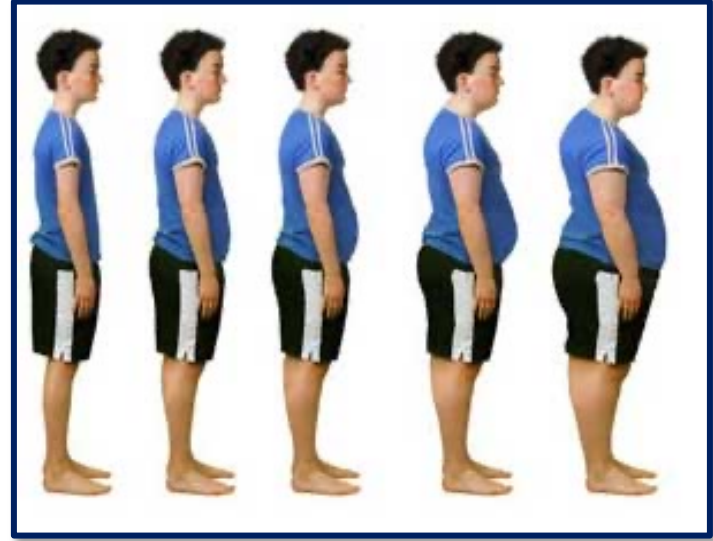


NCI Priorities

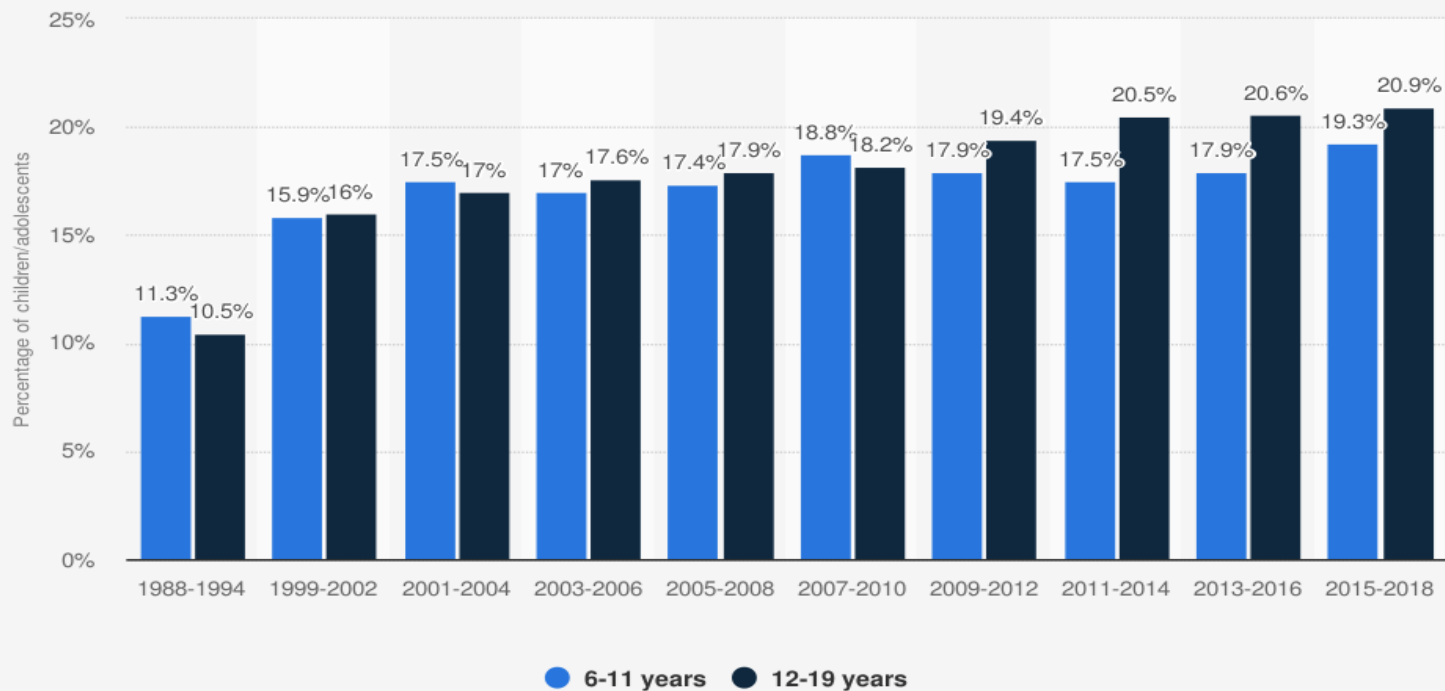
Our work is In line with NCI's [annual plan priorities](#) -- NCI's healthcare delivery research program identified Obesity, Cancer Survivorship, Wearable Sensors, and Health Disparities research as emerging priority areas.

Background: As we All Know

**Over the Past Three Decades,
the prevalence of Obesity
($\geq 95^{\text{th}}$ BMI %ile) in Children
in the US has Tripled**



Percentage of U.S. children and adolescents who were obese in selected periods between 1988 and 2018



Sources

US Department of Health and Human Services;
CDC
© Statista 2021

Additional Information:

United States; NCHS; CDC; 6-19 years

WHAT WE KNOW about Pediatric Cancer:

- Over 80% of pediatric cancer patients live to adulthood.
- HOWEVER: Five years post treatment:
 - 21% of all Pediatric Cancer Survivors (PCS) are classified as obese [BMI >95th %tile for age and gender]
 - 20% as overweight (BMI 85-94th %ile).



Overall:

Estimates range from 40% (Acute Lymphoblastic Leukemia-ALL) to 50% (localized sarcomas)

RISKS AND RATIONALE FOR NOURISH-T+

- Pediatric cancer survivors with overweight/obesity are at significantly greater health risk for adult obesity and concomitant negative health consequences than children with overweight/obesity in the general population.
- By early/mid adulthood, Pediatric Cancer Survivors with obesity are 10.8 times more likely to have CVD than healthy siblings

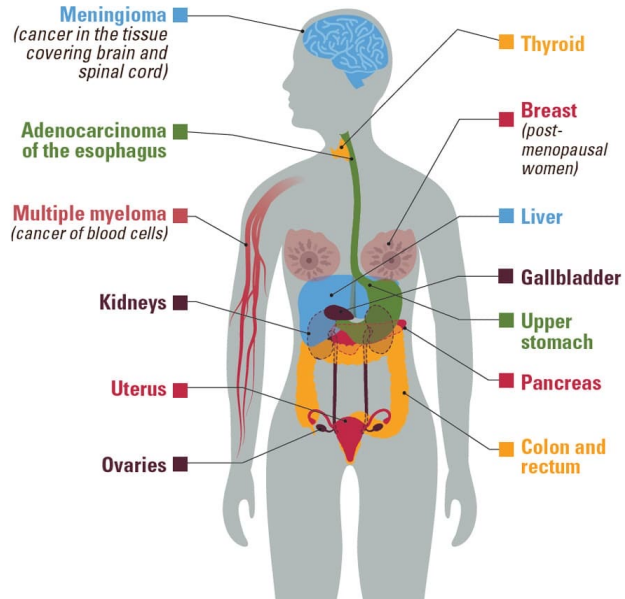


The Problem cont'd

- “Obesity may change the way young people react to chemotherapy” (Orgel et al., 2014-*Blood*)
- May explain why obese children with cancer often do more poorly on induction therapy than their peers without obesity.
- May Reduce rate of survival!

