Overview of Diets explored in the TREND Community PWS Diet Initiative

I started the PWS Diet Initiatives because my daughter has always been on a low carb/high fat diet and in ketosis since I started testing her blood ketones at 1. I was frustrated because I could not find the support I needed to manage her diet properly and safely. Through the PWS Diet Initiative we partnered with an expert on ketogenic therapies (Beth Zupec-Kania from *The Charlie Foundation*) who has worked with groups of parents over the last 2 years to help them find optimal diet for their kids. We tracked data on TREND Community so that we could report on the benefits and any issues that were discovered. This is our review from the first Diet Initiative:
https://www.charliefoundation.org/images/whitepapers/WHITE_PAPER_PWS_July19_2016.pdf

This review is also attached to this document for your convenience.

I am seeing a lot of conversations recently about ketogenic and modified ketogenic diets. In the past families have found themselves in crisis because they have tried to implement these diets without the proper medical and nutrition support and so I thought it might be helpful to review the different diets. I hope that people will try to use the proper terminology when describing the diet they are following so that people who come to this page to learn will not be confused.

What is a Ketogenic Diet?
If you are following a Ketogenic Diet, it means that you have worked with a dietitian trained in ketogenic therapies who prescribed a diet that consists of a specific ratio in grams of fat to non-fat (protein plus net carbohydrates). It also means that you did baseline lab work to determine if the diet is safe to implement (these include metabolic tests to rule-out fatty acid disorders or a carnitine deficiency.). Ongoing labs are also required for monitoring diet safety and effectiveness and blood or urine ketones and blood glucose levels must be monitored at home.

What is a Classic Ketogenic Diet?
The Classic Ketogenic Diet is a special high-fat diet that is used for difficult-to-treat seizures. The Classic Diet consists of a ratio in grams of fat to non-fat (protein plus net carbohydrates) of 4:1 and 3:1. The Classic Ketogenic Diet must be initiated in the hospital and the patient must be monitored very carefully by a neurologist and a dietician trained in ketogenic therapies. Unless your child has seizures, it is unlikely that you are following a Classic Ketogenic Diet. Because this is the original Ketogenic Diet, it is often referred to simply as a Ketogenic Diet. Unless you are following a Classic Ketogenic Diet for seizure control you should not simply say that you are following a Ketogenic Diet as this could be confusing.

What is a Modified Ketogenic Diet?
The Modified Ketogenic Diet (MKD) is a more liberal version of the Ketogenic Diet that consists of ratios that range from 2:1 to 1:1. You must work with a dietitian who is specialized in ketogenic therapies to determine the appropriate ratio and macronutrient requirements (fat, protein, carbohydrates). MKD is high fat, moderate protein and low carbohydrate. Initiating the diet requires careful weighing of all food items consumed to ensure that the ratios and

macronutrient requirements are met. If you have never worked with a ketogenic specialist and have never weighed your food to determine that your diet meets the requirements prescribed then you should not say that you are following a Modified Ketogenic Diet. If you are following MKD, you should be consulting with your ketogenic specialist and your doctor should also be informed. Ongoing labs are also required for monitoring diet safety and effectiveness and blood or urine ketones and blood glucose levels must be monitored at home.

More on Modified Diets

A ***Modified Atkins Diet (MAD)*** is a very low carbohydrate diet that consists of more protein than the Modified Ketogenic Diet. The MAD plan approximates a 1:1 ratio of fat to non-fat (protein plus carbohydrates). We did not explore the MAD during the PWS Diet Initiative as it is the nutritionist's opinion that moderate protein with more calories coming from carbohydrates allows for a more nutrient-dense diet.

If you are not working with a ketogenic specialist or weighing your food, but your diet is high in fat and lower in carbohydrates, you should say that you are following a ***Low Carbohydrate/High Fat (LCHF) Diet.***

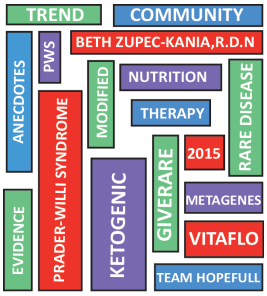
During the PWS Diet Initiative, the nutritionist first introduced the group to a ***Sugar-Free Diet*****,** instructing participants to remove added sugar and other added sweeteners from their diets. I think that this is a very useful exercise for everyone as sugar can be founded in many unexpected places. The following is a quote from Dr. Miller at the 2017 Mac Pact Conference in Connecticut:

"Anything that tastes sweet on your tongue will then cause your brain to release dopamine. Dopamine is an addictive neurochemical. So it makes you addicted to the taste of the sweet. And it also causes insulin release from your pancreas and that causes immediate fat storage."

