Carol Rees Parrish, R.D., M.S., Series Editor

Kids and the Gluten-Free Diet

Mary K. Sharrett

Pam Cureton

The gluten-free diet presents unique challenges for children with celiac disease and their families. Prior to diagnosis, children may be quite ill, suffering from poor growth and developmental delay. Upon accurate diagnosis and treatment, children usually improve quickly; however despite rapid improvement of symptoms, compliance with diet may be less than optimal, putting the child once again at risk for the complications of untreated celiac disease. Because children may feel uncomfortable being singled out as "different," a diet that calls attention to their condition, and thus their differences, presents a unique challenge to parents and caregivers trying to meet the treatment guidelines. Frequent follow-up and monitoring, along with educational resources and support groups can aid families in maintaining a gluten-free diet and provide creative ways to deal with the challenges inherent in a gluten-free lifestyle.

INTRODUCTION

Enjoying pizza, birthday cake and breakfast cereals are all common food experiences for American families. Having a child with celiac disease (CD) presents challenges in providing these experiences as the gluten-free diet (GFD) excludes the traditional version of these "All American" favorite foods. Finding look-a-like substitutes for these foods in order to minimize the attention drawn to the child's food requirements can be an arduous task for parents and caregivers. It can be difficult to manage the child's diet when other family members, friends, teachers, and caregivers are not clear about the strict guidelines of a GFD.

Recent studies indicate that the prevalence of CD in children across the world may be as high as 1 in 80 (1). The number of families dealing with the GFD is on the rise, since CD is ranked as the most common chronic disease among children. The age at diagnosis also appears to be increasing (>3 years of age) (2). While the reason is not known, it has been attributed to changes in feeding practices and to new recommendations for screening the associated high-risk groups (2).

(continued on page 52)

Mary K Sharrett, MS, RD, LD, CNSD, Nutrition Support Dietitian, Children's Hospital, Columbus, OH. Pam Cureton, RD, LDN, Center for Celiac Research, Growth and Nutrition Clinic, Baltimore, MD.

(continued from page 49)

Table 1
Symptoms of CD in Children

Gastrointestinal symptoms: "Classic"
- Weight loss
- Gas/bloating
- Diarrhea with failure to thrive
- Constipation
- Abdominal pain/distention
- Vomiting

Non-GI symptoms: "Atypical"
- Delayed growth
- Irritability
- Failure to thrive
- Behavioral changes, learning difficulties
- Dental enamel defects
- Low bone mineral density/osteopenia/osteoporosis
- Short stature
- Delayed onset menarche
- Iron deficient anemia
- Delayed motor development

DIAGNOSIS

Children diagnosed before the age of 24 months are more likely to exhibit "classic" symptoms of CD such as weight loss, diarrhea and failure to thrive (Table 1). Symptoms typically appear shortly after the introduction of gluten to their diet. Some infants develop severe hypoproteinemia and edema, and although uncommon may present in a shock-like state, referred to as "celiac crisis" (3–5).

Older children are more likely to present with atypical or extra-intestinal symptoms of CD. These can include: anemia, short stature, delayed motor development, and learning or concentration difficulties. Research indicates that 2%–8% of children with short stature may have CD (3–5). Children may develop dental enamel defects, seizures, epilepsy, ataxia, and neuropathy or other neurological symptoms if CD is left untreated (5,6).

CD can be found in combination with certain pediatric disorders and syndromes including Type 1 diabetes, Down syndrome, Turner Syndrome, Williams Syndrome and selective IgA deficiency (Table 2). Patients with Type 1 Diabetes have up to an 8% incidence of CD (1). The incidence of CD in Down syndrome is reported to be 5%–12%. Relatives of people with CD are also at a higher risk for developing CD (2). Many children have no intestinal symptoms or "silent CD"; screening this at risk population is recommended to catch the disease early and prevent complications before they affect quality of life (1,8).