Obesity and Cancer Risk

13 cancers are associated with overweight and obesity



- About 3.6% of all cancer cases attributable to high BMI
- Higher Risk of Secondary cancers for childhood cancer survivors with obesity ^{1,2}

The Damaging Health Effects associated with cancer and its treatment are clearly compounded by obesity



Parental attitudes are also related to poorer eating and physical activity behaviors:

- The Vulnerable Child Syndrome
- Parental Over Protection



Parental attitudes cont'd



Our early, formative work found:

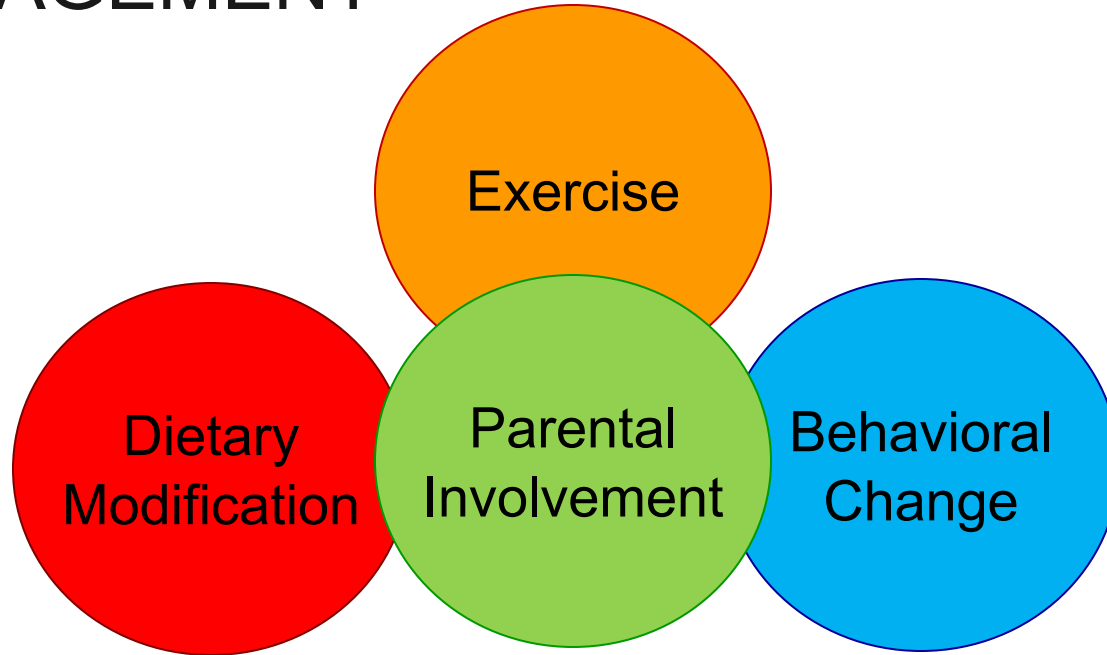
- Caregivers say that during treatment their major concern was on: Quantity of food intake, Not Quality
- Parents recognized that they engaged in protective behaviors and did not allow their children to participate in activities
- Providers said:
 - Parents are often accepting of obesity – if you had cancer, at least you are not wasting away → heavier looks healthier to many lay people

What we Do Know:

- **During treatment**, families decrease healthy eating and physical activity and are unlikely to engage in preventive efforts
- **We KNOW**...Healthy eating and physical activity (PA) behaviors play an important **preventive function**, reducing the risk of adult obesity and other chronic diseases



BASIS OF PEDIATRIC WEIGHT MANAGEMENT



What parents DO is more important than what they say!

- Parents play a key role in molding their children's Physical Activity and Eating Behaviors.
- Overall → Eating and activity habits developed by adolescence are typically continued in adulthood
- Parental involvement improves children's outcomes



A Few Key Points:

- Rationale: Targeting Parents is Key in Effecting change
- Parent weight loss is associated with child weight loss
- When parents make dietary changes → Children show changes in calorie and fat intake
- Targeting the whole family can protect children's self-esteem and reduce their risk of developing further eating problems

Will an obese child become an obese adult?



Parents pass on their Genes and Create their children's environments

Both parents obese → 80% likelihood → child obese

One parent obese → 40% likelihood → child obese

Neither parent obese → 7% likelihood → child obese

NOURISH

- NOURISH (Nourishing Our Understanding of Role modeling to Improve Support and Health)
- Targets Parental Behaviors
- (R01HD066216-01A1; Mazzeo, PI)
- OVERALL: Intervention parents showed improvements on measures of nutrition, exercise and feeding-related attitudes.



We adapted – our previous work with
overweight/obese, but otherwise healthy children --
NOURISH –for Parents of Childhood Cancer
Survivors*

*NIH/NCI –R21 CA167259-01A1 (Stern, PI)



Nourishing
Our
Understanding of
Role modeling to
Improve
Support and
Healthy
Transitions

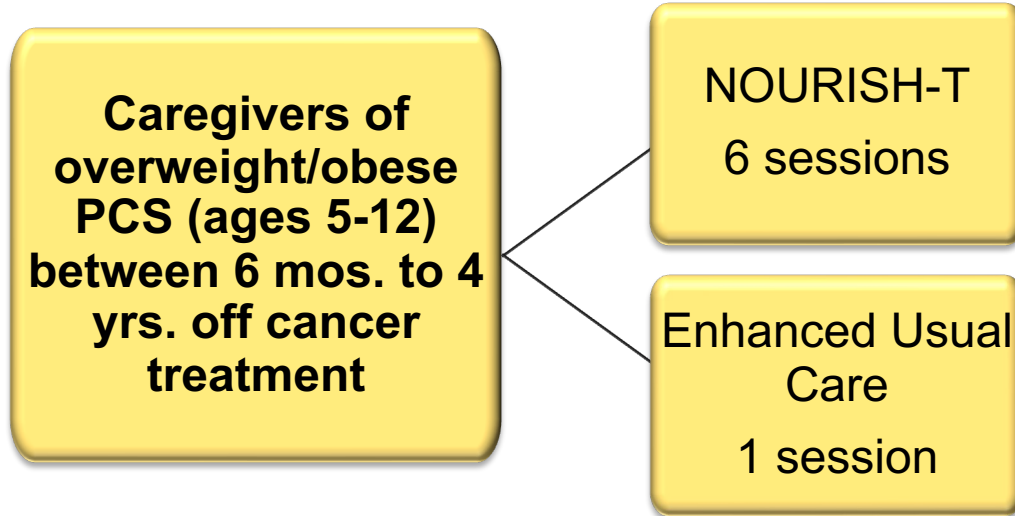
NOURISH-T targets parents of overweight/obese pediatric cancer survivors to promote the development of healthier eating and increased physical activity.



