

Boise State University

**ScholarWorks**

---

IPS/BAS 495 Undergraduate Capstone Projects

Student Research

---

Fall 2022

## **A Guide to How to Start a Keto Diet**

Julia A. Smith

*Boise State University*

—

A Guide to How to Start a Keto Diet

Julia A. Smith

Boise State University

Professor Margaret Sass, J.D., Ed.D

Author Note

Bachelor of Applied Science in the Multidisciplinary Studies Program at Boise State University for the Fall 2022 semester.

Contact information: [juliasmith937@u.boisestate.edu](mailto:juliasmith937@u.boisestate.edu)

### Abstract

My capstone project revolved around creating a straightforward guide to starting a medical-grade ketogenic diet for families and children with epilepsy (seizures) or metabolic disorders (Glucose Transporter Type 1 Deficiency Syndrome). The booklet gives individuals, families, and caregivers an interactive guide to exploring websites, videos, and other resources to understand the complexities of the keto diet. The booklet also features recipes adapted to a six-year-old and approved by her, along with resources for dining at restaurants and fast food establishments.

*Keywords:* Keto diet, Service learning, and Neurological disorders

## **Section 1: Introduction to your Capstone Project**

The inspiration for this project came from a recent medical diagnosis for my six-year-old daughter, who began having seizures at six months old and has continued to this day. For years we had no answers, and after a recent seizure, I decided to push the issue and have her genetically tested. I was a desperate mother searching for answers to my daughter's ailments. In June 2022, we discovered she suffered from a genetic metabolic condition shared by her father. The diagnosis was Glucose Transporter Type 1 Deficiency Syndrome (GLUT 1 DS), a rare genetic condition that impairs brain metabolism ([g1dfoundation.org](http://g1dfoundation.org)). In simpler terms, it can not carry the glucose (simple sugar) created by the foods we consume across the brain-blood barrier to provide brain energy and cognition. The neurologist informed us that anti-seizure medications would not improve her condition, but medical-grade ketogenic therapy was the preferred method for treatment. So, after our initial visit to the pediatric dietitian, I left more confused and overwhelmed than before. I felt there could be a better way to disseminate the information and make the recipes appealing to my young child, so with her help; we got to work to figure it out.

The project began with recipe retrieval from Pinterest, websites, and a cookbook given to us by the dietitian. I researched, made, tested, and once approved, added it to the collection and, if not, went back to the drawing board to find a better alternative. I utilized the information I was given and made the booklet approachable with QR codes and interactive links to videos discussing the various ketogenic therapies, websites dedicated to research on epilepsy and metabolic disorders, and links to recipes approved by my children. I addressed pantry and equipment items that were helpful or necessary during my recipe-making process. I even

provided links to restaurants and fast food establishments on what to order for the keto diet. My result is a booklet to start the keto diet with recipes and tips to remain committed to it.

## **Section 2: Elements coming together**

### **Innovative Approach**

My innovative approach to this project resulted in formulating recipes for children tested and approved by children. Many recipes in cookbooks, websites, and Pinterest boards are geared toward adults and do not necessarily take into account the picky nature of younger children. I have designed my approach around meals loved by my children and many others, for example, spaghetti, tacos, scones, muffins, pizza, and many other carbohydrate-laden recipes, and turning them into edible ketogenic recipes. From my experience, my children are rather picky about the food they consume, and comfort foods are a go-to for most children their age making this my inspiration.

### **Emotional Intelligence**

The research and work on the booklet helped me to see the value in finding meals for my daughter to alleviate her emotional hardships and improve her brain cognition so that she could function in her own body. I realize how my capabilities as a mother and someone who enjoys cooking and discovering new foods can be utilized to make the transition to a new diet more palatable. I am more aware of how these challenges overtook me and have since changed my mindset to view them as stepping stones. The awareness for others comes in relieving stresses, expanding tools and techniques for successful progression to a new diet, and not feeling lost in the process.

