



# Nutrition for Family Living

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## April, 2001 Topics

- Canola oil urban legend
- Gluten-free diets and autism
- Maternity myths
- Applying Stages of Change to dietary behavior
- Applying Stages of Change to physical activity

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### Canola oil urban legend

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An urban legend seems to surface every few months about the safety of canola oil. Canola oil is a common cooking oil that is low in saturated fat, high in monounsaturated fat, and has a favorable ratio of omega-6/omega-3 fatty acids. It is made from the seed of the rapeseed plant that is grown in Canada.

The misunderstanding arises because people confuse canola oil with rapeseed oil.

Agronomically, canola oil is distinct from rapeseed oil, since it comes from a variety of plant that has been genetically altered (through normal breeding methods) to have a lower content of erucic acid. Erucic acid was formerly thought to be toxic to humans, based on studies in rats. In 1986 the trademark "Canola" was specified to apply only to canola oil with less than 2% erucic acid.

For more information about the rumors you may hear and the scientific information to refute them, check out <http://urbanlegends.about.com/science/urbanlegends> and search for "canola oil."



## Gluten-free diets and autism

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In the past month we have had several questions from county staff who have received calls from consumers about gluten-free diets for children with autism. While Extension staff do not answer questions on topics that are considered “medical nutrition therapy,” we thought it would be helpful to share some basic information on the subject.

### **What is a gluten-free diet?**

Gluten is a type of protein found in wheat, rye and barley. A gluten-free diet means totally avoiding all products that contain wheat, rye and barley, or any of their derivatives. This is a difficult task as there are many hidden sources of gluten found in the ingredients of many processed foods. For example, gravy made with wheat flour would be forbidden on a gluten-free diet.

### **Why would someone need to eat a gluten-free diet?**

The most common reason is celiac disease, also known as celiac sprue. Celiac disease is a genetic disorder affecting children and adults. People with celiac disease are unable to eat foods that contain gluten. In people with celiac disease, gluten sets off an autoimmune reaction that causes the destruction of the villi in the small intestine. Celiac sufferers produce antibodies that attack the intestine, causing damage and illness and interfering with their ability to absorb nutrients from food.

Gluten-free and casein-free diets are sometimes recommended as an *experimental* treatment for children with autism.

### **Which grains have gluten, and which do not?**

The common list of forbidden grains is: wheat, rye, barley and oats. Unfortunately, there are variants out there that go by other names. Durum and semolina are names for certain kinds of wheat that have been bred for specific uses. Both spelt and kamut are versions of wheat. Bulgur is wheat that's been specially processed. Triticale, a grain crossbred from wheat and rye, is definitely on the list of grains to avoid. People living with a gluten-free diet need to become skilled at reading food labels.

Of the common grains, rice is the favorite wheat alternative as it rarely troubles anyone. Corn is also fine. The following can be milled into flour: amaranth, buckwheat (or kasha), chickpeas (garbanzos), Job's tears (Hato Mugi, Juno's Tears, River Grain), lentils, millet, peas, quinoa, ragi, sorghum, soy, tapioca, teff, and wild rice. Many of these flours are available in health food stores. Some (like rice flour) may be available in grocery stores.

### **What should I know about cooking with these different grains?**

It may take some practice to get used to cooking with non-wheat flour because you can't directly substitute gluten-free flour for wheat flour in your favorite recipes. Recipes designed for these different flours, and baking tips, can be found in special cookbooks for gluten-free diets. There is a list at the end of this article.

To improve the texture of gluten-free baked goods, most cooks use one or more of the following: xanthan gum, guar gum (though this sometimes has a laxative effect), methylcellulose, or a new product called Clear Gel. These can be obtained either through health food stores, specialty cooking stores, or by mail order.



### **What does gluten have to do with autism?**

The basic theory is that a subgroup of children with autism may not be able to fully metabolize gluten and casein (casein is a protein found in milk). Peptides, part of the gluten and casein proteins, can be detected in abnormally high amounts in the urine of this subgroup of children. This fact has been scientifically documented. However, whether these peptides cross the blood-brain barrier and influence the behavior of children with autism is a theory that needs further investigation.