NOURISH-T+

Promoting Healthy Eating
and Exercise Behaviors

R21 Research Design



Summary of Pilot Findings

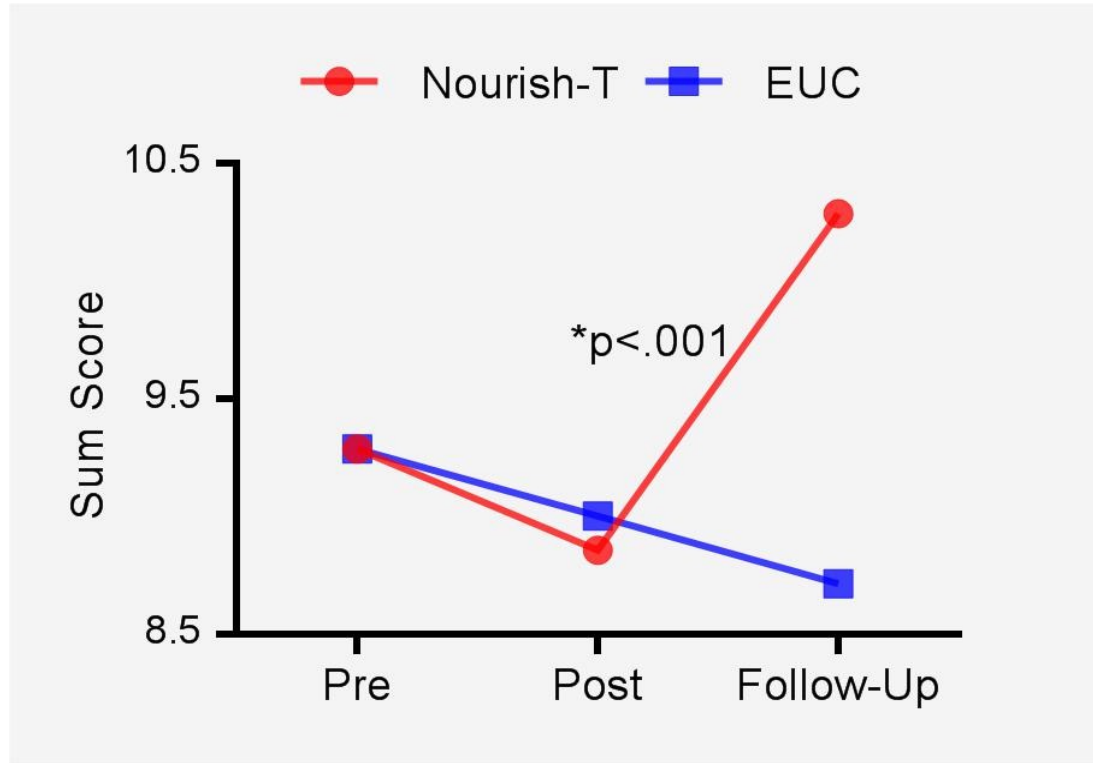
- Our pilot R21 findings with Pediatric Cancer Survivors (PCS) found strong evidence for the importance of targeting parents to impact change in their children – promoting positive health behaviors

In comparison to our one-session control condition (EUC) those in the NOURISH-T 6-session pilot:

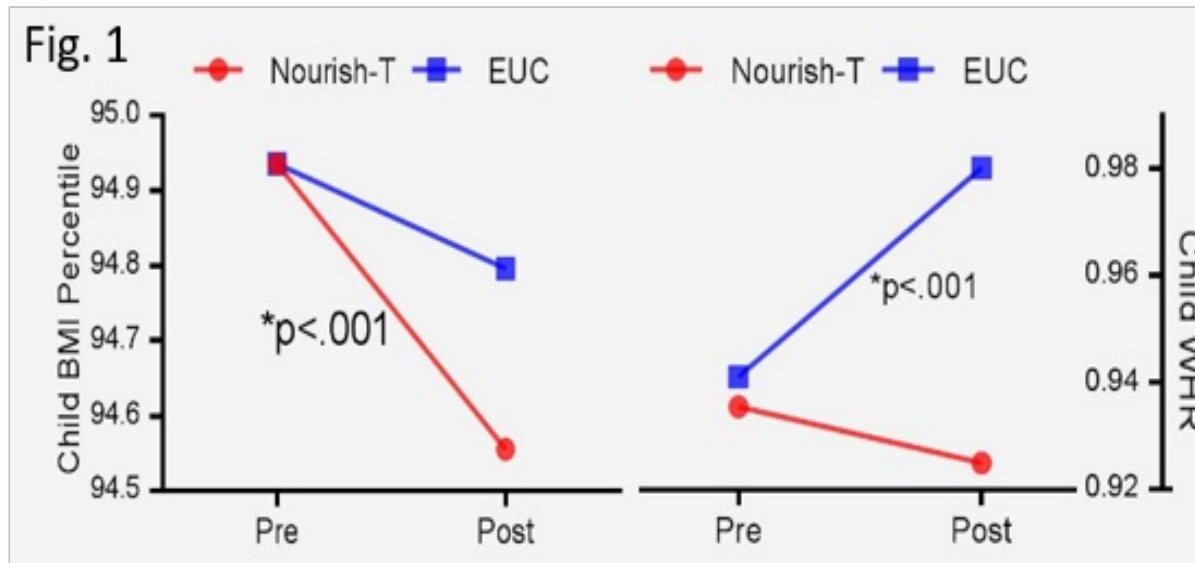
1. Family eating improved (EUC decreased)
2. Parental BMI and W-HR decreased (EUC increased)
3. Child BMI and W-HR decreased (EUC increased)
4. Overall child PA/steps increased (EUC decreased)