This highlights the importance of removing or at least reducing the added sweeteners in our kids' diets. I am attaching a document that gives an overview of the Sugar-Free Diet.

Once participants had removed/reduced added sweeteners, next the nutritionist instructed them to eliminate all processed foods and commit to a ***Whole Foods Diet***. I am also attaching a document that gives an overview of the Whole Foods Diet (please note that the amounts may need to be adjusted for each individual).

Finally, I am also sharing with you a document that gives an overview of *Super Foods*. ***Super Foods*** are nutrient-rich foods that are especially beneficial for health and well-being. The nutritionist encouraged participants in the PWS Diet Initiative to incorporate these foods into their diet on a daily basis.



KETOGENIC DIET FOR PRADER-WILLI SYNDROME

THE CHARLIE FOUNDATION FOR KETOGENIC THERAPIES

A REVIEW OF THE TREND COMMUNITY
PWS DIET INITIATIVE

OVERVIEW

In August 2015, Trend Community* launched the *PWS Diet Initiative* to explore the effectiveness and benefits of nutrition therapy for Prader-Willi Syndrome (PWS). Ten children ages 2-11 with a genetic diagnosis of Prader-Willi Syndrome undertook a modified ketogenic diet (MKD) under the guidance and supervision of consultant nutritionist to the Charlie Foundation for Ketogenic Therapies, Beth Zupec-Kania, RDN. Participants journaled about their experience and contributed anecdotal observations and patient-reported data through TREND Community.

DIET INITIATIVE GOALS

Due to a genetic predisposition to very rapid weight gain leading to obesity, individuals with PWS must strictly regulate diet from a young age. *The Red Yellow Green System for Weight Management*, widely prescribed by medical professionals to help individuals with PWS attain weight loss goals, restricts the intake of high-calorie, high-fat foods. In contrast, Miller (1) found that children who followed a diet consisting of 30% fat, 45% carbohydrates and 25% protein, with at least 20 grams of fiber per day, experienced improvements in weight control and body composition compared to the children placed on low-fat, energy-restricted diets (2). Anecdotal reports from families in the PWS community suggest that boosting dietary fat to elicit ketones, along with a diet comprised of mostly plant-based carbohydrates and moderate protein, may provide even more benefit to individuals with PWS. The PWS Diet Initiative was designed to: explore the requests from these families, identify ideal macronutrient intake and open the door to research on this topic. The Diet Initiative was carefully structured to uncover the diet-related problems that occur with PWS.

Exploring Benefits

The first task was to determine if a structured, modified ketogenic therapy provided benefit to children with PWS in the areas of hunger, cognition, behavior, energy, body composition, and quality of life. A structured diet was chosen in an attempt to eliminate the guesswork in estimating portions of food and to make the diet more objective for the purpose of evaluating benefit. A modified ketogenic diet was selected as opposed to the much more restrictive classic ketogenic diet to allow more variety, larger portions and to eliminate the risk of excessive ketosis.

Exploring Practicality

The second task was to determine if families could incorporate this diet into their daily lives. Whereas restrictive diets are difficult for most people to adhere to, ketogenic diet therapies administered to children with epilepsy by their caregivers have an unusually high compliance rate due to the positive outcome achieved by the majority who attempt it (2). Thus it was determined by the nutritionist that this could be a successful diet for the PWS community.

DIET INITIATIVE SUMMARY

Of the 108 families who signed up, 14 ultimately qualified to participate and 10 completed the full 6 months of managing this diet for their child. The Diet Initiative utilized a gradual transition to the modified ketogenic therapy, which allowed families several weeks to change from their child's current diet to the structured ketogenic meal plans. Diets were individually prescribed to meet Dietary Reference Intakes (DRI) for Energy with an average of 75% fat, 14% protein and 11% carbohydrate. In addition to the diet, nutritional supplementation was advised by the nutritionist to meet DRI. Support was provided through conference calls and ketodietcalculator.org (a web-based diet calculator).

