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**Nutrition for People with Autism:
The Gluten-Free Casein-Free Diet**

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Dear Parents,

I have designed this guide to be used as a supplementary tool for helping you to design your child's diet. I am not a dietician or nutritionist, so before beginning any new dietary regimen for your child, it is suggested that you consult with your child's doctor, or registered dietician. After attending culinary school, I was able to use my education to help add nutrition to a strict dietary regimen I must follow. I have included information and facts that pertain to leading a Gluten-Free, Casein-Free lifestyle, as well as recipes, and useful sources to further educate a person interested in this diet.

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Introduction

As of 2012, the prevalence of autism spectrum disorders (ASDs) is 1 in 88 children, and 1 in 54 boys. (Centers for Disease Control and Prevention, 2012) Autism Spectrum Disorders affect the entire life of the patient, including their behavior, communication, and social skills. Understanding the disorder, getting a proper diagnosis, and finding effective treatments can cause a great deal of stress among families affected by the disorder.

There are many possible treatments for Autism, but finding the treatment that works for the individual can be difficult. Some common types of treatments include behavior and communication approaches, dietary changes, medication, complementary and alternative medicine, and treatment for associated, biological, and medical conditions associated with autism.

Many parents of autistic children are concerned about a lack of nutrition in their child's diet. "Up to 70 percent of parents with children on the autism spectrum report problems with excessively narrow eating habits. Often, these tendencies continue into adolescence and adulthood" (Kuschner, 2012).

Some children with autism will only eat certain foods due to sensory issues. A food's texture, color, smell, shape, and familiarity can determine whether a child will prefer a food. How the food feels in the child's mouth is one sensory issue that determines whether they will eat the food or not. (National Institute of Health, 2012) The color and shape of the food may cause a child to be hypersensitive or hyposensitive during a meal. A child "may be hypersensitive to the texture, smell, and temperature of foods and become easily overwhelmed during mealtime, triggering a tantrum and food refusal" (Strickland, 2009). They may also overreact to noises such

as family members talking at the dinner table. On the other hand, the child may be hyposensitive. “Hyposensitive children often stuff their mouths full of food, pocket food in the sides of their mouths, and swallow the food later or spit it out” (Strickland, 2009). Autistic children tend to have poor appetites, prefer to drink rather than eat, refuse new foods, accept a very limited variety of foods, crave carbohydrates, and have a need for sameness and rituals around eating. (Strickland, 2009)

If a child is more than a picky eater, it might also be due to an underlying health issue. Many people with autism also have gastrointestinal disorders, such as chronic duodenitis, gastritis, reflux esophagitis, intestinal lymphoid dysplasia, dysbiosis, excessive intestinal permeability, and yeast overgrowth. Food sensitivity, especially to gluten and casein, is a prominent finding, as well as autoimmunity, metabolic disorders, heavy metal toxicity, and nutritional deficiencies or excesses. (Santhanam & Kendler, 2012) The most common food allergies among children are cow’s milk, wheat, egg, soy, peanuts, and tree nuts. If a child has a food allergy or sensitivity, it is important to inform their teacher, other caregivers, and therapists. Problematic foods can have a huge impact on a person’s overall health, gut function, brain function, feeding, and behavior, so it’s important to identify and eliminate them from the diet. If a person’s GI symptoms are being caused by one or more problematic foods, a significant improvement in symptoms will be noticed once the foods are eliminated. (Strickland, 2009) The pain and discomfort caused by GI symptoms can exacerbate behavior and even trigger regression in persons with ASDs. This may be especially true of nonverbal people who have difficulty expressing their distress. (Autism Speaks Inc., 2012) The U.S. Centers for Disease Control and Prevention (CDC) reports that children with autism “have higher than expected rates of an even broader range of medical conditions” (Schieve LA, 2012). These children are 1.8 times more

likely to have food allergies than children without developmental disabilities. They are also 3.5 times more likely to have chronic diarrhea or colitis. (Schieve LA, 2012) Some signs that a child has a gastrointestinal include arching of the back, food refusal, accepting limited variety of foods, mealtime tantrums, irritability, pressing on the belly, unusual body postures or behaviors such as straining the neck, pushing out the jaw or tapping the throat, hoarseness, chronic sore throat, cough or heartburn, dental erosions, disturbed sleep, and self-abuse. (Autism Speaks Inc., 2012)