PROTECTIVE FACTOR

Infants who have an increased risk for developing CD (Table 2) may have onset of the disease delayed by breastfeeding. Studies have suggested that breastfeeding infants may result in a later onset of CD, with some evidence supporting that it is the gradual introduction of gluten while breastfeeding that acts to delay the onset of the disease. There is currently no evidence, however, demonstrating that breastfeeding prevents the development of CD (9). The timing of the introduction of gluten into the diet may also influence the development of CD. One study suggests that introducing gluten to infants between four and six months provided a lower risk of CD autoimmunity than did the introduction of gluten before the age of three months or after seven months (10). These results have yet to be replicated, and more information is needed to identify the optimal time to introduce gluten.

TREATMENT: THE GLUTEN-FREE DIET (GFD)

Symptoms such as decreased lean body mass, decreased fat mass, anemia, poor growth velocity and other nutritional deficiencies improve dramatically on the GFD (11,12). This rapid improvement is a great relief to parents. However, it may take up to a year or more for the villous atrophy to completely resolve.

(continued on page 55)

Table 2
Conditions associated with an increased risk of celiac disease

- Type 1 diabetes
- Autoimmune thyroiditis
- Downs Syndrome
- Turner Syndrome
- Williams Syndrome
- Selective IgA deficiency
- First degree relative of a person with CD

(continued from page 52)

Table 3
Gluten-free Childrens Vitamins*

- Sesame Street Complete
- Schiff Children's chewable
- Pioneer Chewables for children
- Freeda Vitamins

*Please note that at the time of this writing, these vitamins were GF, however, products can change so be sure to check labels each time before purchasing—especially if the food is now labeled "new" or "improved."

Compliance in children with the GFD has been reported to be 45% to 80%. These figures may be overestimated as some people who reported strict compliance had positive biopsies (1). A recent survey from the Canadian Celiac Association reported a compliance rate of 95%, which was attributed in part to the fact that their members had access to accurate educational materials (2); improved compliance was also associated with experiencing adverse symptoms when eating gluten, a diagnosis of CD proven by biopsy, and being diagnosed at a young age.

Table 4
Specific Nutrients of Concern

Nutrient	*Age (years)*	*Recommended*	*Sources*
Calcium	1–3	500 mg	1 c. milk = 300 mg
	4–8	800 mg	2 oz. cheese = 400 mg
	9–18	1300 mg	6 oz. yogurt = 300 mg
			3 oz. almonds = 210 mg
			1c. calcium fortified orange juice = 240 mg
			1c. broccoli = 72 mg
Iron	1–10	10 mg	3oz. beef = 1.8 mg
	11–18 (M)	12 mg	3oz.chicken = 1 mg
	11–18 (F)	15 mg	½ c. spinach, cooked = 3.2 mg
			½ c. red kidney beans = 2.6 mg
			½ c. enriched rice = 1.2 mg
			⅓ c. raisins = 1.1 mg
Folate	1–3	150 mcg	½ c. spinach, cooked = 130 mcg
	4–8	200 mcg	½ c. navy bean = 125 mcg
	9–18	300 mcg	½ avocado = 55 mcg
			1 orange = 45 mcg
			1 oz. peanuts = 30 mcg
Thiamin	1–3	0.5 mg	3 oz beef liver = 9.2 mg
	4–8	0.6 mg	3 oz. pork = 0.9 mg
	9–13	0.9 mg	Enriched corn tortilla = 0.2 mg
	14–18 (F)	1 mg	½ c. enriched rice, cooked = 0.2
	14–18 (M)	1.2 mg	
Riboflavin	1–3	0.5 mg	1 cup Milk = 0.45 mg
	4–8	0.6 mg	1 cup Yogurt = 0.45 mg
	9–13	0.9 mg	1 Egg = 0.27 mg
	14–18 (F)	1 mg	Enriched corn tortilla = 0.2 mg
	14–18 (M)	1.3 mg	3 oz. ground beef, cooked = 0.16 mg

M = Male; F = Female

NUTRITIONAL CONCERNS

At the time of diagnosis, parents and children should meet with a registered dietitian who is knowledgeable about CD and the GFD. The family and child (if at an appropriate age) should be educated regarding the negative consequences of untreated CD including nutrition related complications such as osteopenia and osteoporosis, iron deficiency anemia, as well as other autoimmune diseases.