A typical day's menu included a breakfast of high-fat yogurt with berries and heavy cream; sliced turkey rolled up in spinach leaves with mayonnaise and mustard for lunch; spaghetti squash with beef marinara sauce and olive oil for dinner. Snacks included nuts or berries with heavy cream. Participants also received a special form of coconut oil (called medium chain triglycerides) with their meals.

All participants were required to inform primary doctors about their participation in the Diet Initiative and obtain surveillance blood work at initiation, 3 months and 6 months. Caregivers completed data tracking of glucose, ketones, labs and outcome measures through TREND Community. Negative effects of the diet were minimal and constipation was not present in any participant. The *PWS Diet Initiative Case Series* details the experience of each participant.

Reported Benefits

Journal entries from families reveal that the modified ketogenic diet (MKD) was beneficial to their children; all experienced positive benefits in at least 2 areas (Table 1).

Table 1. Reports of positive benefits of a modified ketogenic diet on children as reported by caregivers in the PWS Diet Initiative

Initiative ID	Age**	Hunger/ satiety	Cognition/ develop-ment	Behavior	Energy	Body Comp-osition	Quality of Life
Keto-1	4y 11m	x	x	x	x	x	x
Keto-2	4 y 1m	x	x	x	x		x
Keto-4	7y 1m	x	x	x	x		x
Keto-6	2y 9m		x	x	x	x	x
Keto-8	3y 4m	x	x	x	x	x	x
Keto-9	4y 1m	x	x				x
Keto-10	4y 11m	x		x			x
Keto-12	5y 10m	x	x	x	x	x	x
Keto-14	6y 6m	x	x	x	x		x
Keto-15	11y 11m	x			x		x

**Indicates participant's age at the end of the Diet Initiative.

"For the first time in her life she is satiated." (keto-12)

"[Her] communication skills have exploded in the past months." (keto-8)

"[Her] behaviors have changed for the better." (keto-3)

"[His] energy level is through the roof…he is able to keep up with his peers." (keto-6)

"[She] has for the first time in her life maintained weight whilst still growing." (keto-12)

"Today felt like what it must be like to be a "normal" family." (keto-4)

Diet Adherence

Despite the reported burden of meal preparation and more frequent grocery shopping, once families adopted the diet they were likely to continue. Although the Diet Initiative was designed for 6 months, all ten families who completed 6 months have continued well beyond that time. The four families who did not complete 6 months withdrew due to reasons other than effectiveness; two never attempted the diet (one did not start due to health issues and the other decided they did not have the necessary time to commit to the Diet Initiative) and two

attempted the diet for a short period of time, but found meal preparation and data tracking to be burdensome and unmanageable for their families.

> *"Food prep is the most difficult part for us."* (keto-4)
>
> *"It's hard to feed one child one thing and another child something completely different."* (keto-14)

Negative Effects

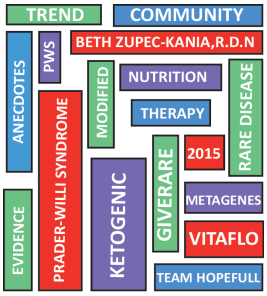
Two of the 10 children who completed 6 months of the diet initially experienced acidosis, which was resolved with treatment using supplements. Three of the ten children had persistent elevated cholesterol even prior to the Diet Initiative; two have a familial history and the PWS genetic subtype (UPD), which increases the risk of having high cholesterol. Diet modifications and supplements were included to assist in lowering cholesterol in these children; lab work from two of the children confirmed that cholesterol levels lowered within six months. None of the ten children experienced constipation, a common adverse-effect of the classic ketogenic diet.

PRELIMINARY FINDINGS

This exploration discovered that a structured, modified ketogenic diet following the recommended dietary allowance for calories and protein intake has positive effects on children with PWS. A clinical trial would be necessary to confirm these findings. In light of the neuro-protective effects that ketogenic diets have on people with epilepsy, we are hopeful that some of the long-term effects of PWS may also be ameliorated or prevented such as obesity, behavior disorders and cognitive issues.

GOALS FOR THE NEXT EXPLORATION

To increase the participation retention rate to 100% participants may start on a more liberal, less structured diet. After at least 6 weeks on this plan, we will offer the option to graduate to the structured, modified ketogenic diet (used during the first Exploration). The structured diet may provide more benefit for some. Given reports of improved body composition during the first Diet Initiative (documented with before and after pictures), PWS Diet Initiative II will also aim to explore the potential for high fat/low carbohydrate diets for weight maintenance and weight loss for individuals with PWS.