Currently there is no cure for ASDs, or even one specific treatment regimen. One common treatment choice is to cut out gluten and casein products. Gluten is the protein found mainly in wheat, barley, and rye. Casein is the protein from milk and milk products. The relation between gluten, casein, and autism was first described by K. Reichelt, M.D., in the 1980s. Reichelt conducted a study where he analyzed the urine of autistic children and found unusually high levels of the peptides gliadomorphine and casomorphine. Since then, it has been discovered that autistic children have higher levels of these peptides not only in their urine, but also in their blood and cerebrospinal fluid. Peptides, which are short chains of amino acids, are created when the digestion of proteins is not finished. The peptide gliadomorphine results from the incomplete digestion of gluten, and casomorphine is the peptide which results from incomplete digestion of casein. “Gliadomorphine and casomorphine are referred to as opiate peptides because their chemical structure is similar to opiates. It’s been proposed that these opiate peptides may also act similarly to opiates, depressing the central nervous system, which could precipitate or aggravate autistic symptoms” (Strickland, 2009). Consequently, the “opiate excess theory” was created. (Strickland, 2009)

Many studies have been conducted on the effectiveness of using a Gluten-Free and/or Casein-Free diet with autistic children. All have reported inconclusive results, although many parents have stated their children's autistic symptoms lessened while on the diet. Researchers Elder, et.al., state after conducting a double blind clinical trial on the effectiveness of a gluten-free casein-free (GFCF) diet, there were no statistically significant findings. Though the parents of the children in this study did report symptom improvement. (Elder, Shankar, Shuster, Theriaque, Burns, & Sherrill, 2006) Parents who have utilized the GFCF diet for their children, report such symptom improvement as increased eye contact, increased focus, calmness, happiness, decreased or ceased tantrums, better attention at school, increased awareness of others and surroundings, weight gain (in underweight children), decrease in abdomen distension, increased social skills, more spontaneous speech, and more. (Smart Tummies, 2010)

The Gluten-Free Casein-Free Diet (GFCF)

Starting an autistic person on a GFCF diet can be challenging. However, there are steps a parent can take to make the transition easier. Determining whether the diet improves symptoms can rely on whether or not the autistic person is also starting other new treatment options. Before starting a new diet, it is important to consult with the person's physician, or a registered dietician. They can help verify whether the person has any food allergies, sensitivities, intolerances, underlying medical conditions, or nutritional deficiencies. Cutting out problematic foods should be done gradually. At this point, foods that the person is allergic to should be cut out. Also, synthetic food additives should be cut out. The autism community is mainly concerned about four of the synthetic food additives: artificial colors, artificial flavors, preservatives, and artificial sweeteners.

Artificial Colors

“November 2007 issue of The Lancet concluded that artificial colors in the diets of children resulted in increased hyperactivity. Research also indicates that ingesting artificial colors may result in behavioral changes such as irritability, restlessness, and sleep disturbance. Other research indicates that when ingested, some artificial colors may aggravate the symptoms of hives, eczema, dermatitis, rhinitis, and asthma” (Strickland, 2009). Most artificial colors are made from compounds called coal tar. “Coal tar is the by-product of coal when it's carbonized to make coke (a fuel) or gasified to make coal gas” (Strickland, 2009). According to the International Agency for Research on Cancer, any product with a certain percentage of crude coal tar is considered a Group 1 carcinogen (cancer causing). (Strickland, 2009) Artificial colors include, “Artificial Color FD & C, U.S. Certified Food Color, FD & C, Blue No. 1 (brilliant

blue), Blue No. 2 (indigotine), Green No. 3 (fast green), Red No. 40 (allura red), Red No. 3 (erythrosine), Yellow No. 5 (tartrazine), Yellow No. 6 (sunset yellow)” (Strickland, 2009).

Artificial Flavors

There are approximately seventeen hundred artificial flavors approved by the FDA. An artificial flavor of particular concern in the autism community is monosodium glutamate (MSG). It’s used commercially as a flavor enhancer and found in many common food products such as canned soups, beef and chicken stocks, flavored potato chips, snack foods, frozen dinners, instant meals with seasoning mixtures, and foods from fast food restaurants. MSG is also hidden in products under the names “spices” and “natural flavorings”. MSG is classified as an excitotoxin, and animal studies suggest that consuming a high level of it causes brain damage. There are people who are sensitive to MSG and show adverse reactions such as headache, facial pressure, chest pain, nausea, difficulty breathing, drowsiness, weakness, and aggravation of asthma symptoms. Some nonverbal children communicate their adverse symptoms through behaviors such as tantrums and self-abuse. (Strickland, 2009) Artificial flavors include, “Monosodium glutamate, MSG, disodium inosinate, and disodium guanylate” (Strickland, 2009).