I considered their emotional intelligence because I did not limit my discovery process. I

utilized others' perspectives about conversion to the diet, ranging from healthcare professionals to family members, to my other children (who can be challenging to feed on a regular diet), and beyond. I did not limit or restrict foods to only what my daughter would eat, but I tried new recipes approved by my other children to make the booklet more complete with food varieties. The tips and tricks to cooking or baking ketogenically were geared toward everyday families and not made up of weird, hard-to-find ingredients or even meals that took tremendous amounts of time to prepare. I want this project to fuel research on this rare genetic anomaly and help families and those diagnosed have a fighting chance to live a fulfilling life. The interactive booklet to get started on the keto diet will make it less cumbersome for busy, working families and give them the courage to continue the diet because they realize the benefit and see the improvements in their loved ones.

### **Creative Thinking**

I drew inspiration from my personal experience and decided to focus on my daughter, who was recently diagnosed with an incurable genetic deficiency that causes seizures. I knew this diagnosis would be pivotal in her and my family's life. I utilized the approach of empathy toward my daughter, family, and any other group of individuals diagnosed with this specific genetic marker. I attempted to imagine the burden of changing a set lifestyle to a restrictive one through diet. I understood the complexities and difficulties that followed in explaining to a child who had been allowed to eat a typical American diet for five years to transition to a life of no more sugar, bread, or carbohydrate-laden foods. Therefore, drawing on ways to assist my daughter and ease her burden, I chose to track our journey with a booklet specialized in foods she loves and enjoys that match the requirements of her medical-grade ketogenic diet.

Many individuals have created cookbooks for medical reasons and have sold them for a profit. I suppose I could say with certainty that no one has assembled a starter booklet with tested and approved recipes from a six-year-old child with epilepsy. Most of the approaches to the cookbooks were ones I knew my child would not eat and that made it challenging to find recipes that would satisfy her specific needs and cravings. I can see the unique aspect of my approach, and I know it will benefit many children on this restrictive diet, especially those who are older and are accustomed to a typical diet of American cuisine.

### **Your Innovative Solution**

When we first received the diagnosis for our daughter, we were elated to have a cause for the seizures, but then came the challenges. We had to completely alter the diet of a six-year-old who had eaten the foods she loved and wanted to for the past five years and convince her this diet was the only thing that could heal her brain and stop her from having seizures. Therefore, working through ups and downs, heavy emotions, disappointments (especially with Halloween), and finding foods that would work for her and have her still feel socially accepted has been overwhelming and heartbreaking as a mom. I have felt frustrated and seen her frustrations and felt a desire for this project to evolve. I want to help parents and kids work through the immediate letdowns of switching to an entirely different and stricter diet with as minimal obstacles as possible.

This solution takes on the parent/child perspective of completely altering a diet and provides recipes that have actually been eaten by a child who is sometimes more limited in their approach to trying new foods. We received an extensive pamphlet of papers from our initial dietitian appointment that provided minimal suggestions, tips, or resources for switching to a

keto diet. The pamphlet had great information on foods to stock in our pantry, what to do in emergencies, such as proper medicines or supplements, and things of that nature but no recipes for children.

Along with the dietitian's informational packet, I would have parents receive my booklet. The booklet will give them quick, easy recipes, tips for cooking and baking for keto diets, ways to track macros, resources for restaurants and fast food, and conversions for different flours (almond, coconut). I approached this part of my life and project with a more open mindset, empathy, and pivoting when necessary to accommodate a change. I have had to change a component in a meal or start over because it did not work like it was supposed to. I have taken a recipe and reworked it changing the structure until it works. I have tried to take the guesswork out of these recipes to make it easier to stick with this diet. My schooling has allowed me to adjust and work through the creative processes when feeling overwhelmed or frustrated.

### **Section 3: Results**

I measured the success of this booklet through feedback from various individuals, from a long-distance grandparent, a stepmother, a mother to children eight and ten, and a pediatric dietitian. I received the feedback from direct communication and through a google survey. The survey asked five questions to determine the effectiveness of the booklet, such as enough resources, ease of recipes, ample amount of recipes in all categories, if the booklet provided a basic knowledge of the keto diet, and if they would be able to begin the diet. The reviews I received were mixed, but in general consensus, there were enough recipes, they were easy to follow, and the booklet provided enough resources and basic information about the keto diet. The one question that received varying reviews was if they would be able to begin the diet, the



dietitian said it was a great supportive guide but as a clinician there are other components to consider, such as labs and setting macro ratios. Overall, the booklet was deemed a great supportive guide with plenty of great resources and recipes..