Lactose intolerance is common in newly diagnosed adults, however, it occurs rarely in newly diagnosed children. Decreased bone density may occur as a result of a decrease in calcium absorption due to villous blunting. (1).

Little is known about the nutritional quality of the GFD in children hence, their intake should also be reviewed for nutritional adequacy. An age appropriate GF multivitamin with minerals should be recommended due to the malabsorption that occurred prior to the diagnosis (Table 3). Nutrients of particular concern include calcium, iron, folate, thiamin and riboflavin (Table 4). Despite resolution of symptoms and no further concern for malabsorption, most children will continue to require a GF multivitamin because many GF grain products are not fortified or enriched.

Table 5
Resources

Children's Books on Celiac Disease
Gluten—Free Friends: An Activity Book For Kids
By Nancy Patin-Falini
www.savorypalate.com

Kids with Celiac Disease: A Family Guide to Raising Happy, Healthy, Gluten-free Children
By Danna Korn
www.woodbinehouse.com

Nothing Beats Gluten-free Cooking
Cookbook for Children
Celiac Disease Center at Columbia
www.celiacdiseasecenter.columbia.edu

Wheat-free Gluten-free Cookbook for Kids & Busy Adults
By Connie Sarros
www.gfbooks.homestead.com

Incredible Edible Gluten-Free Food For Kids-
By Sheri L Sanderson
Available at www.woodbinehouse.com

Growing Up Celiac
Canadian Celiac Association
www.celiac.ca

Preschool
Eating Gluten-Free with Emily
Written by Bonnie J. Kruszka
Illustrated by Richard S. Cihlar
www.woodbinehouse.com

Pre-Adolescent
The Gluten-free Kid. A Celiac Disease Survival Guide
by Melissa London
www.woodbinehouse.com

College
Beyond Rice Cakes: A Young Person's Guide to Cooking, Eating & Living Gluten-Free
By Vanessa Maltin
Available at: www.celiaccentral.org

Web Sites and Support Groups
Childrens Digestive Health and Nutrition Foundation
www.celiachealth.org

A Child's Guide to Dealing with Celiac Disease
www.celiaccenter.org

R.O.C.K Raising Our Celiac Kids Web site
www.celiackids.com

Kids Korner
Celiac Disease Foundation
www.gluten.org

Cel-Kids Network
CSA/USA
www.csaceliacs.org

Kids Corner
Celiac Disease Center at Columbia
www.celiacdiseasecenter.columbia.edu

Kids Baking Club
Lynn Rae-Ries
www.glutenfreecookingclub.com

Kids Health
www.kidshealth.org/kid/health_problems/stomach/celiac.html

Understanding Your Student
Gluten Intolerance Group (GIG)
www.gluten.net

EMPOWER THE CHILD

Children of all ages should learn about their disease and their diet along with their family or caregiver(s). Several helpful resources are listed in Table 5. Eating with Emily, about a little girl with CD—is a favorite with young children ages 3 to 7. This book may also be helpful in teaching other children and schoolmates who come in contact with the child with CD. Additionally, Nancy Falini, RD, LDN, created a workbook for the child with CD titled *Gluten-Free Friends: An Activity Book for Kids* that may prove helpful. See Table 6 for many other suggestions to help a child take a more positive and assertive role in managing his or her diet.

(continued on page 58)

(continued from page 56)

Table 6
Empowering your child

- **Start reading labels early.**
  Show children the word "wheat" on labels to help them recognize the word even before they can read. This helps to place the "blame" for not being able to eat a food item on the label rather than on the parent. As the reading skills of the child improve, they can look for the other gluten containing ingredients (rye, barley, malt) that must be avoided. It will later help give confidence to a child spending time away from home to find safe foods to eat.

- **Involve the Child in Meal Planning and Preparation**
  Children should be encouraged to participate in meal planning, purchasing groceries and preparation of meals. Young children can select produce at the grocery store, set the table, and help wash vegetables or fruits. Older children can help choose the menu, select grocery items, and make all or part of a meal by reading recipes and ingredient lists. A notebook or journal with recipes, notes about brand names of products used in the recipe and ideas for improvement can help families keep track of their adventures in GF cooking. All of these activities teach children about healthy eating and provide the family with quality time together.