Artificial Preservatives

Natural preservatives include salt, sugar, and vinegar, and the processes of freezing, pickling, smoking, and salting. Artificial preservatives are controversial because research has suggested that some of them cause various health problems, respiratory problems, and cancer. Research also implies that artificial preservatives aggravate ADD and ADHD symptoms in some children. A research study conducted in New York City Public Schools stated that when artificial additives, including preservatives, were eliminated from the school food program, the students’ academic performance increased and disciplinary problems decreased. (Strickland, 2009) The

autism community is mostly concerned with the artificial preservatives butylated hydroxytoluene (BHT) and butylated hydroxyanisole (BHA). These are found in pharmaceuticals, cosmetics, jet fuels, rubber, petroleum products, and embalming fluid. Research indicates that BHT, which can be found in cereal, chewing gum, and high-fat foods such as potato chips and shortening, promotes certain forms of cancer and tumors. National Institutes of Health (NIH) concluded that it's reasonable to assume that BHA is a human carcinogen. (Strickland, 2009) Artificial preservatives include, "Butylated hydroxyanisole (BHA), and Butylated hydroxytoluene (BHT)" (Strickland, 2009).

Artificial Sweeteners

The three most commonly used artificial sweeteners in the United States are saccharin (Sweet'N Low), sucralose (Splenda), and aspartame (NutraSweet and Equal). "Saccharin, the first artificial sweetener created, is three hundred to five hundred times sweeter than table sugar. Sucralose is a chlorinated sugar that is six hundred times sweeter than table sugar. It belongs to a class of chemicals called organochlorides, some of which are highly toxic or carcinogenic" (Strickland, 2009). The artificial sweetener aspartame is two hundred times sweeter than granulated sugar. Animal research implies that aspartame may cause brain cancer in rats; however other research suggests that it doesn't cause cancer in humans. Nevertheless, headaches and seizures have been reported in relation to aspartame. (Strickland, 2009) Artificial sweeteners include, "Saccharin (Sweet'N Low), sucralose (Splenda), and aspartame (NutraSweet and Equal)" (Strickland, 2009).

Trans Fats

Trans fat is the result of adding hydrogen to liquid vegetable oil. Trans fat is in vegetable shortenings, some margarines, crackers, cookies, chips, cakes, pies, bread, snack foods, and foods fried in partially hydrogenated oils. It's also used in some dietary supplements, energy bars, and nutrition bars. There's also growing concern that trans fats may increase our risk for cancer, type 2 diabetes, obesity, and infertility. But the autism community is especially interested in the negative impact trans-fat has on the liver. Trans fats disrupt the body's ability to transfer essential fatty acids (mostly omega-3 and omega-6) to 'active' acids used by the brain for brain development, brain function, brain cell signaling, and vision processing. (Strickland, 2009) Trans fats include, "trans-fats and partially hydrogenated oils".

Nutritional Concerns

If a diet does not have enough basic nutrients, a person's brain, immune, gastrointestinal, and detoxification systems will not function properly. A diet rich in protein, carbohydrates, fat, vitamins, minerals, and water are important for children. (Strickland, 2009) Preliminary research findings suggest that many children with autism are at nutritional risk because of their self-enforced dietary restrictions, and that imposition of the diet may result in greater risk. (The National Institute of Health, 2009) Research indicates that children with autism tend to have thinner bones than children without autism. (National Institute of Health, 2012) Taking out bone-building foods, such as milk, can make it even harder for their bones to grow strong. Severe vitamin and mineral deficiencies, such as scurvy (a vitamin C deficiency that can result in spongy, bleeding gums, loss of teeth, nosebleeds, and, if left untreated, death), are rare in the United States. However, borderline vitamin and mineral deficiencies are very common. Borderline vitamin and mineral deficiency symptoms include poor attention and concentration, irritability, loss of appetite, mood and behavior changes, depression, anxiety, sleep disturbances, susceptibility to illnesses, and increased risk for developing degenerative diseases and cancer. (Strickland, 2009)

Protein

The body uses protein to manufacture hormones, antibodies, enzymes, tissue, and neurotransmitters and to repair body cells and produce new ones. Protein can also be turned into glucose for energy required by the brain when carbohydrates are not available. Protein is converted into amino acids which are used for energy, fighting off illness, building muscle, generate cell signaling, and act as neurotransmitters. The amino acids from protein are also involved in learning, memory, and specification of the nerves in the brain during development.