KETOGENIC DIET FOR PRADER-WILLI SYNDROME

THE CHARLIE FOUNDATION FOR KETOGENIC THERAPIES

A REVIEW OF THE TREND COMMUNITY PWS DIET INITIATIVE

ABOUT THE TREND COMMUNITY PWS DIET INITIATIVE

*TREND Community is an invitation-only network of consented patients and caregivers living with rare disease who are sharing stories & patient-reported data using leading-edge, clinical-trial quality tools. The collected data may allow health care clinicians, scientists and researchers to generate their own hypotheses that could be used to inform or form the foundation of future research.

TREND does not provide medical advice, nor does it promote specific therapies, diets, or treatments. The results derived from this Diet Initiative should not be generalized to the larger Prader-Willi Syndrome population and are only meant to provide insights and points of reference to the individual participants.

REFERENCES

1. Miller JL, Lynn CH, Shuster J & Driscoll DJ. *A reduced-energy intake, well-balanced diet improves weight control in children with Prader-Willi syndrome*, J Hum Nutr Diet (2012), 26(1): 2-9.

2. Lee PR, Kossoff EH. *Dietary treatments for epilepsy: Management guidelines for the general practitioner*, Epilepsy Behav (2011), doi:10.1016.

We are grateful to the children and their parents who have helped us in this work. We also thank Gary Taubes (Nutrition Science Initiative), John Avellanet (Cerulean Associates), Lara Pullen (Chion Foundation) and Monica Converse Tackitt for valuable discussions.

July 19, 2016

THE CHARLIE FOUNDATION

TREND
TURNING ANECDOTES INTO EVIDENCE

Sugar-free Diet

For TREND Diet Initiatives

A recent TREND Health Initiative explored the effectiveness and benefits of a modified ketogenic diet (MKD) for Prader-Willi Syndrome. During the transition to MKD, Participants observed that even simple but consistent diet changes provided benefit. These diet changes include steps towards a natural, whole foods diet. They do not require medical supervision and may be adopted by anyone who wishes to improve his or her diet. It may take several days or even a few weeks of consistently eating a healthier diet to see benefits.

How Do I Begin?

Dietary habits can be hard to change if too many changes are made at the same time. It is also very common for people to get excited about a 'new diet' but lose that enthusiasm after two weeks. Making one change at a time is best. We recommend that you take the time to talk to a family member or friend about your intentions to improve your diet. This will help you to commit to making positive changes. He or she may even join you in this endeavor.

Step One Eliminate Simple Sugars

The first step is a very important one; eliminate foods with a high concentration of simple sugars. This type of carbohydrate has a high glycemic index which means that they are rapidly absorbed into the body. Once you have eliminated these foods completely for several weeks, you may find that you no longer have the desire to eat them. Your body will be more satisfied with whole, natural foods.

Eliminate High Glycemic Index Foods

SWEETENERS
- Table Sugar
- Honey Syrups

SWEETENED BEVERAGES
- Fruit Juices
- Sports Drinks
- Soft Drinks
- Energy Drinks

SWEETS
- Cake
- Candy
- Cookies
- Crackers
- Pastries
- Pies
- Ice Cream
- Treats

PROCESSED FOODS
- Sweetened Cereals
- Crackers
- French Fries
- Pretzels
- Rice Cakes
- Snack Chips
- White Bread & Rolls White
- Quick Cooking Rice
- Granola and Bars

FRUIT
- Dried Fruit
- Fruit Roll Ups
- Watermelon
- Fruited Yogurt

Step Two Eat a Natural, Whole Foods Diet

This is a major step that can be broken down into smaller steps. Eating a diet that consists of whole, natural foods is a very healthy diet. Whole foods are foods that have little or no processing. Minimally processed foods have at most 3 ingredients. If you see a food label listing more than 3 ingredients, you can be sure that it is processed. Whole, natural foods have the highest concentration of nutrients and the least artificial ingredients.