*See Stern et al (2018) *Peds Blood and Cancer*

FAMILY EATING TOGETHER BEHAVIORAL INDEX



CHILD BMI %ile and WHR



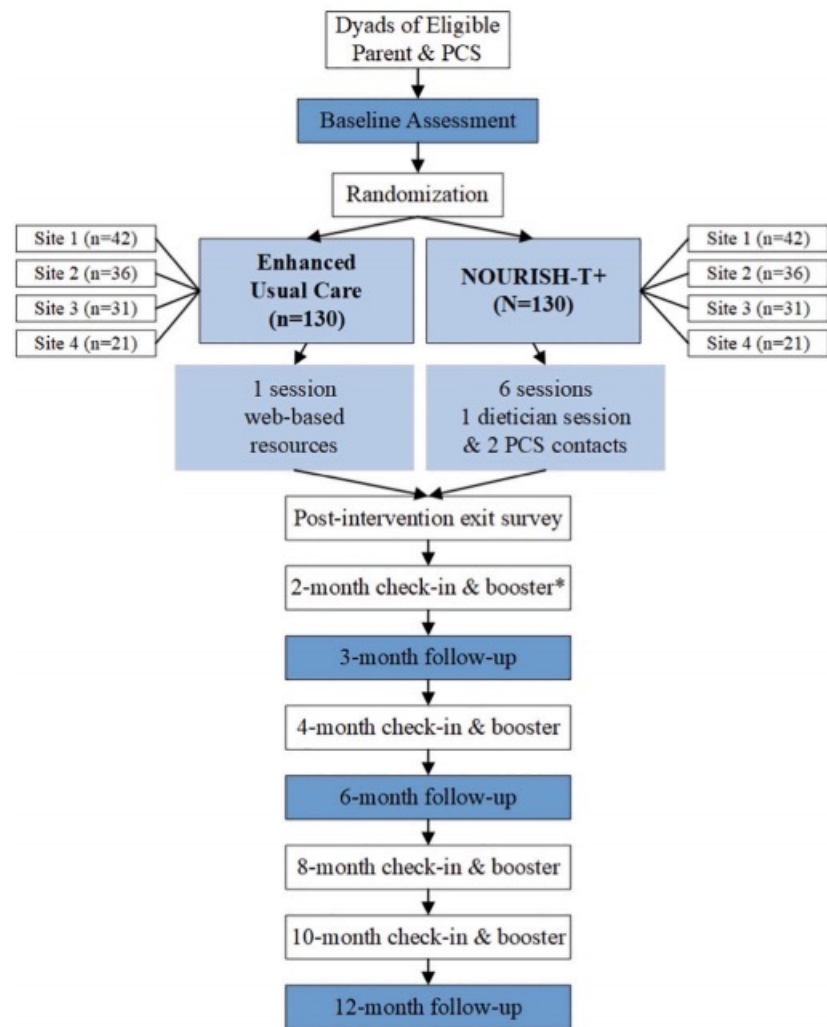
LESSONS LEARNED

1. The old adage – it will always take you longer than you think!
 - a. Unforeseen administrative barriers!
2. Whatever way you believe it might work –
 - a. it might not!
3. Be *flexible* and *adapt*!
4. Think ease of dissemination

KEY CHANGES MADE TO NOURISH-T+



1. Visual Connection via Web-based sessions (vs. phone)
2. One session with a dietician
3. Two separate sessions with the child with cancer (survivor)
4. Longer-term involvement, Now to 12 months
5. With Booster sessions throughout with our facilitators



STUDY DESIGN

R01 funded December 2019
Cluster randomized, controlled,
repeated measures trial

Session 1

- Overview, effects of cancer treatment on eating & exercise, Parental perceived vulnerability;

Session 2

- Parenting style and role modeling for getting back to healthy; Introducing nutrition and healthy eating

Session 3

- Getting back to healthy-Focus on Dietary Intake, meal planning, food accessibility, hunger scale etc.

Session 4

- Increasing Physical Activity, Reducing sedentary behaviors and overcoming barriers to exercise

Session 5

- Mindfulness towards a healthy lifestyle: mindfulness in eating, physical activity, and sleep

Session 6

- Getting back to Healthy, dealing with outside influences, Self-esteem and body-image, toxic env., Wrap-up

6 NOURISH-T+ Sessions

Session 1: Effects of Cancer Treatment on Eating & Exercise Behaviors

- Get to Know Participant – Creating a Relationship
- Perceptions of Vulnerability
- Getting Back to Healthy

Session 2: Parenting Style and Role Modeling for Getting Back to Healthy

- Parenting Styles
- Introduction to Nutrition
 - MyPlate
 - Nutrition Labels
 - Serving Size vs Portion Size

Session 3: Dietary Intake

- Hunger Cues
- Food Accessibility & Skipping Meals
- Meal Planning

Be a Healthy Eating Role Model

Healthy Eating
Made Easier™



Healthy Eating Starts With Families

The foods you serve and eat help raise healthy eaters. Here are a few eating habits you as parents can role model for your children:

- Eat breakfast; it helps your children learn in school. Also, breakfast eaters tend to weigh less as adults.
- Take moderate portions.
- Limit but don't ban all extra foods like chips and candy.
- Drink water and milk instead of soft drinks, sports drinks or other sugar-sweetened beverages.
- Plan meals and snack times for you and your children. Eat foods from all food groups—milk, vegetables, fruits, whole grains, lean meats, fish + beans.

Your Job

Set an **EXAMPLE** by eating the same foods as your children at the table.



SERVE foods from all 5 food groups.



Teach Healthy Habits

Children won't think healthy eating is important if you aren't eating nutritious foods.

Mark the choices you could do:

- Try new foods together.
- Eat snacks from the food groups most of the time and enjoy fun snacks sometimes.
- Manage stress with movement—not food.
- Prepare meals with your kids. Ask them to set the table or chop the vegetables.
- Let your children decide what and how much to eat from what you serve.
- Show how much you enjoy eating together.

S.M.A.R.T. GOALS

S Goals should be Specific. For example, instead of saying:

“I will eat healthier,” say
“I will eat 3 servings of vegetables each day.”

M Goals should be something you can Measure. For example, instead of:

“I won’t eat as many sweets,” say
“I will eat a piece of fruit instead of cookies 3 times next week.”

A Goals should be Action-oriented and Achievable. For example, instead of:

“I won’t eat snacks and watch T.V. this weekend,” say
“I will eat a healthy snack at least once while watching T.V. this weekend or...
“I will exercise once this weekend for 30 minutes instead of watching television.”

R Goals should be Realistic. For example, instead of:


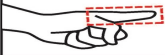




















“I will never eat fried foods,” say
“I will eat fried foods only 1 time next week.”

T Goals should have a Time limit. For example, instead of:

“I will try to start exercising soon,” say
“I will go to the gym 2 days next week.”