Some signs of a protein deficiency include stunted growth, poor muscle mass, edema, thin or fragile hair, and a decrease in mental alertness, comprehension, and concentration. (Strickland, 2009) Good sources of complete protein (they contain all of the essential amino acids) include beef, poultry, fish, pork, eggs, yogurt, cheese, soymilk, milk, and tofu. Good sources of incomplete protein (lack one or more essential amino acids) include beans, peas, nuts, seeds, and grains. When a protein deficiency is found, gradually adding protein rich foods to the person's diet can help. If suggested by a physician or dietician, there are protein supplements made from rice, pea, soy, and whey proteins, which can help add protein to a person's diet. If a child with autism only eats a small variety of foods, adding meat baby food to the foods the child will tolerate can increase the protein intake. (Strickland, 2009)

Carbohydrates

Carbohydrates are the body's main source of energy. Carbohydrates are converted into glucose, which helps the brain function properly. Simple carbohydrates include monosaccharides and disaccharides. "Monosaccharides, such as glucose, fructose, and galactose are composed of a single sugar unit, whereas disaccharides, such as sucrose, lactose, and maltose are composed of two sugar units" (Strickland, 2009). Simple carbohydrates include granulated sugar, honey, corn syrup, high-fructose corn syrup, molasses, candy, soda, and sweets. Simple carbohydrates are quickly converted into glucose and enter the bloodstream, sometimes causing hyperglycemia (high blood sugar). Complex carbohydrates include foods like rice, potatoes, peas, beans, corn, and whole grain products like flour, bread, and pasta. Complex carbohydrates are converted into glucose slowly and enter the bloodstream, keeping blood glucose levels stable. (Strickland, 2009)

Fat

Fat is needed for the body to function properly. It helps regulate blood pressure, heart rate, blood vessel constriction, constriction, blood clotting, and the nervous system. In addition, dietary fat carries fat-soluble vitamins (vitamins A, D, E, and K) from food for use in the body. Fat is essential for healthy hair and skin, protects vital organs, keeps bodies insulated, and provides a sense of fullness after meals. It's also critical for brain function (about two-thirds of the human brain is composed of fats), and composes the myelin sheath (protective layer around nerves). (Strickland, 2009) Healthy fats include monounsaturated fat (found in the oils from olives, peanuts, soybeans, and canola oils as well as avocados, olives, and most nuts), polyunsaturated fat (fish and vegetable oils including safflower, corn, sunflower, soy, and peanut), and omega-3 fatty acids (found in fatty, cold-water fish such as salmon, mackerel, herring, tuna, trout, sardines, flaxseeds, flaxseed oil, and walnuts). These fats lower bad cholesterol (LDL) and raise good cholesterol (HDL). Research published in the April 2007 Journal of the Developmental and Behavioral Pediatrics supports the theory that supplementing children's diets with omega-3 fatty acids improves poor learning and behavioral problems. Another research article published in 2007 in Biological Psychiatry stated that supplementing with omega-3 fatty acids decreased hyperactivity in children with autism spectrum disorders. Many other research studies show that supplementing with omega-3 fatty acids reduces aggression, improves reading and spelling ability, and significantly improves hyperactivity, inattention, impulsive characteristics, and anxiety as well as cognitive problems. (Strickland, 2009) Unhealthy fats include saturated fats (found in meat, butter, cheese, ice cream, whole milk, lard, palm oil, and coconut oil), and trans fat (found in commercial baked goods such as

crackers, cookies, cakes and chips, vegetable shortenings, some margarines, and foods fried in partially hydrogenated oils). (Strickland, 2009)

Adding Supplements to Your Child's Foods

After being evaluated by a physician or dietician, a nutritional supplement might be needed to improve a child's health. If a supplement is recommended, some children with autism may have a hard time taking pills or capsules. Powders and liquids can be added to many foods and drinks the child already enjoys to help them receive the nutrition they need. Powders and liquids can be added to juice, milk, smoothies, yogurt, peanut butter, jams, honey, ketchup, cooked foods, pudding, juice, popsicles, gravies, sauces, and more.