Choose a Whole, Natural Foods Diet

BEVERAGES
Water
Tea

TREATS
Nuts
Seeds

PROTEIN
Meat
Poultry
Eggs
Fish
Shellfish
Dairy

CARBOHYDRATES
Vegetables
Fruit
Whole Grains
Legumes

LIPIDS (FATS)
Olive Oil
Butter
Nut Oils
Coconut Oil

Nutrients and Brain Health

Whole Food	Nutrients	Function or Benefits
Water	Hydrogen, oxygen and minerals	These elements are essential to the life of all cells, particularly the brain which is 70% water.
Tea	Flavonoids, Polyphenols (especially green tea)	Anticarcinogenic, anti-inflammatory and immune function benefits.
Nuts & Seeds	A power-source of essential fatty acids including Omega-3 plus vitamins and minerals.	Assists in energy metabolism and cell health, especially important in brain function.
Protein Foods	Amino acids plus vitamins, minerals and fatty acids.	Essential to the formation of all cells including neurotransmitters in the brain.
Carbohydrate Foods	Glucose, vitamins and minerals, fiber, antioxidants, polyphenols, flavonoids, phytochemicals.	Carbohydrate-rich foods provide an easy energy source to cells. The nutrients that are found in whole food carbohydrates are essential enzymes in many biological pathways.
Lipids (Fats)	Fatty acids and Vitamins A, D, and E.	Essential for the health of all cells especially for myelin, the layer around our brain. Lipids provide an excellent alternate energy source to the brain when carbohydrate is limited.

WHOLE FOODS DIET

Sugar-free, gluten-free, healthy fat

For TREND Diet Initiatives

THE CHARLIE FOUNDATION FOR KETOGENIC THERAPIES

TREND TURNING ANECDOTES INTO EVIDENCE

PROTEIN

2-4 ounces of one, or a combination of these at each meal: eggs, fish, poultry, beef, lamb, veal, pork, sausage (without added sugar or dextrose), bacon, aged cheese. The size of a deck of cards is about 3 ounces. One egg is 1 ounce; 2 slices of bacon is 1 ounce.

FAT

2-3 tablespoons of one, or a combination of these at each meal: butter, ghee, olive oil, coconut oil, mayonnase made from olive oil, Earth's Balance or Smart Balance Spreads, heavy cream. Use a variety each day. Salad dressing made with vinegar and oil for salads and over raw vegetables: 2 tablespoons oil to 2 teaspoons vinegar plus a pinch of oregano or other herb.

CARBOHYDRATE

Four servings daily: 1/2 cup cooked or 1 cup raw of low carbohydrate vegetables. Cooking methods: steamed in water, or sautéed in butter, olive oil or coconut oil.

Choose one serving at two meals daily (or you can combine half of 2 different servings): 1/4 cup fresh or frozen blueberries or cooked; brown rice, legumes, peas, oat bran, winter squash or quinoa, 1/2 cup fresh or frozen raspberries, blackberries, strawberries, plain Greek yogurt, carrots or turnips.

ADDITIONS

Small amounts of these foods may be included with meals. Avocado (1/4 avocado), black olives (6 olives), nuts or seeds (1 oz.), onions (1 T), garlic (1 t), and home-prepared meat or poultry broth (from bones; count towards beverage intake).

BEVERAGES

Aim to drink 6-8 cups of water daily, substituting up to 1 cup black tea or coffee and 2 cups green or herbal tea (no caffeine for children). Most of your fluid intake should be water. You may also want to try: unsweetened coconut, almond or flaxseed milk. Look for brands that have 1gm or less of net carbohydrate (carbohydrate minus fiber) in 8 ounces (240ml). Eliminate sweetened beverages, diet soda, and decaffeinated coffee.

WHOLE FOODS DIET

Sugar-free, gluten-free, healthy fat

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DIET TIPS

- Eliminate all sugar and foods that are prepared with sugar (read food labels!).
- Drink 6-8 cups of allowed beverages each day.
- No food or beverage with aspartame, saccharine, superose, AceK, sorbitol, mannitol, maltitol, isomalt, dextrose, corn syrup, fructose, coconut sugar or other sugars.
- Eat 3 meals daily. Avoid snacking as it can reduce your appetite for meals.
- Season meals with herbs, spices, salt and pepper as desired. Curry, turmeric, cinnamon, garlic, cumin, ginger and saffron are especially healthy. No monosodium glutamate.
- Nutrition supplements (use quality products) – check with health professional for dosages
  Multivitamin with mineral supplement
  Calcium with Vitamin D
  Vitamin D 2000IU daily if taking anti-seizure medication