- **Role play**
  Practicing what a child will say to an adult when offered a questionable food is important. Most parents teach their children to be polite and respectful to other adults and those in authority such as a teacher or parent volunteer. Saying "no" to such an adult will be difficult for a child if they do not know what to say. Practice by providing an age-appropriate and respectful script for your child and then having your child or another family member pretend they are the adult.

- **Identify "look-a-like" foods**
  It is very common for families to find "look-a-like" foods for the child with CD. While this helps the child feel less isolated when eating with friends, or at parties, it is important to help the child understand that their foods are different. By understanding that their "look-a-like" food is not the same as regular foods (i.e., cupcakes), the child is better able to make safe choices when the parent is not available to help. For example, Mom may make "Rice Krispies Treats®" at home with a gluten-free rice cereal. If regular rice treats are offered to the child at a friend's birthday party, this may be misconstrued as a safe food and unknowingly accepted.

- **Parents can set an example by maintaining a positive attitude**
  Even very young children look to their parents for emotional cues and strategies for handling stressful events. For these reasons, it is important for parents to be positive, even if they have to fake it! Parents who keep their cool in a restaurant setting and look for the bright side when birthday parties come up unexpectedly show their child that the GFD doesn't have to hinder their social outings. These strategies may help the child become more independent and confident in managing the GFD.

- **Gluten-free household?**
  Some families may choose to make the entire household GF. This comes with pros and cons. The advantages include reduced risk of cross contamination, avoids child helping themselves to a snack that contains gluten and not making the child feel deprived by eating regular items in front of them. The biggest disadvantage to the GF household is the cost of GF items. A loaf of bread is over $5.00 a loaf vs. wheat bread at less than $2.00 per loaf. Pastas, cookies and crackers are at least double to triple the price of wheat items. Many household budgets would be strained with such extra cost. Realize that a child will need to learn how to survive in a "wheat world"; beginning these survival skills in a supervised (i.e. home) environment may prove beneficial in the long run.

CHALLENGES FOR CHILDREN AND THE GFD

School

Parents and children need to be prepared to deal with the challenge of eating away from home. Daycare, preschool, and school present multiple opportunities for contamination, "cheating" on the diet, and accidental exposure to gluten. To prevent mishaps, each year parents should meet with the principal, teachers and the school nurse and provide them with information about the GFD. The Gluten Intolerance Group (GIG) (www.gluten.net) and Celiac Sprue Association (CSA) (http://www.csaceliacs.org/CelKidsSchool.php) have diet materials that can be printed out and discussed with appropriate school personnel. Schools usually require a letter from the child's health care provider before changes or restrictions can be put into place.

(continued on page 60)

(continued from page 58)

Table 7a
For Occasional Treats: Gluten-free Candies*

- All M&M's except "Krispies"
- Big Hunk
- Dove Chocolate bars
- Dove Ice Cream
- Hershey bars (plain), chocolate syrup
- Juju's
- Kisses
- Life Savers
- Mars bar
- Milky Way (dark chocolate only, now called the "Midnight Bar")
- Rolo Caramels
- Skittles
- Snickers—all including the new Munch and Cruncher bars
- Snickers Ice Cream
- Starbursts (including jelly beans, candy canes, hard candies and juice bars)
- Cambridge Sugar Babies and Sugar Daddies
- Three Musketeers (800-551-0698)
- Tootsie Rolls

*Please note that at the time of this writing, these candies were GF, however, products can change so be sure to check each time before purchasing, especially if the label says new or improved.