How to Start A GFCE Diet

Using positive reinforcement during mealtime can improve mealtime. Praising good behaviors will help keep mealtime calm and enjoyable. Making sure not to make the child the focus, other siblings and parents can model good behavior by not making faces at food, or making negative comments. Limit juice to no more than one cup per day. Don't let the child graze during the day, but offer three meals and two to three snacks on a set schedule. Turning off electronics during mealtime can reduce distractions which lead to overstimulation. Offer manageable foods, in small portions. There should be no more than three different foods on a child's plate at any one time to avoid visual over-stimulation. (Strickland, 2009) Having a child help with meal planning and cooking can increase the likelihood the child will not only try the new foods, but will enjoy them as well. For instance, letting a child choose which vegetable to serve with dinner, or offering two options that a child chooses between to help prepare. Making food into fun shapes, like a pizza with a smiley face, can help make mealtime enjoyable. Avoiding questions as a request can make mealtime easier. For instance, instead of asking if a child wants to try something, saying something like, "Susie eats peas with her spoon" can support a positive environment, and decrease power struggles. (Strickland, 2009) To avoid burnout, offer a particular food no more than every other day. And if a child has a very limited food inventory, and you have no choice but to offer a particular food daily, change one thing about the color, shape, texture, or taste of the food. The change should be very slight—your child should notice a difference but not enough to cause him to reject the food. (Strickland, 2009) Keeping a food diary can help determine whether or not symptoms are improving, and which foods may be problematic.

Foods that Contain Gluten

- barley
- oatmeal
- bran
- Pasta
- udon
- couscous
- rye
- wheat
- Cream of Wheat
- wheat germ
- farina
- semolina
- wheat flour
- wheat starch
- malt
- sprouted wheat
- soy and teriyaki sauces
(unless labeled wheat free)
- matzo/matzoh meal
- sprouted barley
- oats (oats do not have gluten,
but are often cross-
contaminated with gluten
products)
- tabbouleh
- Cosmetics
- Medications
- Vitamin and Mineral
Supplements
- Play-Doh
- Gravy
- Spices and Seasonings

Foods That Are Safe to Eat

- Corn & Corn Meal
- Corn Starch
- Fruits
- Vegetables
- Meat
- Fish
- Baking Soda
- Herbs
- Beans
- Eggs
- Nuts
- Popcorn
- Potatoes
- Quinoa
- Rice & Rice Products
- Seeds (Sunflower, Sesame, etc.)
- Flour (Nut, Rice, Potato, Soy)
- Gelatin
- Grits

Foods That Contain Casein

- milk (nonfat, low-fat, skim, whole, buttermilk, dry, powdered, condensed, evaporated, malted)
- ice cream
- lactoglobulin
- butter (butterfat, butter oil, butter solids, artificial butter flavor)
- lactalbumin
- lactalbumin phosphate
- caseinates (all forms)
- lactoferrin cheese (all forms)
- chocolate
- cheese flavor
- nougat
- cream
- pudding
- cottage cheese
- rennet
- curds
- sherbet
- custard
- sour cream
- ghee
- whey
- goat's milk
- yogurt
- half & half
- salad dressing
- sauces
- soups
- margarine
- processed meats
- whipped cream

Adding Nutrition to Foods They Already Enjoy

Changing foods for a child with autism can be a struggle. To add nutrition to foods they already enjoy, try things like pureeing or mincing vegetables and adding them to pasta sauces, pizza sauce, soup, or ground meat for burgers or meatloaf. Adding vegetables and fruits to smoothies is a great way to get more healthy food into children. Instead of just using it as a smoothie, make it into a popsicle with the child's help. Make jams, preserves, or fruit purees to top gluten-free baked goods. Many food companies are making gluten-free products that are available at specialty grocery stores like Trader Joe's and Whole Foods Supermarkets. Most grocery stores also have a gluten-free section where they carry specialty products, and gluten-free flours.

GFCF Information Guides

With an increased awareness of gluten-free diets, gluten-free products are available by mail through websites and magazines. There are many books published on the subject. Many of these websites, magazines, and books not only include information on living on a gluten-free, casein-free diet, they include many recipes as well. Some helpful websites include autismspeaks.org, smarttummies.com, foodtv.com, glutenfreemommy.com, nih.gov, gfcfdiet.com, as well as many others. One useful magazine is called *Living Without*, and is available in grocery stores and many book stores. Included in this guide are also sources for purchasing GFCF products.