### **What effects may be observed when a child with autism goes on a gluten- and casein-free diet?**

Effects usually fall into three categories:

- neurological improvements, such as reduced headbanging, improved eye contact, or calmer, less agitated behavior.
- gastrointestinal improvements, such as more regular, solid stools which make toilet training easier.
- no improvement at all, indicating this child is not sensitive to gluten or casein.

### **Is this diet harmful? Isn't it dangerous to eliminate so many foods in a child's diet?**

When any child is on a restricted diet, the family should be working with a registered dietitian to assess the need for vitamin and mineral supplements and to discuss alternative sources of calcium, fiber and protein.

### **What other issues are involved here?**

As you can imagine, it would be very difficult to do a placebo-controlled, double-blind study of the effects of this diet! Since it is an experimental treatment and there is no research-based evidence to support its effectiveness, parents may have a difficult time making the decision to try it. They should consult trained medical experts for advice.

### **What is Extension's role?**

Extension staff should be respectful of an individual family's decision and should refer any specific questions about a gluten-free and/or casein-free diet to a Registered Dietitian. Extension educators can refer consumers to cookbooks and web sites with recipes for gluten-free foods to help them follow the advice of dietitians and other medical experts. They can also share advice for cooking with non-traditional grains and be familiar with sources for gluten-free products in their area.

This article was prepared with the help of Elizabeth Strickland, RD, Children With Special Health Care Needs Nutrition Consultant with the DHFS in Madison. Elizabeth also works as a dietitian with the Early Autism Project.

For further information:

[www.celiac.com](http://www.celiac.com) Celiac Disease and Gluten-free Diet Support Page

[www.celiaccenter.org](http://www.celiaccenter.org) University of Maryland Center for Celiac Research

[www.autism-society.org](http://www.autism-society.org) The Autism Society of America



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These are the "food insensitivity" books recommended by The American Dietetic Association (1999 list):

*Food Allergies: How to Eat Safely and Enjoyably* by The American Dietetic Association. Wiley, 1998.

ISBN: 0-471-34714-0

Written by a registered dietitian, this booklet highlights symptoms and methods of diagnosing food allergies and ways to plan meals. Includes information on label reading, recipes and substitution tips, and lists of resources and special products.

*The Food Allergy News Cookbook*. Edited by Anne Muñoz-Furlong. Chronimed, 1998.

ISBN: 1-56561-157-8

In addition to a wide variety of recipes for those with food allergies or sensitivities, this cookbook provides useful label-reading and food substitution information. Each recipe identifies appropriateness for specific allergy or sensitivity.

*Gluten Intolerance*. by Merri Lou Dobler. The American Dietetic Association, 1996.

Catalog no. 0880, \$9.00, ISBN: 0-88091-098-4

Written by a registered dietitian, this booklet defines gluten intolerance and its symptoms and provides dietary guidelines. Includes tips and substitutions on eating out, special products, resources, and recipes.

*The Gluten-Free Gourmet Cooks Fast and Healthy* by Bette Hagman. Henry Holt, 1996

ISBN: 0-8050-3980-5

This is the most recent of three books written by an author who has firsthand experience dealing with gluten intolerance. In addition to providing practical coping information, she includes time-saving recipes with attention to healthful dietary guidelines.

*Raising Your Child Without Milk* by Jane Zukin. Prima Publishing, 1996

ISBN: 0-7615-0131-2

Though the target audience is persons dealing with milk allergy, lactose intolerance, or other reasons for avoiding dairy products, this is also a useful reference for general childhood nutrition. It includes over 60 recipes and features many informative charts with food, nutrient, and additive information.



## Maternity Myths

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From the desk of Sherry T.:

A summary of “Exploring Myths about Nutrition and Pregnancy Outcome”, J.F. Brown and M.A. Murtaugh in *Healthy Generations* (Vol. 1 March 2001) from Maternal & Child Health, University of Minnesota.

This article highlights five common myths about nutrition and pregnancy outcome and replaces the myth with scientific knowledge.