Table 7b
For Occasional Treats: Gluten-free Candies*

Just Born, Inc (Customer Service—(888) /645-3453)
All of our candies are derived from corn; therefore, to the best to our knowledge, they are gluten-free. The modified food starch we use in the manufacture of our jellybean candies is cornstarch. Following is a complete list of our current product line:

YEAR-ROUND CANDIES
Mike and Ike—Original Fruits, Tropical Typhoon, Berry Blast, Jolly Joes-Grape
Hot Tamales and Super Hot Tamales
Zours
Teenee Beanee Gourmet Jelly Beans

FEATURE FLAVORS
Mike and Ike—Cotton Candy, Lemonade

VALENTINE'S DAY
Strawberry and Vanilla Crème Flavored Marshmallow Peeps Hearts
Mike and Ike Valentine Treats

EASTER
Marshmallow Peeps, Bunnies and Giant Bunnies
Strawberry and Vanilla Crème Flavored Marshmallow Peeps Eggs
Mike and Ike Easter Treats
Just Born Jelly Beans
Peeps Jelly Beans

HALLOWEEN
Marshmallow Peeps Pumpkins, Spooky Cats and Ghosts
Individually wrapped Vanilla Crème Flavored Marshmallow Peeps Ghosts
Snack Pack and Variety Pack Bags—Mike and Ike, Hot Tamales and Zours

CHRISTMAS
Marshmallow Peeps Christmas Trees and Snowmen
Holiday Cookie Flavored Marshmallow Peeps Cutouts
Teenee Beanee Holiday Mix

Other school survival ideas include:

- Write a letter to be shared with other parents in the class to ask to be notified when they are bringing in a treat for the class.
- Providing a list of GF foods that the child likes is very helpful for teachers and room mothers.
- Ask the teacher for a list of birthdays so a special treat is on hand for the child with CD as the others eat cupcakes, cookies, cake or pizza, etc.
- Provide a "survival box" with a stash of GF treats in the classroom for those occasions when unplanned treats are offered to the children (see Table 7a and b for a list of GF treats).
- Volunteering at school as a room parent is another strategy to help stay abreast of classroom activities.
- Discuss the possibility that craft activities can be a source of gluten ingestion for some children. Play Doh® is made with flour and although it is believed gluten cannot be absorbed through the skin, young children may eat it or put their hands in their mouths

Table 8
School Lunch Ideas

Monday
Chef salad with cheese and ham, GF salad dressing, rice crackers and yogurt

Tuesday
Peanut butter (Jif peanut butter comes in 'to go' single serving 2 oz cups) on rice cakes, apple slices or celery, plus a thermos of GF soup

Wednesday
Turkey or ham and cheese roll-ups on corn tortillas, corn chips, and fruit cup

Thursday
Home made 'Lunchables' with lunch meat and cheese cut into small squares or use cookie cutters for fun shapes, rice cracker, pudding cup and fresh fruit

Friday
Tuna 'lunch to go' kits (with the wheat crackers removed) rice crackers, carrot and celery sticks with GF ranch dressing for dipping and fresh fruit or fruit cup

while playing with it (Table 5 has several books that have recipes for GF Play Doh®).

School Lunch

Under the Americans with Disabilities Act (CD is not considered a disability but is covered under a section for food allergies), public schools are required to make reasonable accommodations to provide for children requiring a GFD. Children must present a physician's statement of need. Parents should meet with the school dietitian and/or the food service director to review the menus and look at labels. Most families find it easier to pack a lunch than to rely on school-provided meals. There are many GF items children can enjoy bringing in their lunches such as fruit or pudding cups, yogurts, fruit snacks, and potato chips are but a few (see Table 8 for more lunch ideas).

Activities Away From Home

Children and parents can work together to find strategies for dealing with the many activities they will encounter (e.g., birthday parties, sports activities, sleepovers, school lunch, camping, vacations, back yard barbeques, holiday parties, field trips, picnics, etc.). Sending GF food with the child, bringing a GF dish to share, and bringing extra GF foods or snacks are strategies that work well for many families. Parents often find it helpful to volunteer to be scout leaders or to volunteer to plan menus or purchase the food. For a list of activities for GF fun see Table 9.