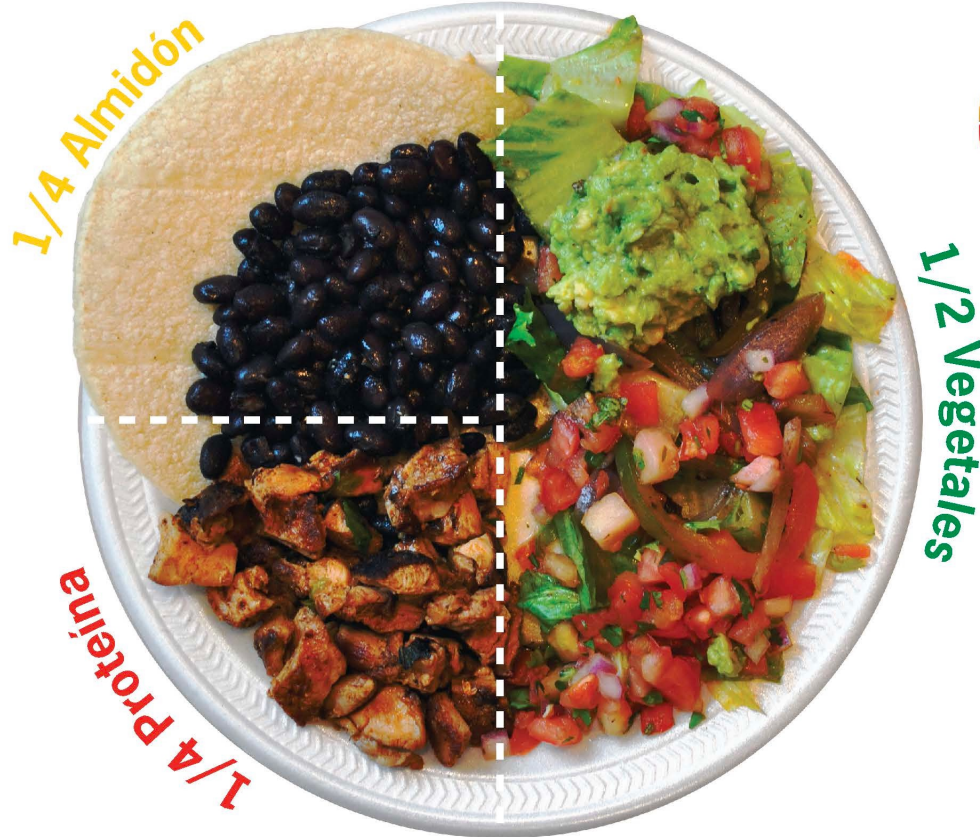
Serving-Size Chart

FOOD	SYMBOL	COMPARISON	SERVING SIZE	
Dairy: Milk, Yogurt, Cheese				
Cheese (string cheese)			Pointer finger	1 ½ ounces
Milk and yogurt (glass of milk)			One fist	1 cup
Vegetables				
Cooked carrots			One fist	1 cup
Salad (bowl of salad)			Two fists	2 cups
Fruits				
Apple			One fist	1 medium
Canned peaches			One fist	1 cup
Grains: Breads, Cereals, Pasta				
Dry cereal (bowl of cereal)			One fist	1 cup
Noodles, rice, oatmeal (bowl of noodles)			Handful	½ cup
Slice of whole-wheat bread			Flat hand	1 slice
Protein: Meat, Beans, Nuts				
Chicken, beef, fish, pork (chicken breast)			Palm	3 ounces
Peanut butter (spoon of peanut butter)			Thumb	1 tablespoon

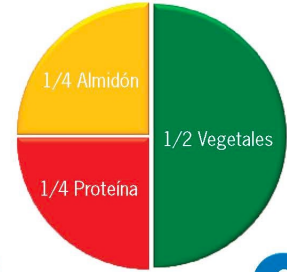
Mi Plato Saludable



El agua es la mejor bebida para usted.



Planee las porciones en su plato



Fruta o producto lácteo

Pregúntale a su nutricionista si usted debe comer fruta o lácteos en sus comidas.



THE INSTITUTE FOR FAMILY HEALTH

www.institute.org

SÍGANOS   

STOP. RETHINK YOUR DRINK. GO ON GREEN.



Red - Drink Rarely, If At All

- Regular sodas
- Energy or sports drinks
- Fruit drinks



Yellow - Drink Occasionally

- Diet soda
- Low-calorie, low-sugar drinks
- 100% juice



Green - Drink Plenty

- Water
- Seltzer water
- Skim or 1% milk



Eating better on a budget

Get the most for your budget! There are many ways to save money on the foods that you eat. The three main steps are planning before you shop, purchasing the items at the best price, and preparing meals that stretch your food dollars.

1 Plan, plan, plan!

Before you head to the grocery store, plan your meals for the week. Include meals like stews, casseroles, or soups, which “stretch” expensive items into more portions. Check to see what foods you already have and make a list for what you need to buy.



2 Get the best price

Check the local newspaper, online, and at the store for sales and coupons. Ask about a loyalty card for extra savings at stores where you shop. Look for specials or sales on meat and seafood—often the most expensive items on your list.

3 Compare and contrast

Locate the “Unit Price” on the shelf directly below the product. Use it to compare different brands and different sizes of the same brand to determine which is the best buy.

4 Buy in bulk

It is almost always cheaper to buy foods in bulk. Smart choices are large containers of low-fat yogurt and large bags of frozen vegetables. Before you shop, remember to check if you have enough freezer space.



5 Buy in season

Buying fruits and vegetables in season can lower the cost and add to the freshness! If you are not going to use them all right away, buy some that still need time to ripen.

6 Convenience costs... go back to the basics

Convenience foods like frozen dinners, pre-cut fruits and vegetables, and take-out meals can often cost more than if you were to make them at home. Take the time to prepare your own—and save!

7 Easy on your wallet

Certain foods are typically low-cost options all year round. Try beans for a less expensive protein food. For vegetables, buy cabbage, sweet potatoes, or low-sodium canned tomatoes. As for fruits, apples and bananas are good choices.



8 Cook once...eat all week!

Prepare a large batch of favorite recipes on your day off (double or triple the recipe). Freeze in individual containers. Use them throughout the week and you won't have to spend money on take-out meals.

9 Get creative with leftovers

Spice up your leftovers—use them in new ways. For example, try leftover chicken in a stir-fry, over a garden salad, or in chili. Remember, throwing away food is throwing away your money!

10 Eating out

Restaurants can be expensive. Save money by getting the early bird special, going out for lunch instead of dinner, or looking for “2 for 1” deals. Ask for water instead of ordering other beverages, which add to the bill.