The benefit of this project to my stakeholders is an innovative guide to a medical-grade ketogenic diet. It will be a guide effectively explaining what a ketogenic diet is and the different types available for use with a specific diagnosis. It will provide conversion charts, essential equipment for thriving on this diet, and pantry items to make it easier to maintain the diet. The other benefit is recipes are tested and approved by a six-year-old who has been on a typical American diet. The recipes include tips and macro tracking for convenience. The booklet, while not exhaustive, can help alleviate some of the stresses of switching to a keto diet without all of the misunderstandings and overwhelming dialogue.

The actual impact of this project on stakeholders was the easy to follow guide, the easy to understand recipes, descriptions of keto therapies, the links and resources, and a great starting point for transitioning to a keto diet.

#### **Section 4: Conclusion**

I anticipated formulating a comprehensive booklet for families beginning on a medical-grade ketogenic diet. I designed the booklet to provide resources and give insights into pantry and equipment needs for this particular diet structure. I constructed conversion charts for different flours and sweeteners and placed actual recipes tried by my daughter (who was diagnosed with Glut 1 Transporter Deficiency) and will have to be on this diet for the remainder of her life. At the end of the booklet, I also gave some additional recommendations for breakfast

(specific brands of cereal and yogurt), snacks or lunch additions (chips), and zero-carb items (xanthan gum and heavy cream) that are necessary for cooking ketogenically.

After receiving the feedback, I changed some of the components of my guide to be less confusing for everyone. I added headers to each section and a small note explaining the structure on each page. I also added some guidance for eating out and provided links to popular restaurants and fast-food establishments. For the most part, I got the desired result I was going for, and I feel accomplished with what I completed in a short amount of time. Next time, I would allow enough time to get real-time feedback from the dietitian and pilot families given the guidebook to see its effectiveness. With more time, I would have developed my recipe book.

## Section 5: References

- Charlie Foundation. (2022, June 7). How to get started with the ketogenic diet. Charlie Foundation. Retrieved September 11, 2022, from <https://charlifoundation.org/>
- Footprint. (2022). *Home - matthew's friends - ketogenic diet*. Home Page for Matthews Friends. Retrieved December 5, 2022, from <https://www.matthewsfriends.org/>
- Glut 1 Deficiency Foundation. (2021). *Glut1 deficiency foundation*. Glut1 Deficiency Foundation. Retrieved September 11, 2022, from <https://www.g1dfoundation.org/>
- Ketogenic therapy and anti-epileptic medications - matthews friends. [matthewsfriends.org](https://www.matthewsfriends.org/). (2022). Retrieved December 5, 2022, from <https://www.matthewsfriends.org/keto-therapies/keto-management/ketogenic-therapy-anti-epileptic-medications/>
- Rachel Hernandez -Pediatric Neurological Nutritionist at St Luke's Children's Plaza in Boise, Idaho
- Smith, J. (Ed.). (2022). *Canva Free*. [canva.com](https://www.canva.com/). Retrieved December 5, 2022, from <https://www.canva.com/free/>
- Smith, J. (2022). *Survey on keto booklet*. Google Docs. Retrieved December 4, 2022, from <https://forms.gle/xcXELj3gG1qdnxp87>

## Section 6: Appendix


📄 How to Start the Keto Diet.pdf

# HOW TO START THE KETO DIET

**By Julia Smith**



# Our Story



My name is Julia Smith, I have been married to my best friend Sean for 16 years, and we have three beautiful children. Our journey started like most with marriage, but then years (eight to be exact) of infertility stopped our family from growing. In 2016, that all changed, and we were blessed with our daughter, Karina. At six months of age, Karina experienced her first seizure. I was terrified as a parent, and after the neurologist explained seizures sometimes happen for unexplained reasons and reoccurrence can be rare we moved on with life as normal. Fast forward six or so years, several seizures and tests later (EEG, MRI, genetic testing) to discover our miracle had a rare metabolic disorder shared by her father (who never knew). Her diagnosis was Glucose Transporter Type 1 Deficiency Syndrome (Glut 1 DS), which impairs brain metabolism. In simpler terms, it can not carry the glucose (simple sugar) created by the foods we consume across the brain-blood barrier to provide brain energy and cognition.