Going away to summer camp for a week or two is a big challenge. Some families have been able to pack up food for the week and send it along with the camper after talking with the food service director. There are a growing number of camps for kids with CD. The Gluten Intolerance Group (GIG) offers camps for children with CD (see www.gluten.net). The Celiac Disease Foundation also has a list of celiac camps on their website www.gluten.org. Family vacations require advanced planning that should include coolers with a supply of food, hotel rooms with refrigerators and checking with whomever is at the final destination for availability of GF food. There are also a growing number of vacation destinations that offer a great deal of support for their GF guests, with the Walt Disney Parks topping the list of most accommodating.

Off to College

For those who are going to college, it will be important to keep the GFD in mind when "interviewing" colleges. When visiting prospective campuses, in addition to all of the academic considerations, food options must also be considered. It may be beneficial for the student and parents to meet with the food service director to gather information on the availability of GF items and alternatives. Some college food service programs have GF food items and/or lists of their food items that are naturally GF or can easily be made GF. This information can sometimes be found on the college web site. Some college dorms will allow refrigerators, microwaves and hot plates so that a stash of GF food can be kept in the room. College students have also reported that they have been able get permission to live off campus where they have their own kitchen. Before going to college, your patient will need a letter from their physician stating their diagnosis and treat-

Table 9
Activities and Snacks

Activities	*Toddlers & Preschool*	*School Age & Adolescents*
Cooking	Wash vegetables or fruits with a brush Set table with paper goods Serve vegetables fruits etc in baggies Help mix GF play dough Decorate GF cookies	Read ingredients Plan menus Start a GF cookbook Learn to use basic cooking utensils & kitchen safety Mix a GF trail mix or cereal snack mix
School Food & Snacks	Fresh fruit slices Fruit cups Homemade cereal snack mix Yogurt & tube yogurt	String cheese Yogurt (tube yogurt) Popcorn Nuts or pumpkin seeds Dried fruit Homemade GF trail mix Home made GF cereal snack mix GF energy bars GF cereal or breakfast bars GF cookies Lunch meat or cheese rolled up Soft corn tortilla wrapped around lunchmeat or leftovers
Parties	Ice cream Ice cream cakes Keep GF cupcakes in the freezer	Ice cream cakes Build your own taco, omelet or sundae Bring a GF dish to the party
Survival Boxes	GF cookies GF candy GF chips	Energy Bars Individual Servings of Peanut butter GF crackers GF cookies GF candy bar GF chips or pretzels

ment in order for the college to make the special provision necessary to maintain a GFD. Some important tips for college living are listed on Table 10.

Eating Out

Eating out GF is always a challenge for families as well as for older children who want to go out with their friends. Many restaurants have websites and on-line menus, availability of GF selections can be checked out ahead of time. Children should be encouraged to make a list of a few favorites, so when there is an opportunity, they can eat out safely with friends. Younger children report great satisfaction from an excursion with friends even if they only order a drink and plain potato chips! See the November 2006 *Practical Gastroenterology* for an entire article dedicated to eating out.

Support Groups

Support groups for families living with CD are invaluable. These groups share information about which foods to buy, where to buy them as well as how to deal with the many challenges they are facing. Many families and children find great comfort in just knowing other people who are dealing with the same issues. There are many national and local support groups available to help families learn to work with the GF diet including one just for kids, R.O.C.K. (Raising our Celiac Kids). See Table 5 for additional support groups

(continued on page 64)

(continued from page 62)

Table 10
College Survival 101

- Contact the food service department before visiting the campus and ask them to prepare a gluten-free meal during your visit. Take written materials on the GFD to give to the manager. Diet information can be obtained from the Gluten Intolerance Group www.gluten.net or www.celiachealth.org for the Gluten-free Diet Guide.
- It may be more important that the food service department is willing to accommodate you, than the meal they serve, especially if they have to go out of their way to provide your GF dish. Once you've chosen a college, one way to ensure an easier dietary experience is to keep in touch with food service staff and find out when they order food supplies each semester.
- When you've made your college-decision, it is important to have ongoing discussion with the food service department. While it may have been acceptable to serve the GF food separately when you visited, it may become more challenging if it must happen every day for every meal.
- Review menus for all the meals the college will serve, including special dinners (when parents or famous alumni visit, holiday dinners, etc.) and find out which items are safe to eat.
- Discuss the potential risk of cross contamination with the food service director and brainstorm ways to prevent it.
- Most college food services run on a cycle menu, meaning the selection will be repeated every 2 to 4 weeks. Look over the menu and verify that each day you will have something to eat, and talk about having something in reserve for the days when the selection does not include GF items.
- College students love care packages from home, and parents can time the delivery of these special goodies for stressful times during the semester, such as exams or special occasions as birthdays and holidays.