Recipes

EASY DINNER ROLLS

Makes 12

These rolls are baked in a muffin tin for quick and easy preparation.

$\frac{2}{3}$ cup brown rice flour, 80 grams

$\frac{1}{3}$ cup sorghum flour, 45 grams

$\frac{1}{3}$ cup canola oil

2 tablespoons honey

1 teaspoon apple cider vinegar

2 eggs

1 tablespoon baking powder

$\frac{1}{2}$ teaspoon baking soda

$\frac{3}{4}$ teaspoon xanthan gum

$\frac{1}{2}$ teaspoon cinnamon

$\frac{1}{2}$ teaspoon salt

$\frac{1}{2}$ cup apple juice

Preheat oven to 350 °F. Lightly grease a muffin tin.

In a mixing bowl, combine flours and oil. Mix well to combine. Add the remaining ingredients and mix well. Batter will thicken as it is beaten. Divide batter among twelve cups in the tin. Bake for approximately 15 to 18 minutes, until a toothpick inserted in the middle tests clean.

(Strickland, 2009)

PIZZA CRUST

Makes one large or four individual crusts

When spread to 10 inches, it yields a hand-tossed crust. Spread thicker or thinner according to your own taste.

3 egg whites
1 tablespoon olive oil
½ cup apple juice
¼ cup brown rice flour, 35 grams
¼ cup sorghum flour, 35 grams
2 teaspoons baking powder
¼ teaspoon baking soda
¼ teaspoon salt
1 ¾ teaspoons xanthan gum

Preheat oven to 350 °F. Lightly grease a baking sheet. Place the egg whites in a medium-size bowl. Beat until very frothy. Add the remaining ingredients. Mix well. The dough will look like very soft cookie dough. Drop dough onto prepared pan. Using wet fingertips, spread the dough to ¼-inch thickness—a 10-inch circle is a good size. Bake for 10 to 15 minutes, until the bottom of the dough is lightly browned and the edges of the crust begin to color lightly. (Bake longer for a crisper crust)

(Strickland, 2009)

HOMEMADE GRANOLA

2 cups certified gluten-free oats	1/2 cup sliced almonds
1/4 cup flax seeds	1/2 cup organic natural crunchy peanut butter
1/4 cup sunflower seeds	1/2 cup honey
1/4 cup shredded coconut	1/2 teaspoon vanilla
1/4 cup raisins	5 tablespoons of butter (or use coconut oil for better shelf life)
1/4 cup dates	
1/4 cup mini chocolate chips	

DIRECTIONS: Combine all the dry ingredients into a large bowl. In a small saucepan, combine the peanut butter, honey, butter (coconut oil), and vanilla. Once the peanut butter mixture is combined, mix it with the dry ingredients until the oat mixture is moistened. Press the granola in a shallow pan lined with parchment paper. Bake for 30 minutes at 300 degrees.

*The granola will get crispier and crunchier as it cools. Cool for at least 20 minutes and store in a sealed container. (Gluten Free Mommy, 2012)

WAFFLES

Makes six 8-inch waffles

These waffles are medium-textured with an almost-nutty undertone. Just one waffle is quite satisfying. Reheat extras in the toaster.

- $\frac{3}{4}$ cup brown rice flour, 95 grams
- $\frac{3}{4}$ cup sorghum flour, 100 grams
- 1 tablespoon flax seed meal
- 1 tablespoon plus 1 teaspoon baking powder
- $\frac{1}{2}$ teaspoon xanthan gum
- $\frac{1}{2}$ teaspoon salt
- 3 eggs
- $\frac{1}{3}$ cup canola oil
- 2 tablespoons honey
- 1 teaspoon vanilla extract
- $\frac{3}{4}$ cup apple juice

Place all dry ingredients in a medium-size bowl. Stir well to combine. Add the remaining ingredients and mix well. The batter will be very thick. Pour a large $\frac{1}{2}$ cup of batter onto a waffle iron. Cook to desired level of browning, approximately $1\frac{1}{2}$ to 2 minutes.

(Strickland, 2009)

CHOCOLATE CAKE

Serves 8

Be sure to bake in a 9-inch pan with sides that are at least 2 inches tall. The cake rises near the top of the pan, and then settles a little after baking.