**MYTH 1:** Females are born with maternal instincts that guide them to alter their food selection to meet special nutrient needs during pregnancy.

**RESPONSE:** While humans are born with the ability to regulate calorie intakes based on need (although this can be overpowered by environment) there are no data that support this myth. Changes in taste and odor preferences may occur in normal pregnancies, but they do not necessarily lead pregnant women to modify their diets to correct deficiencies.

**MYTH 2:** Pregnant women should restrict their salt intake.

**RESPONSE:** Sodium restriction is not recommended during pregnancy. Studies show that sodium restriction does not reduce the risk of pregnancy-induced hypertension; in fact, the incidence of hypertensive disorders in pregnancy may actually decrease with adequate salt intake.

**MYTH 3:** All pregnant women should take a multiple vitamin and mineral supplement during pregnancy.

**RESPONSE:** Prenatal multivitamin and mineral supplements have not been shown to benefit (or harm) women in general. Supplements cannot be relied upon to make up for all the consequences of a poor diet. Dietary improvements should serve as the primary, long-term solution to inadequate dietary intakes. Single nutrient supplements, however, have proven to be beneficial, i.e., iron after 12 weeks of pregnancy and 400 micrograms of folic acid prior to and early in pregnancy. Other supplements may be needed for specific circumstances such as B-12 for strict vegetarians.

**MYTH 4:** Pregnant women need to eat for two.

**RESPONSE:** While this is partially true, the fact is that they are not eating for two adults but for one adult and one fetus. The caloric needs of a woman and growing fetus are not as great as for two adults.

**MYTH 5:** Maternal nutritional status can be described by knowledge of weight status.

**RESPONSE:** Weight status only describes weight status. Nutritional status includes many other assessments and laboratory tests. Normal- and over- weight women cannot be assumed to be well-nourished for all nutrients. This phenomenon of “hidden hunger” occurs when women (or children) look perfectly healthy but may be experiencing a sub-clinical depletion of a nutrient.

Implications for our work: While most of the pregnant women we serve are under the care of a doctor, our job is to give them accurate information that helps them to make wiser food choices to get the extra needed nutrients while gaining an adequate amount of weight. Being aware of these common myths will help you to respond to your clients’ questions.



## Applying Stages of Change to dietary behavior

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Have you ever taught a nutrition class and realized that half your audience is staring out the window, a handful of people look interested but skeptical, and others are looking smugly bored? Have you ever wondered if all of the people in the room were really ready to make changes to their diet? Health psychologists have many theories for describing behavior change. One theory that considers the *process* by which people decide to adopt healthful behavior is the Stages of Change Model. This article will briefly describe the model and discuss ways you can use it to make your nutrition education messages more relevant to the consumers you teach.

**Stages of change** can be used to describe the way people think about their diets and their interest in changing the way they eat. The stages can be summarized as follows:

- Precontemplation** No interest in change
- Contemplation** Recognizing the need for change and intending to change
- Preparation** Planning for change
- Action** Adopting new behavior
- Maintenance** Ongoing practice of new behavior

Researchers have come up with a number of questions that can be used to identify the stage of change a person is in with respect to reducing dietary fat. Stage is determined by defining the target behavior and the action criteria – in other words, what change they need to make and what they need to do to accomplish the change. For example, “reduce dietary fat” may be the target behavior, and the action criteria might be “consume less than 30% of calories from fat.” Researchers have found that a majority of the population believes they are reducing their fat intake, but when their actual food intake is recorded, only about one third meet the action criteria of consuming less than 30% of calories from fat.

Knowing which stage a person is in is the first step toward presenting nutrition education in a manner that will be relevant to the consumer. The **Transtheoretical Model** considers the stage of change, as well as factors that influence the progression from stage to stage, known as **decisional balance, situational self-efficacy or temptation, and the processes of change**. Since the purpose of an educational intervention is to help learners move to the next stage of change, considering the elements of the transtheoretical model can help educators present the most useful information.