Table 11
Kid Friendly Gluten-free foods

Gluten-free 'Look-A-Likes'

Chicken Fingers
- Bell & Evans gluten-free breaded chicken breast nuggets (www.bellandevans.com)
- Wellshire Chicken nuggets (www.wellshirefarms.com)
- Dietary Specialties chicken nuggets (www.dietspec.com)
- Ian's Chicken nuggets (www.allergenfreefoods.com/lans.html)

Macaroni and Cheese
- Annies GF rice pasta & cheddar (http://www.annies.com/products/gluten_free_pasta.htm)
- Amy's Rice Macaroni and Cheese (www.amyskitchen.com)

Pizza
- Gluten-free pizza by Foods by George (www.foodsbygeorge.com)
- Frozen pizza crust: Kinnikinnick (www.kinnikinnick.ca); Whole Foods (www.wholefoods.com)

Hamburger Helper Dinner
- Mrs. Leeper's lasagna/beef stroganoff (www.celiac.com)

Fish Sticks
- Dietary Specialties fish sticks (www.dietspec.com)
- Ian's Fish Sticks (www.allergenfreefoods.com/lans.html)

Breakfast Cereal
- Nature's Path Envirokidz, etc.: Amazon Frosted Flakes, Gorilla Munch, Koala Crisps, Panda Puffs, Cornflakes, Honey'd Cornflakes, MesaSunrise Flakes, Crispy Rice (www.naturespath.com)
- Enjoy Life: Cinnamon Crunch, Very Berry Crunch, Cranapple Crunch (www.enjoylifefoods.com)
- PerkyO's: PerkyO's Original, Apple Cinnamon, Nutty Flax, Nutty Rice (www.glutenfreemall.com)

Oreo Cookies
- Kinnikinnick (www.kinnikinnick.ca)

Animal Crackers
- MiDel GF animal cookies (www.liberyrichter.com)

Easy Bake Oven Cake Mixes
- GF Easy Bake cake mixes (http://www.foodtek.com/Products/QBKids.php)

and resources. Health care providers should be aware of such groups within their communities or refer families to online sources at www.celiac.com for additional information.

FOLLOW-UP CARE

Frequent follow-up is important to ensure that symptoms have resolved and growth has improved. Families often encounter conflicting information so the diet should also be reviewed to clear up any confusion and identify any potential sources of gluten. NASPGHAN (North American Society of Pediatric Gastroenterology, Hepatology and Nutrition) recommends periodic visits for assessment of symptoms, growth, physical examination and adherence to the GFD. Tissue Transglutaminase (TTG) should be measured after six months of starting a GFD and then at one-year intervals. In addition, TTG should be drawn any time a patient has recurrent or persistent symptoms. A decrease in TTG indicates compliance with the diet, and conversely, a rise will indicate non-compliance (1).

CONCLUSION

According to the NASPGHAN Clinical Practice Guidelines Summary for CD, within a pediatric practice of 1,500 children there are probably between five and 20 children with CD, either diagnosed or undiagnosed (1). As the number of patients with CD increases, it is important to continue making progress in the research, knowledge, and treatment options for CD. Diagnosis of the disease is only the beginning, as the practitioner must provide the education and support for life-long compliance to the GFD. The new food labeling law, the Food Allergen Labeling and Protection Act, has improved our knowledge about the source of many ingredients. The GF food industry has expanded tremendously to provide many new GF products including chicken nuggets, instant chocolate cake, and cereals that are appealing to children (Table 11). Lastly, frequent follow-up by medical professionals and participation in educational activities and support groups will not only encourage compliance and prevent future complications of untreated CD, but will also improve quality of life. ■

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