1/3 cup brown rice flour, 40 grams
1/3 cup sorghum flour, 45 grams
1/2 cup unsweetened cocoa powder, 40 grams
1 teaspoon salt
1/2 teaspoon baking soda
1 teaspoon baking powder
scant 1/2 teaspoon xanthan gum
1/2 cup canola oil
3/4 cup plus 2 tablespoons honey
2 eggs
1 teaspoon vanilla extract
1/4 cup water

Preheat the oven to 350 °F. Lightly grease a 9-inch round or square pan. In a medium-size bowl, combine all dry ingredients. Stir briefly. Add remaining ingredients and stir well. Batter will be the consistency of molasses. Spread in the prepared pan. Bake for 35 minutes, until a toothpick inserted in the middle tests clean and the top begins to appear dry.

(Strickland, 2009)

BROWNIES

Serves 8.

¼ cup brown rice flour, 30 grams
1 tablespoon flax seed meal
⅓ cup unsweetened cocoa powder, 30 grams
½ teaspoon salt
¼ teaspoon xanthan gum
¼ cup canola oil
½ cup honey
2 eggs
1 teaspoon vanilla extract
2 tablespoons water

Preheat the oven to 350 °F. Lightly grease a 9-inch round or square pan. In a medium-size bowl, combine all dry ingredients. Stir briefly. Add the remaining ingredients and stir well. Batter will be the consistency of molasses. Spread in the prepared pan. Bake for 20 to 25 minutes, until a toothpick inserted in the middle tests cleanly and the top begins to appear dry.

(Strickland, 2009)

CHOCOLATE CHIP COOKIES

The shape of the cookie changes very little during baking, making it very important not to overbeat the batter—which makes the dough stiffer. Molasses is used to add that “brown sugar” flavor in traditional chocolate chip cookies.

⅓ cup canola oil
½ cup honey
1 tablespoon unsulphured molasses
1 egg
¾ cup brown rice flour, 95 grams
¾ cup sorghum flour, 100 grams
½ teaspoon baking soda
2 teaspoons baking powder
½ teaspoon salt
1½ teaspoons vanilla extract
¼ cup apple juice
2¼ teaspoons xanthan gum
1 cup semi-sweet chocolate chips

Preheat the oven to 375 °F. Lightly grease a cookie sheet. In a medium-size mixing bowl, combine oil, honey, molasses, and egg. Mix well until well blended. Add the remaining ingredients, except the chocolate chips. Beat until the batter blends together. Fold in the chips. Try not to overbeat, otherwise the shape of the cookies will not be pretty. Drop dough by rounded teaspoonfuls onto a prepared pan. The shape of the cookie may be fine-tuned using moistened fingertips. Cookies should be no more than ¼-inch thick. Bake for approximately 10 minutes, until lightly browned on top. Transfer from the cookie sheet to a rack and let cool completely.

(Strickland, 2009)

Sources for Gluten-Free or Casein-Free Products

1. Allergy Grocer 91 Western Maryland Parkway, Unit 7 Hagerstown, MD 21740 Phone: (800) 891-0083 Email: info@allergygrocer.com Web site: www.allergygrocer.com
2. Bob's Red Mill Natural Foods 5000 SE International Way Milwaukie, OR 97222 Phone: (800) 349-2173 Web site: www.bobredmil.com
3. Dietary Specialties 10 Leslie Court Whippany, NJ 07981 Phone: (888) 640-2800 Email: info@dietspec.com Web site: www.dietspec.com
4. Ener-G Foods 5960 First Avenue South P.O. Box 84487 Seattle, WA 98124 Phone: (800) 331-5222 Web site: www.ener-g.com
5. Enjoy Life Foods 3810 River Road Schiller Park, IL 60176 Phone: (847) 260-0300 Web site: www.enjoylifefoods.com
6. Laurel's Sweet Treats 8174 SW Durham Road Tigard, OR 97224 Phone: (866) 225-3432 Email: sales@glutenfreemixes.com Web site: www.glutenfreemixes.com
7. Pamela's Products 200 Clara Avenue Ukiah, CA 95842 Phone: (707) 462-6605 Email: info@pamelasproducts.com Web site: www.pamelasproducts.com
8. Vance's Foods P.O. Box 627 Gilmer, TX 75644 Phone: (800) 497-4834 Email: info@vancesfoods.com Web site: www.vancesfoods.com

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