Sample Menu

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Eggs and sausage (sugar-free) Cauliflower & onion hash browns Blueberries topped with whipped heavy cream and shaved chilled coconut oil	Greek yogurt topped with fresh whipped heavy cream, raspberries, shaved chilled coconut oil, & cinnamon	Flaxseed, chia and buckwheat porridge** made in almond milk with cinnamon, coconut oil and butter	Crustless quiche prepared with eggs, spinach, onions and heavy cream Almond milk with cinnamon	Greek yogurt with blueberries topped with pan toasted oat bran and chopped almonds topped with chilled shaved coconut oil and cinnamon	Breakfast sausage with buttered brown rice, black beans and sliced avocado	Oat bran & flaxseed porridge** made in almond milk, with butter, macadamia nuts and cinnamon
Baby greens and quinoa salad with celery, feta cheese, sliced radishes and sunflower seeds, drizzled with olive oil & balsamic vinegar dressing	Smoothie made with *protein powder, olive oil, frozen strawberries & baby greens	Spinach and kale salad with chicken dressed with olive oil & vinegar dressing	Tuna salad with peas, celery, radishes, amaranth & avocado rolled up in butterhead lettuce leaves	Smoothie made with *protein powder, olive oil and frozen raspberries & baby greens	Melted cheese over beef patty with coleslaw Greek yogurt with raspberries	Turkey salad with celery and sliced almonds wrapped in butterhead lettuce leaf Greek yogurt with blueberries
Pan fried swai in butter and garlic Buttered broccoli & amaranth	Rosemary baked chicken Buttered asparagus with hollandaise** sauce & quinoa	Roast beef with cheesy cheddar cauliflower	Buttered spaghetti squash with ground turkey marinara drizzled with olive oil and topped with Parmesan cheese	Sautéed onions, celery, broccoli, cauliflower, red peppers and pork loin in olive oil seasoned with curry Buttered brown rice	Pizza; tomato sauce and mozzarella cheese on giant pepperoni slices – broiled Celery sticks with olive oil and vinegar dip	Baked salmon Baby greens salad with sunflower seeds, olive oil and balsamic vinegar dressing

*Look for low-carbohydrate protein powders such as whey protein isolate, or sprouted brown rice.
** Featured recipe on www.charliefoundation.org

WHOLE FOODS DIET

Sugar-free, gluten-free, healthy fat

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HIGH-CARBOHYDRATE FOOD	LOW-CARBOHYDRATE ALTERNATIVE
BREAD	Butterhead lettuce; use leaves for sandwich wraps.
CHIPS	Kale chips: Cut flat leaf kale with scissors into credit card-sized pieces, discarding the hard ribs. Place on a waxed paper lined baking sheet and drizzle with 2T olive oil tossing until coated. Bake 350°F for 10 minutes then turn them over & bake for an additional 5-7 minutes. Don't over-bake.
HASH BROWNS	Cauliflower (raw) chopped into small pieces sautéed in olive oil with onions, until browned, season with salt and pepper.
MASHED POTATOES	• Turnips – peeled, chopped then boiled, then blended with butter & cream. • Cauliflower – steamed then blended with butter & cream.
MILK	Unsweetened; coconut, almond, flax or hemp milk
NOODLES	Cut cabbage into thin strips, boil 5 minutes in water. Smooth skin type, Quintal d'alsace, works best. Drain and serve.
PASTA	Spaghetti squash – halved, seeds removed then roasted cut side facing down for 45 minutes at 350°. Scoop out strands while warm.
WHITE RICE	Cauliflower – shredded then steamed, seasoned with pepper and salt.

Nutrition supplementation with minimal carbohydrate content should be advised by your nutrition professional to complement this diet.

Supplement Brand Name	Morning dose	Mid-day dose	Evening dose	Bedtime dose
Complete Multivitamin and Minerals _____ Brand Name of Multivitamin				
_____ mg Calcium with Vitamin D _____ Brand Name of Vitamins				
_____IU Vitamin D _____ Brand Name of Vitamin D				

WHOLE FOODS DIET

Sugar-free, gluten-free, healthy fat

THE CHARLIE FOUNDATION FOR KETOGENIC THERAPIES

Meal Planner – Design up to 3 different options for each meal

Meals	Protein Ounces	Fat Tablespoon (T)	Carbohydrate	
			Low-carb cup(s)	Higher-carb 1/4 or 1/2 cup
SAMPLE MEAL	2 eggs, scrambled	1 T. olive oil to scramble eggs, & sauté mushrooms & spinach 1 T. melted coconut oil mixed with yogurt	1 C raw spinach 1/2 C sliced raw mushrooms	1/4 C raspberries with 1/4 C plain Greek yogurt
Breakfast				
Lunch				
Dinner				