6 NOURISH-T+ Sessions (cont.)

Session 4: Reducing Sedentary Behaviors and Overcoming Barriers to Exercise Success

- Physical Activity Guidelines
- Sedentary Lifestyle & Screen Time
- Create Physical Activity Plan

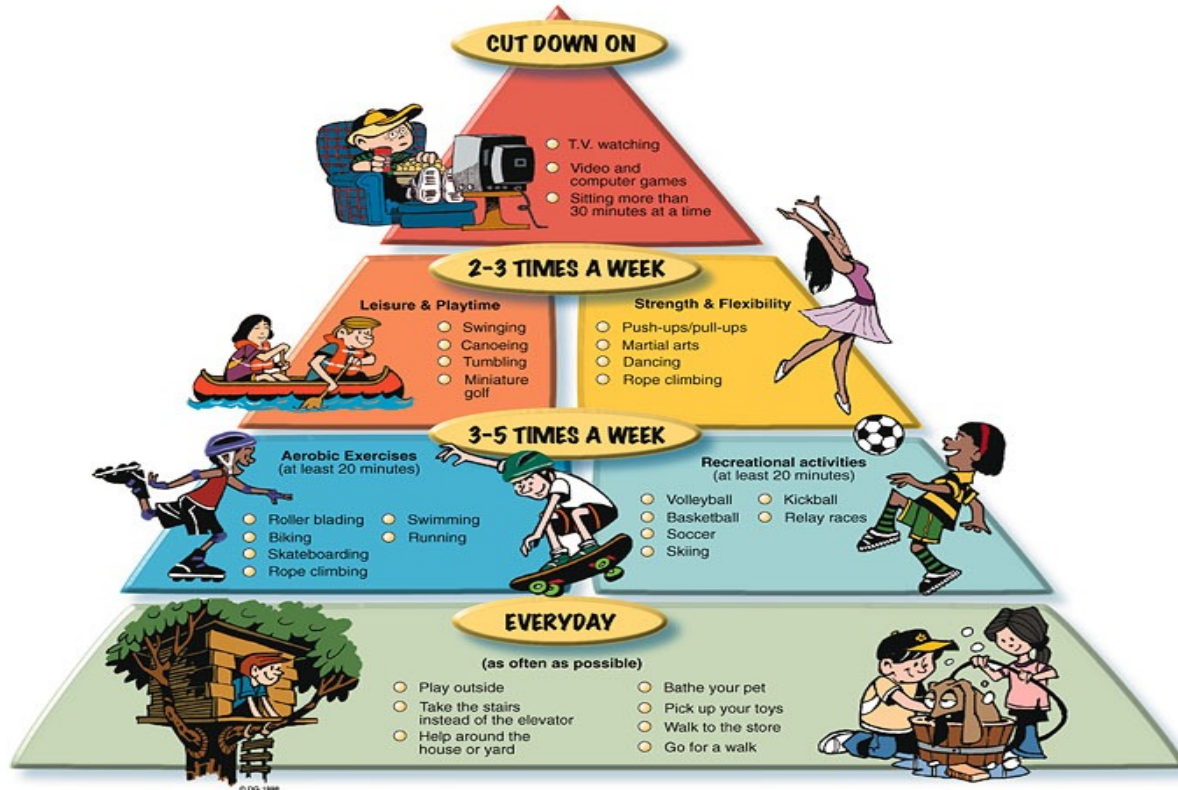
Session 5: Mindfulness Towards: Nutrition, Physical Activity, and Sleep


- Introduction to Mindfulness
- Discussion of High-Risk Eating Habits
- Sleeping Habits

Session 6: Getting Back to Healthy. Dealing with Outside Influences.

- Child Self-Esteem & Body Image
- Peer Relationships & Peer Pressure
- Toxic Environments
- How to Cope with Setbacks

Children's Activity Pyramid





Los niños y adolescentes de 6 a 17 años necesitan **60 minutos** diarios de actividad física.



Haz que el corazón te lata más rápido.



Fortalece los músculos y los huesos.

Haz cosas que te parezcan divertidas.

Completa los 60 minutos de actividad física de una vez o repártelos en todo el día. Tú decides.

Tengo una hora de entrenamiento de basquetbol después de las clases.

Juego kickball en el recreo, voy a educación física y doy un paseo con el perro después de la cena.

Voy en bicicleta al parque a jugar fútbol con mis amigos.

CLEAN UP YOUR SLEEP HYGIENE

13 simple tricks, will help you get a good nights sleep.



1. Go to bed and get up at the same time every day, including on the weekends and during vacations.



2. If you can't fall asleep or wake up and can't get back to sleep, get out of bed, read, sketch, or do another calming activity in low light.