**Decisional balance** refers to the pros and cons of change. For a person to move from precontemplation to contemplation, or from contemplation to preparation, the pros must outweigh the cons. Decisional balance helps explain *why* people change and is most relevant in the early stages.

**Situational self-efficacy/temptation** is most relevant at the later stages of change. Self-efficacy refers to a person’s confidence that they can make the desired behavior change in that setting. Temptation refers to how tempted the person is to do the opposite – in this example, to eat high-fat foods in that setting. Self-efficacy and temptation are most influential during the contemplation, preparation and action stages (temptation is only a problem when you are trying not to eat something!) and less influential during precontemplation and maintenance stages.



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The **processes of change** refer to the actions people take to move through the stages; they are *how* people change. Experiential processes (thoughts, feelings and experiences) are used more in the earlier stages, and behavioral processes (behaviors and reinforcement) are used in the later stages. An example of an experiential process is becoming aware of factors in the environment that influence dietary behavior. An example of a behavioral process is avoiding situations that trigger consumption of high-fat foods.

Different messages are going to be relevant to people in each stage of change. In an ideal world, an educator could assess each person's stage of change with respect to the desired behavior and deliver an educational message designed just for them, to help them move to the next stage. Most of us don't have that luxury! However, understanding how people decide to make healthful changes can help us choose the right approach and what information to provide.

For example, talking about avoiding temptation to a group of precontemplators wouldn't work – temptation isn't an issue when you haven't yet decided to avoid certain foods! Emphasizing the pros of changing would be more relevant to precontemplators, who are still deciding whether they want to change at all. If you are talking to a group of people who have made positive dietary changes and are in the maintenance stage, there's no point in repeating the benefits of the changes they have already made. With this group, you could discuss how to maintain change over the long term or further changes they might want to make.

A mixed group provides an additional challenge because you will find yourself presenting information that is relevant to some people but not to others. Research shows that in large studies of American adults, approximately 30-40% are in the precontemplation stage, 10% in contemplation, 25% in preparation, 2% in action, and 25-30% in maintenance with respect to reducing dietary fat. You may be able to ask a few quick questions at the beginning of your session to get an overall picture of the stages present in your group. If you find that most of your group is in contemplation and preparation, for example, you can adjust your information accordingly.

Educators will have a different goal for each stage:

- Precontemplation: get people to think about the problem.
- Contemplation: make a decision to make small changes
- Preparation: “just do it!”
- Action: prevention of relapse
- Maintenance: continue to use behavioral processes for continued change

The table on the next page was adapted from the article by Greene referenced below.



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### Applying Stages of Change to Dietary Behavior

State of readiness	What people need to move to the next stage	Do's	Don'ts
Precontemplation	Increased information and awareness, emotional acceptance	<ul style="list-style-type: none"> <li>• Provide personalized information</li> <li>• Allow people to express emotions about the need for dietary change</li> </ul>	<ul style="list-style-type: none"> <li>• Don't expect people to have prior knowledge</li> <li>• Don't expect providing information will automatically lead to change</li> </ul>
Contemplation	Increased confidence in one's ability to adopt recommended behaviors	<ul style="list-style-type: none"> <li>• Discuss and resolve barriers to change</li> <li>• Encourage support networks</li> <li>• Give positive feedback about people's abilities</li> <li>• Clarify ambivalence and emphasize benefits of change</li> </ul>	<ul style="list-style-type: none"> <li>• Don't ignore the powerful impact of family members</li> <li>• Don't be alarmed or critical of ambivalence</li> </ul>
Preparation	Resolution of ambivalence, firm commitment, and specific action plan	<ul style="list-style-type: none"> <li>• Encourage people to set specific, achievable goals (eg, switch to 1% milk instead of whole milk)</li> <li>• Reinforce small changes they may have already achieved</li> </ul>	<ul style="list-style-type: none"> <li>• Don't recommend general changes (eg, eat less fat)</li> <li>• Don't refer to small changes as "not good enough"</li> </ul>
Action	Behavioral skill training and social support	<ul style="list-style-type: none"> <li>• Provide self-help materials</li> </ul>	<ul style="list-style-type: none"> <li>• Don't refer people to "information only" classes</li> </ul>
Maintenance	Problem-solving skills and social and environmental support	<ul style="list-style-type: none"> <li>• Encourage people to anticipate and plan for potential difficulties (eg, vacations)</li> <li>• Recommend further changes if person is motivated</li> </ul>	<ul style="list-style-type: none"> <li>• Don't assume initial action means permanent change.</li> <li>• Don't be discouraged or judgmental about a lapse or relapse</li> </ul>