After six years of seizures and a diagnosis, we finally had some answers. As of September 2022, Karina was placed on a medical-grade ketogenic diet to help with this metabolic disorder since medications would not help improve her brain cognition. As a parent, this diet had a ton of information and created some confusion. So with the help of Karina, we designed this booklet to be straightforward to make the transition to this diet smoother. Karina helped test and develop the recipes with me so she could provide tasty options for other children with a similar diagnosis. We are glad you are here and hope this guide will provide some help along the way.



# Table of Contents



04

## Introduction to Keto Diet

Answer key questions about keto diet and list different ketogenic therapies.

05

## Resources

A list of websites with QR codes and links to basic information about the keto diet.

06

## Macro Tracking

Tips to figure out macro tracking with and without sugar alcohols.

07

## Pantry Items & Equipment

A list of items to have stocked in the pantry, along with necessary and helpful equipment.

08

## Conversions

A chart of varying conversions and measurements.

09

## Breakfast

Ideas for Breakfast.

10

## Lunch

Ideas for Lunch.

11

## Dinner

Ideas for Dinner.

13

## Dessert

Ideas for Desserts.

14

## Resources & More

A few extra helps for breakfast, snack, and no carb baking tips along with resources for this information. Links to restaurant and fast food guides.

# Introduction to Keto

## What is the Keto Diet?

The Ketogenic Diet, also referred to as the Ketosis Diet, or Keto for short, is a way of eating that mimics the effects of fasting. By consuming a diet rich in quality fats, adequate in protein, and low in net carbohydrates (total carbs minus fiber), the body's metabolism begins to utilize fat as its main source of fuel, rather than carbs.

## What is Ketosis?

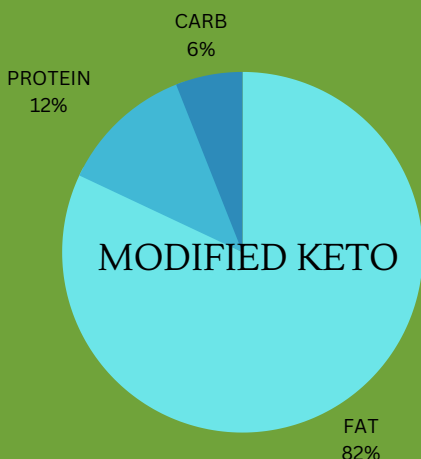
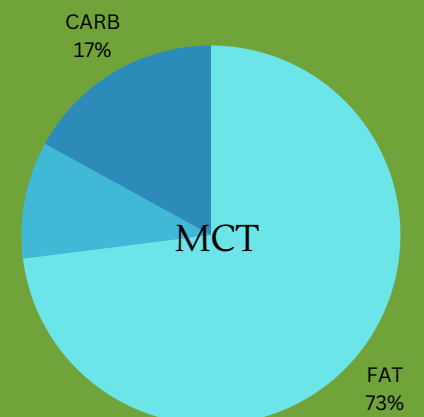
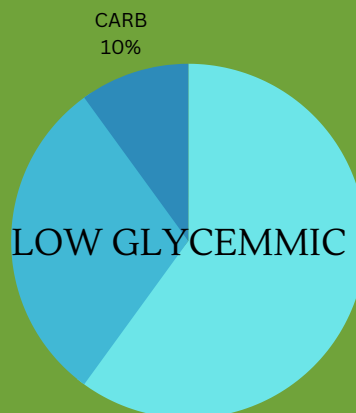
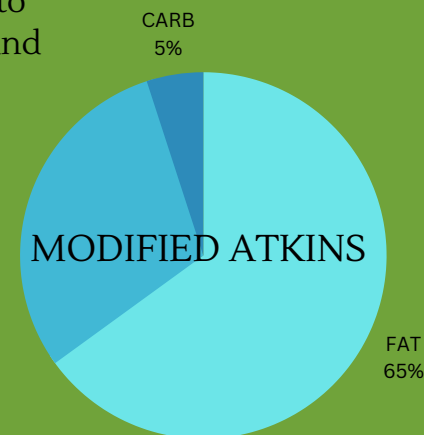
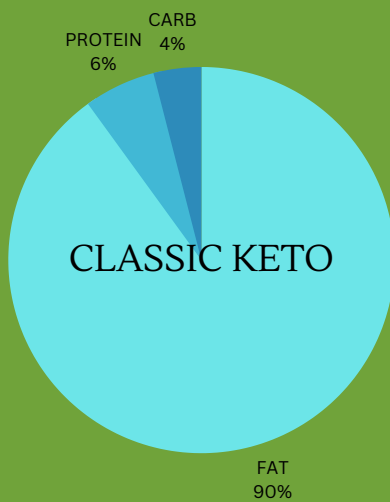
The term ketosis refers to a byproduct of the breakdown of fat into useable energy, called ketone bodies, or ketones for short. Ketones are used directly by the body to power itself. This breakdown of fat into useful energy is similar to the process that dietary carbohydrates undergo in producing glucose to fuel the body. In other words, ketones are to fat what glucose is to carbohydrates.