3. Make sure your bedroom is quiet, dark, relaxing, and at a comfortable temperature.



4. Remove electronic devices, such as TVs, computers, and smart phones, from the bedroom.



6. Exercise, being physically active during the day can help you fall asleep more easily and sleep more deeply at night.



7. Keep a sleep diary, experiment and figure out what works best for you.



8. Limit exposure to bright light in the evenings, turn off electronic devices at least 30-60 minutes before bedtime.



9. Establish a relaxing bedtime routine.



10. Don't eat a large meal before bedtime. If you are hungry at night, eat a light, healthy snack.

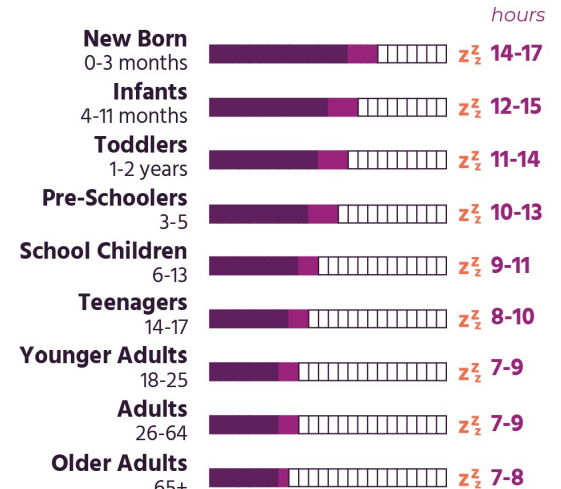


12. Avoid consuming alcohol, nicotine and THC before bedtime.



13. Reduce your fluid intake before bedtime.

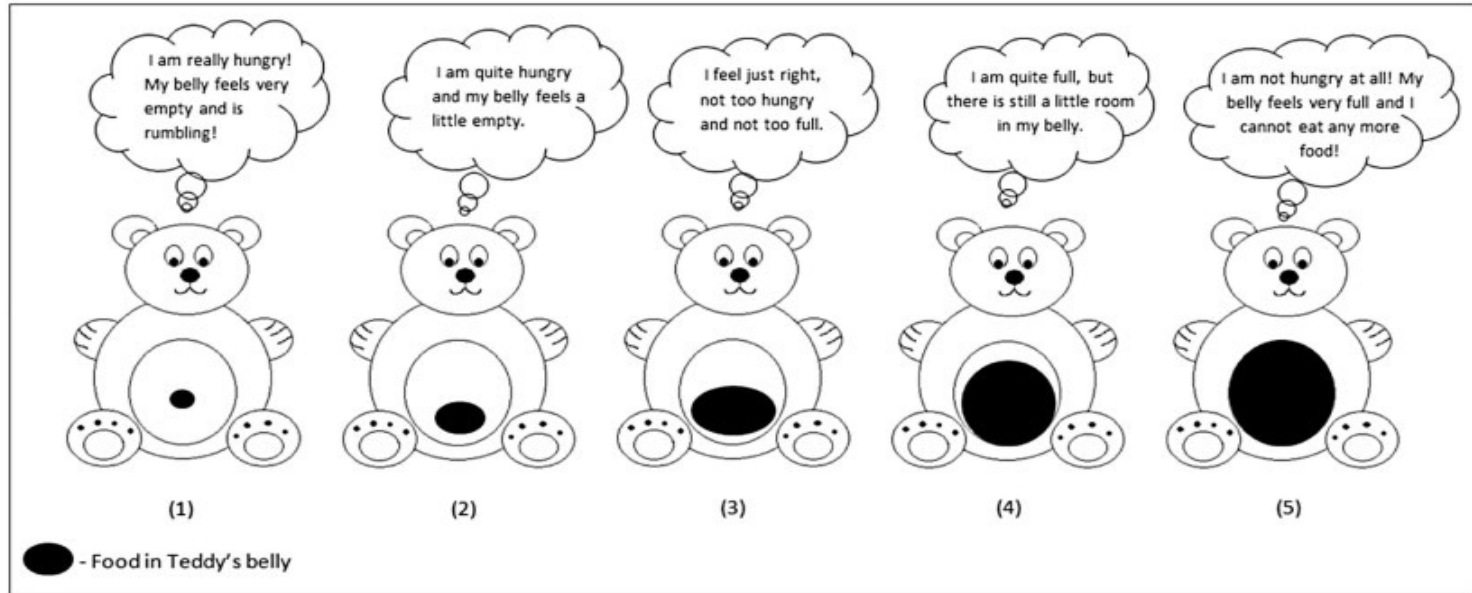
WHAT'S THE RIGHT AMOUNT OF SLEEP FOR YOU?



Mindful Eating Exercises: The Mindful Bite



Children's Hunger Scale



THE DAILY CHECKLIST *Self Love*

JENNIFERDENWELLNESS.COM



After Brushing Your Teeth In The Morning:
Look In The Mirror & Say "I Love You"

2 minutes



Before Going To Bed At Night:
Take 30 Minutes Of Uninterrupted "Me Time"

30 minutes



Throughout The Day:
Notice Negative Self Talk & Choose To Let It Go

Ongoing



Once Per Day:
Compliment Another Woman

30 seconds



At Meal Times:
Eat When Hungry. Stop When Comfortably Full

Ongoing



At Least Once Per Day:
Move Your Body In A Way That's Fun!

30 minutes



Once Per Week:
Say "YES" To Something New

Seconds!

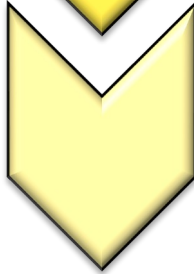
Enhanced Usual Care



- Initial session providing basic information about the role of diet and exercise in children
- [We Can! Manual]



- Caregivers and children attend baseline; post- and follow-up assessment sessions



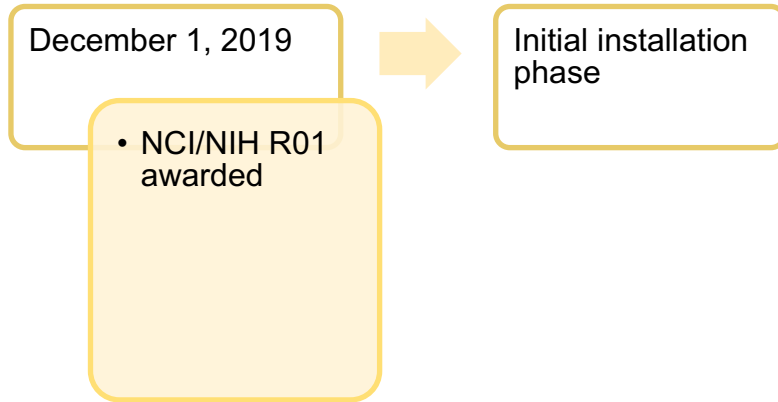
- Caregivers receive nationally available print or web-based brochures on pediatric overweight/obesity at two time points across the study



OUR PROCESS

Impact of COVID-19
Installation phase revisited

IMPACT OF COVID-19



STUDY PROTOCOL HAD TO BE REVISED

MOVED all clinic activities to USF via zoom

Delays in study implementation allowed for additional in-depth refinement of our intervention manuals.

- a. Additional facilitator training (session role playing)
- b. Identified or developed resources
- c. Translating materials into Spanish



PARTICIPANTS

- Parents of pediatric cancer survivors (PCS) (ages 5-14 years) with overweight and obesity, and off treatment for more than 6 months.



We offer NOURISH-T+ in Spanish and English

***To overcome language barriers -- All recruitment materials, flyers and our videos about the project (shown to potential participants in the peds oncology clinics) also available in Spanish**

Buena Salud después del Tratamiento de Cáncer

Un nuevo programa breve para padres para mejorar los comportamientos de estilos de vida saludables en niños que han terminado su tratamiento de cáncer.

Sesiones ofrecidas en USF en inglés y español



¿Para qué es este programa?

- ▶ Este es un nuevo programa breve para padres que tienen preocupaciones acerca de los comportamientos de alimentación y el peso de sus hijos después del tratamiento de cáncer.
- ▶ Este programa es parte de una investigación que tiene como objetivo estudiar si enseñar a los padres habilidades para una alimentación saludable y la práctica de ejercicios físicos ayuda a mejorar la salud y comportamientos de estilo de vida del niño (Dr. Marilyn Stern, PI, Universidad del Sur de la Florida – USF).

¿Quién puede participar en este programa?

Posibles participantes deben tener al menos 18 años y proveer cuidados a un niño que:

- ▶ Tiene cerca de 5-14 años
- ▶ Ha estado sin tratamiento activo por al menos 6 meses
- ▶ Está sobrepeso para su edad

¿Qué se le pedirá hacer a los padres?

- ▶ Asistir a sesiones interactivas y virtuales ofrecidas por USF.
- ▶ Llenar cuestionarios breves acerca de ellos mismos y sus hijos.
- ▶ Participar en evaluaciones de seguimiento justo después de que el programa termine así como 3, 6 y 12 meses después del programa.
- ▶ A su niño también se le pedirá que participe en las evaluaciones de seguimiento y posiblemente asista a dos sesiones cortas con usted.

¿Qué ganarán los padres por estar en este programa?

- ▶ Información sobre cómo el tratamiento de cáncer afecta los comportamientos de estilo de vida de los niños.
- ▶ Conocimiento y habilidades que pueden ayudarle a mejorar su propio bienestar al igual que el de sus hijos.
- ▶ Consejos sobre cómo promover una buena salud en niños que han finalizado el tratamiento.
- ▶ Compensación por su tiempo – hasta \$405 para los padres y hasta \$40 para sus hijos.