Medical supervision is advised with this diet.
Designed by Beth Zupec-Kania and Christine Williams-Dyjur

SUPER FOODS

FOR TREND Diet Initiatives

Super Food	Unique Content	Tips
Asparagus	Anti-inflammatory, anti-oxidant and anti-cancerous compounds; high in inulin (prebiotic); chromium enhances glucose metabolism.	Steam for best flavor or chop raw into salad. Frozen asparagus are available year-round. Wild asparagus can be found in the Spring.
Arugula	Prevents cholesterol adherence to arteries, has detoxifying and anti-inflammatory benefits.	Baby greens are less bitter than mature. Serve raw, sautéed or blend into smoothies.
Avocado	Magnesium & fiber (both prevent constipation), more potassium (K+) than banana (K+ is an acid buffer), omega-3 fats, anti-inflammatory; sterols – inhibits cholesterol absorption; glutathione – powerful antioxidant.	Pear shaped, Mediterranean variety Hass is higher in fat than oval type. An avocado is ripe when its skin is a brown dark-green color and there is a little "give" when you gently press your thumb into it. Place unripe avocados on the counter to ripen for a couple of days, separating them to allow them space to release CO_2.
Blackberries	Highest antioxidant and fiber content of all fruit.	By fresh when they are on sale and freeze in small bags.
BRASSICA VEGETABLES: Broccoli Brussels Sprouts Cabbage, Cauliflower, Kale	Sulforaphane blocks a destructive enzyme that damages cartilage; toxic to cancer stem cells. Indols repair DNA in cells. Eat at least one serving daily.	Eat raw or steam, microwave or stir-fry to preserve sulforaphane. Sauerkraut contains probiotics and is especially healthful. Shred cauliflower then steam, in place of rice. Slice cabbage into thin strips then steam in place of egg noodles.
Celery	Flavonoids; anti-inflammatory, anti-oxidant, immune system enhancing and cholesterol lowering.	Eat raw, on salads, stir-fry, soup, or blend into smoothies.
Celeriac (celery root)	Antioxidants and phosphorus (acid buffer)	Use raw in salads or coleslaw or cooked; soup or faux mashed potatoes.
Garlic	Potent antiviral, antibacterial and cholesterol lowering.	Dehydrated minced garlic is economical and easy to rehydrate.
Green tea	Phytochemical epigallocatechingallate improves blood flow and lowers cholesterol.	Contains 45mg of caffeine per cup and negligible carbohydrate. Steep green tea no more than 2 minutes to prevent bitterness.
Olive oil and olives	Phytchemicals are anti-cancerous; Oleuropein is a potent free radical scavenger protecting heart tissue.	Buy extra virgin olive oil. Pure olive oil test: place bottle in refrigerator for 3 days – if oil firms and turns yellow (like butter), its pure olive oil.
Radishes	Anthocyanins have anti-inflammatory and anti-cancerous properties.	Slice thin for salads. Chop and sauté with onions and cauliflower for faux hash browns. Black radishes are more peppery in flavor.
Spinach	Flavanoids and antioxidants, vitamins A, B2, C & K, magnesium, manganese, folate, iron, calcium & potassium.	Eating raw is the best method to preserve nutritional value. Steaming or quick sautéing are second best.
SPROUTS: Aalfalfa, broccoli, cabbage, clover, fenugreek, lentils, pea, mung radish, garlic, etc.	Rich source of enzymes that combine with vitamins & minerals in essential metabolic pathways. Lysine (branched-chain amino acid) is helpful for ketosis. High in fiber and essential fats.	Grow sprouts inexpensively at home in 5 days. Several commercial tray designs are available for sprouting seeds. Serve sprouts as main entrée, as a salad or mix into smoothie or a stir-fry.
Sunflower seeds	High in poly-phenols & Vitamin E (antioxidants), B-complex vitamins especially folic acid & niacin (enhances brain calming GABA). High in choline, a precursor for neurotransmitters.	Raw and sprouted sunflower seeds are higher in nutrients than roasted. Sunflower seeds are high in lecithin which helps to emulsify (disperse) fat and aids in digestion. Sunflower lecithin can be purchased in powder and liquid form.

Beth Zupec-Kania, RDN