## What are the Benefits of Ketosis?

Achieving a state of ketosis can have many benefits from treating chronic illnesses to optimizing performance. While the benefits are well documented, the underlying mechanism of action is not entirely known. The diet seems to enhance the ability of mitochondria, the power plants of our cells, to deliver our bodies' energy needs in a manner that reduces inflammation and oxidative stress. Through optimizing the way our body uses energy, we fortify our bodies' ability to combat several diseases as well as take on the stressors of our modern way of living.

## Ketogenic Therapies

Please click on the underlined heading above to discover more about these different therapies and watch a short video.





# Resources

The QR codes are scannable and linked to websites, starter guides, and an app to get started transitioning your family to a medical ketogenic diet.

Charlie Foundation



Matthew's Friends



Keto Crash Course



Intro & Prep for Children



Glut 1 Deficiency Foundation



Carb Manager



# Macro Tracking

## How to Track Macros

For tracking Macros it is dependent on the type of ketogenic diet your dietitian assigns to you.

The macros which are essential to track are fat/protein/carb ratios.

### RANGES OF MACRO PERCENTAGES:

FAT: 90% to 60%

PROTEIN: 30% to 6%

CARBS: 30% to 4%

IMAGE TO THE RIGHT:

CALCULATING MACROS:

Total Carbohydrates - Dietary Fiber = NET CARBS

14 Grams - 9 Grams = 5 NET Carbs



ABOUT 3 SERVINGS PER BAR  
**Serving size 30g**

	Per serving		Per bar	
<b>Calories</b>	<b>130</b>		<b>370</b>	
	<b>%DV*</b>		<b>%DV*</b>	
<b>Total Fat</b>	10g	<b>13%</b>	30g	<b>38%</b>
Saturated Fat	6g	<b>32%</b>	18g	<b>91%</b>
Trans Fat	0g		0g	
<b>Cholesterol</b>	5mg	<b>2%</b>	15mg	<b>6%</b>
<b>Sodium</b>	10mg	<b>0%</b>	20mg	<b>1%</b>
<b>Total Carb.</b>	17g	<b>6%</b>	48g	<b>17%</b>
Dietary Fiber	10g	<b>35%</b>	27g	<b>98%</b>
Total Sugars	<1g		2g	
Incl. Added Sugars	0g	<b>0%</b>	0g	<b>0%</b>
Erythritol	5g		13g	
<b>Protein</b>	2g		5g	
Vitamin D	0mcg	<b>0%</b>	0mcg	<b>0%</b>
Calcium	30mg	<b>2%</b>	90mg	<b>6%</b>
Iron	1.2mg	<b>6%</b>	3.5mg	<b>20%</b>
Potassium	115mg	<b>2%</b>	320mg	<b>6%</b>

\*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

## Macro Tracking with Sugar Alcohols

Depending on the recommendation of your dietitian or neurologist/doctor, you can account for either 0%, 10%, 50% or 100% of sugar alcohols as net carbs.