¿A quién debería decirle si quiero participar en este?

Si le gustaría participar en este estudio o si tiene preguntas, por favor contacte a:

- ▶ la Dra. Stern al (813) 974-0966 o mstern1@usf.edu o al equipo del estudio a través de nourisht.usf@gmail.com o 727-401-4535.

PROGRESS RECRUITING A CULTURALLY DIVERSE SAMPLE

- As of 6/01/23, 178 dyads have been consented for the study.
- M PCS BMI%ile =95; M age = ~10 years;
- 91% of parents expressed great concern about child's weight
- Of the 116 dyads enrolled, over 50% are of minority status and
- 30% indicated Spanish as their preferred language for participation in the trial.
- Nearly 12% of participating adults are fathers.





What We Have Found
So Far Working with
Families Who Prefer
Delivery of Intervention
in Spanish

Some Findings Related to Changes in Our Approach



Low-income families, regardless of language preference take longer to complete baseline assessments
Barriers with actigraphs/baseline!



***Spanish-prefering families take longer to complete baseline assessments (44 vs. 28 days) and**
tend to take longer to complete the intervention itself



Single parents take longer to complete the intervention
83% of single parent families are minorities;
23% are Spanish speaking preferred

Some Findings Related to Changes in Our Approach



Ethnicity and diet quality: Preliminary findings indicate that Hispanic PCS had significantly lower total vegetable and fatty acid scores ($p=0.02$) compared to non-Hispanic PCS



**Overall, Intervention and Assessment Sessions
take longer when in Spanish
-- linguistic factors; relationship building**



**Parenting style differences (often more permissive) - not statistically significant, but anecdotally reported;
*Spanish preferring families tend to have more children at home**

Strategies We Have Used to Engage and Retain Spanish Speaking Families in Our Intervention

Having and Showing Patience is KEY
Being Flexible
Emphasizing: Self Kindness
“Practice Not Perfection”



Awareness of Cultural Differences is Key

Having talented bilingual staff

Validating their experiences as a parent

- Interventionists report needing to spend more time talking about parenting styles and importance of role modeling

**Acknowledging multiple stressors
(re: child, family, culture, food insecurity)**

Awareness of Cultural Differences is Key

Awareness of Cultural Differences is Key

Interventionist report they are often more directive with Spanish speaking families;

we are currently coding interactions to validate these impressions

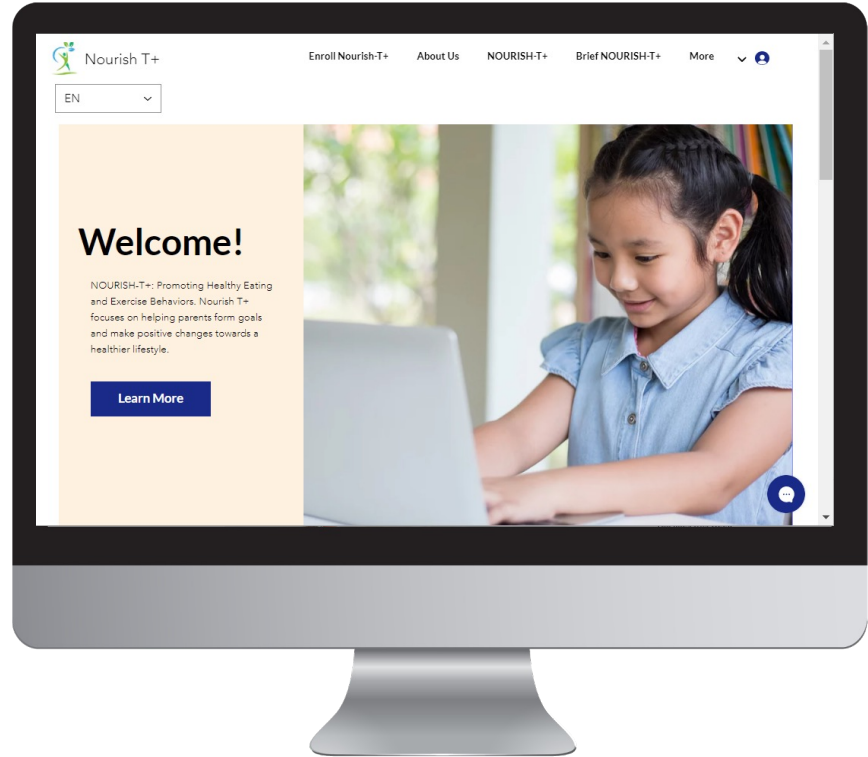


NEXT STEPS

Ramp up recruitment
Maximize participant
retention
Expand study team

RETENTION

- **Booster/check-in sessions**
- **Resource dissemination**
- **Text messaging to participant SMART Goals**
- **Website – dedicated resource hub**



PARTICIPANT TESTIMONIALS

(“Field of Dreams motto”)

“This program motivated me to join a water aerobics class that I love. I am drinking more water and eating more fruits. My son is playing outside more that the weather is nice and is back in school. He is also drinking more water and eating healthier. We are keeping more fruits, cheese, and baby carrots around for snacks.”

“Wonderful program. I have learned a lot. Thank you.”

“I was able to share all the information I learned with my family, and we all were very motivated.”

WHAT WE ARE DOING WELL

“Muy contenta porque e aprendido mucho.”
[Very content because I have learned a lot.]

“Ha sido muy buena y los folletos me han ayudado a mejorar y a saber que hacer en cuanto a la nutrición y el ejercicio.”
[It has been very good and the brochures have helped me improve and to know what to do as to nutrition and exercise.]

PARTICIPANT TESTIMONIALS cont'd

"The NOURISH-T program I had was great and the nutritionist gave me plenty of information I did not know. You are great this program has me changing my eating habits and making better choices."

"I appreciate the way the questions led me to see specific factors in our family (busyness of our schedules and the pressure of school) that disrupt intentions to exercise and to eat healthy, mindful meals."

PARTICIPANT TESTIMONIALS

WHAT WE CAN DO BETTER

I can not think of anything. I thought the program was perfect for my family.

“I WISH IF THE SESSION WERE IN PERSON.”

“Ayudar a mas personas a ver la realidad de comer saludable.”

[To help people to see the reality of eating healthy.]

“Considero que todo esta muy bien pues da buena orientación.”

[I consider that everything is very good because it gives good orientation.]



I-HOPE

Interventions for Health-promotion
in Oncology and Obesity in Pediatrics

<https://www.usf.edu/cbcs/cfs/academics/rmhc/ihope-lab/index.aspx>

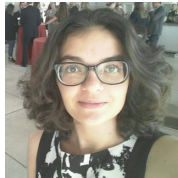


THANK YOU! For more information, visit our website at www.nourisht-study.com

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**ANY
QUESTIONS?**