Greene GW et al. Dietary applications of the Stages of Change Model. *JADA* 1999;99(6) 673-678.

Kristal AR et al. How can stages of change be best used in dietary interventions? *JADA* 1999;99(6):679-684.



## Applying Stages of Change to physical activity

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Stages of Change can be applied to many situations in which the goal is behavior change. Being physically active is a health behavior that complements making nutritious food choices. A national consumer survey conducted between 1995 and 1997 estimates that the following percentages of the U.S. population are in the different stages of change for achieving regular, moderate-intensity physical activity: precontemplation, 14%; contemplation, 13.9%; preparation, 28.6%; action, 7.4%; and maintenance, 36%.<sup>1</sup>

The same guidelines for educational approaches based on stage of change hold for physical activity behaviors as for dietary behaviors. Following are some more specific suggestions<sup>1</sup> for physical activity:

### **Precontemplation**

- Help clients appreciate the benefits of being physically active, rather than concentrating on the risks of inactivity. What will they miss if they choose to be inactive (having more energy, sleeping better, reducing stress, feeling empowered, feeling stronger)?
- Explore possible misconceptions and assist clients in overcoming them (eg, if someone is afraid of injury, point out that risk of injury is small if someone starts out slowly).
- Help clients understand why being physically active is relevant to them (eg, role modeling for their children).
- Can your clients visualize themselves as active people? Provide positive feedback about their ability to be physically active.

### **Contemplation**

- Help clients identify specific barriers to change (eg time, money, convenience, access, attitude) and help them to explore alternatives.
- Explore a variety of activities available to each person – what have they enjoyed doing in the past? what activities sound interesting, but they have never tried? what activities can they do with friends, family, and alone? how can they fit simple activities into their day (eg using stairs, walking)
- Help clients weigh the costs of becoming physically active – what do they need to invest (effort, energy, things they'd give up) and what would motivate them to overcome these barriers?

### **Preparation**

- Help clients develop small, specific, realistic goals for being regularly active.
- Emphasize that any activity is better than no activity – every minute counts.
- Teach methods of self-monitoring (eg keeping a log or diary) to increase awareness of behaviors and/or to track progress.
- Help clients focus on goals accomplished rather than on failures. Provide positive feedback and encouragement.
- Emphasize that progress is gradual and has occasional setbacks. Help people think through how they will handle a lapse (eg focus on recent successes at being active)



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- Encourage social support networks, like walking clubs or friends/coworkers who walk on breaks.
- Help clients restructure their daily environment to encourage activity (eg post motivating messages on the mirror, keeping a walking friend's phone number by the phone, keeping walking shoes in the car or at work, keeping the dog's leash by the door)

### Action

- Provide positive, direct feedback (eg "you seem to be more energetic these days").
- Help clients develop long-term goals ("I'd like to walk 45 minutes 5 days a week by the end of the year") and short-term goals that will help them get there ("I'd like to walk 30 minutes 2 days a week by the end of the month")
- Encourage a variety of activities to prevent/overcome boredom.
- Encourage maintenance of activity partnerships (eg walking buddies or clubs)
- Continue to help clients understand that lapses are part of the process and not indications of failure, and continue to help clients restructure their daily environment to encourage activity.

### Maintenance

- Continue positive feedback, setting realistic goals, maintaining buddy systems, and keeping it fun and varied.

<sup>1</sup> U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition and Physical Activity. *Promoting Physical Activity: A Guide for Community Action*. Champaign, IL: Human Kinetics, 1999, pp. 58-59, 107-111.