NET CARBS based on: Carb-Fiber- % of Sugar alcohols = Net Carb

0%: 17 G - 10 G - 5G = 2 G (NET CARB)

10%: 17 G - 10 G - 4.5 G = 2.5 (NET CARB)

50%: 17 G - 10 G - 2.5 = 4.5 G (NET CARB)

100%: 17 G - 10 G - 0 G = 7 G (NET CARB)

# Pantry & Equipment Items

## Pantry

A well stocked keto pantry helps you save money, plan meals efficiently, and provide peace of mind in uncertain times.

The Keto Pantry  
(Courtesy of Keto Cook)



## Equipment (necessary & helpful)

- Digital Scale (ESSENTIAL)
- Measuring Cups & Spoons (Liquid and Dry)
- Food Processor
- Blender/Immersion Blender
- Parchment Paper/Silicone Mats
- Cooking/Baking Trays
- Muffin Pan
- Cookie Scoops
- Mini Waffle Maker
- Vegetable Spiralizer



# Keto Flour & Sweetener Conversions

A QR code and linked reference to common flours and sugars used in Keto cooking or baking and how to convert to cups to grams, along with other common conversions.



# Breakfast Ideas

The underlined recipes have clickable links to recipes.

## Blueberry Lemon Scones

YIELDS 8 Scones\*

1 Scone = Carb: 16.4 G ||

Dietary Fiber: 3 G || Protein: 4.8 G ||

Fat: 17.1 G || Net Carb: 3 G



## Lemon Raspberry Muffins

YIELDS 8 Muffins\*

1 Muffin = Carb: 17.5 G ||

Dietary Fiber: 4.3 G || Protein: 5.1 G ||

Fat: 18.1 G || Net Carb: 5.2 G

Photo Credit: [mouthwateringmotivation.com](http://mouthwateringmotivation.com)

## Other Breakfast Ideas

- Scrambled Eggs with Heavy Cream
- Ham & Cheese Omelet
- Sausage & Cheese Omelet
- Cheese Omelet
- Ratio Keto-Friendly yogurt
- IQ Bars (sold on Amazon)
- Breakfast Burritos with Zero Carb Tortillas, Cheese, Scrambled Eggs
- Fried Eggs & Bacon or Sausage

\*Carb Manager App used to calculate macros. Amounts may differ depending on product used. Estimates only.

# Lunch Ideas

The underlined recipes have clickable links to recipes.

## Mini Pizza Chaffle

My kids love to top these mini pizzas with sauce (Rao's Pizza Sauce), Cheese, and Pepperoni (Natural Choice Uncured).

Recipe YIELDS 2 Chaffles:

Per 1 Chaffle with Toppings\*:

Calories: 331 || Carbs: 1.6 G || Fiber:  
0.5 G || Protein: 21.6 G || Fat: 26.9 G ||  
Net Carbs: 1.1 G



## Lunch Ideas

We use these tortillas for various lunch ideas, such as:

- Ham and Cheese Sandwich
- Turkey and Cheese Sandwich
- Quesadilla
- Hot Meat Sandwich (Grilled Cheese)

Lunchmeat options:

Fricks Hickory Smoked Ham  
Jennie-O Oven Roasted Turkey

\*Carb Manager App used to calculate macros.  
Amounts may differ depending on product used.  
Estimates only.

# Dinner Ideas

The underlined recipes have clickable links to recipes.

## Creamy Bacon Chicken

I omitted the flour and used chicken tenders for this recipe. I also doubled the chicken broth and halved the heavy cream.

YIELDS 12 Servings\*

Per 1 Chicken Tender

Calories: 253 || Carbs: 0.1 G ||

Protein: 26.4 G || Fat: 15.9 G ||

Net Carbs: 0.1 G

## Coleslaw

YIELDS APPROX 10 Cups (1 CUP per serving)

Calories: 128 || Carbs: 4.8 G || Fiber: 1.7 G ||

Protein: 1.1 G || Fat: 12.1 G ||

Net Carbs: 3.1 G



## Spaghetti

I made my own sauce, but there is Rao's spaghetti sauce as well and it is about 5 Net Carbs per 1/2 cup.

## Homemade Sauce\*

## Keto Egg Noodles\*

Nutritional Information for Noodles:  
YIELDS Approx. 6 Ounces\*

Per 1 Ounce Serving:

Calories: 110 || Carbs: 1.3 G || Fiber: 0.4 G ||

Protein: 4.1 G || Fat: 10.6 G ||

Net Carbs: 0.9 G

\*Carb Manager App used to calculate macros.  
Amounts may differ depending on product used.  
Estimates only.

# More Dinner Ideas

The underlined recipes have clickable links to recipes.

## Tacos\*

These are easy weeknight meals and can be made in many different ways.

Varieties made by my family:

- 85/15 Ground Turkey
- 93/7 Grass-Fed Beef
- 85/15 Ground Turkey and Natural Pork Sausage

To Assemble Tacos:

Place zero-carb tortillas, cheese, meat, sour cream, guacamole, salsa, or any toppings of your liking, and enjoy!



## Meatball Sub\*

First, make the meatballs and the dough, then construct them into subs.

Nutritional Information for 1 Sub topped with Parmesan Cheese (1 Tablespoon) & Rao's Pizza Sauce (1/4 cup):

Calories: 327 || Carbs: 5.6 G || Fiber: 2.5 G || Protein: 24.9 G || Fat: 22.7 G || Net Carbs: 3.1 G

## Fathead Dough

Nutritional Information for 1/8th of dough:

Calories: 155 || Carbs: 2.3 G || Fiber: 1.2 G || Protein: 9 G || Fat: 12.8 G || Net Carbs: 1.1 G

## Italian Meatballs

\*Carb Manager App used to calculate macros. Amounts may differ depending on product used. Estimates only.



# Dessert Ideas

The underlined recipes have clickable links to recipes.

## Cinnamon Sugar Donuts\*

I used a piping bag with a large open tip and mini donut pan to bake them in the oven or they can be made into donut holes.

Nutritional Information for 1 donut serving:

Calories: 34 || Carbs: 2.3 G || Fiber: 0.7 G || Protein: 1.1 G || Fat: 2.8 G || Net Carbs: 0.6 G

Cinnamon Sugar Mixture:

Calories: 13 || Carbs: 3 G || Fiber: 0.1 G || Protein: 0 G || Fat: 1.3 G || Net Carbs: 0 G



## Lily's Chocolate Bars

A good treat if you are craving something chocolate. They have several different varieties and can be found in local grocery stores (Fred Meyers, Albertsons).



\*Carb Manager App used to calculate macros. Amounts may differ depending on product used. Estimates only.

# Resources & More

More resources for breakfast, snacks, cooking & baking, along with restaurant & fast food guides for ordering keto.

- Ratio Yogurt (2 Net Carbs per container)
- Catalina Crunch Cereal (5 Net Carbs per 1/2 cup)
- Hilo Life Tortilla Chips (3 Net Carbs per 1 ounce)
- Organic Valley Heavy Cream (0 Net Carbs per Tablespoon)
- Simple Truth Xanthan Gum (0 Net Carb per Teaspoon)



## RESOURCES:

[charliefoundation.org](http://charliefoundation.org)  
[matthewsfriends.org](http://matthewsfriends.org)  
[carbmanager.com](http://carbmanager.com)  
[ketocook.com](http://ketocook.com)  
[pinterest.com](http://pinterest.com)  
[everydayhealth.com](http://everydayhealth.com)

## Restaurants

## Fast Food