Celiac Disease Awareness Campaign
OF THE NATIONAL INSTITUTES OF HEALTH
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CELIAC DISEASE News

FROM THE NATIONAL DIGESTIVE DISEASES INFORMATION CLEARINGHOUSE

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Research Highlights Importance of Biopsy Site for Diagnosing Celiac Disease in Children

Intestinal biopsy—examination of tissue from the small intestine—is considered the gold standard for diagnosing celiac disease. Recent research suggests that selection of the biopsy site may influence the accuracy of diagnosis in children.

The American Gastroenterological Association's guidelines for biopsy include a recommendation for obtaining multiple specimens "from the second part of the duodenum or beyond." The duodenum, which is roughly 10 inches long in adults, is the section of the small intestine that joins the stomach. Obtaining samples from numerous sites reduces the likelihood of missing celiac disease damage, which typically occurs in patches.

Researchers from the faculty of medicine at Dalhousie University in Halifax, Nova Scotia, Canada, published findings from a study suggesting that biopsy sample sites should include the duodenal bulb—the section of the duodenum immediately adjacent to the stomach. Over 2 years, Mohsin Rashid, M.D., associate professor of pediatrics, and medical student Andrea MacDonald examined biopsy samples obtained from the duodenal bulb and from sites in the second or more distal—farther along—sections of the duodenum in 35 celiac disease patients ranging in age from 17 months to 18 years. Thirty-one of these children had abnormal distal biopsies and all but two also had abnormal bulb biopsies. More significantly, four children with normal distal biopsies showed effects of celiac disease in bulb biopsies.

"Diagnosis of celiac disease would not have been possible in these four cases with distal duodenal biopsies only," Rashid wrote in an article that appeared in the October 2009 issue of *BMC Gastroenterology*. "The optimal strategy for detecting villous changes should include biopsies not only from the distal duodenum but also from the bulb to improve the diagnostic yield," he concluded. ■

Inside This Issue

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Celiac Research Yields Clues to Factors Common to Many Immune Disorders

For people who are genetically predisposed to celiac disease, exposure to gluten triggers a cascade of biological activity that results in the immune system mistakenly attacking the lining of the small intestine. Research into the step-by-step progression of celiac disease suggests that development of the disease requires a combination of three factors: inherited susceptibility; exposure to an environmental trigger, gluten; and a condition that allows gluten fragments to pass through the intestinal wall and initiate an immune response in the underlying tissue.

"Celiac disease provides an enormously valuable model for understanding immune disorders because it is the only example where the addition or removal of a simple environmental component, gluten, can turn the disease process on and off."

Alessio Fasano, M.D.
University of Maryland School of Medicine

In the August 2009 issue of *Scientific American,* University of Maryland School of Medicine researcher Alessio Fasano, M.D., wrote, "A growing body of evidence suggests that virtually the same trio of factors underpins most, and perhaps all, immune diseases: an environmental substance that is presented to the body, a genetically based tendency of the immune system to overreact to the substance, and an unusually permeable gut." For example, some studies have shown an association between type 1 diabetes and exposure during infancy to cereal grains or cow's milk. Other research connects immune disorders including inflammatory bowel disease and type 1 diabetes with abnormal permeability of the intestinal wall.

"Celiac disease provides an enormously valuable model for understanding immune disorders because it is the only example where the addition or removal of a simple environmental component, gluten, can turn the disease process on and off," Fasano wrote. However, maintaining complete—and lifelong—abstinence from gluten is difficult, and researchers are investigating other steps in the three-part disease process as potential targets for treatment. Research approaches that target the immune response include a vaccinelike treatment that would slowly expose the immune system to gluten fragments and develop

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CELIAC DISEASE News

NDDIC

Celiac Disease News, an email newsletter, is sent to subscribers by the National Digestive Diseases Information Clearinghouse (NDDIC). The newsletter features news about celiac disease, special events, patient and professional meetings, and new publications available from the NDDIC and other organizations.

Please visit *www.celiac.nih.gov/Newsletter.aspx* to read or download a PDF version or to subscribe to the newsletter.

The National Institutes of Health Celiac Disease Awareness Campaign provides current, comprehensive, science-based information about the symptoms, diagnosis, and treatment of celiac disease, also known as celiac sprue, nontropical sprue, and gluten-sensitive enteropathy. The Awareness Campaign is an initiative of the NDDIC, a service of the National Institute of Diabetes and Digestive and Kidney Diseases.

Visit *www.celiac.nih.gov* to learn more about the Awareness Campaign.

Executive Editor: Stephen P. James, M.D.

Dr. James is the director of the Division of Digestive Diseases and Nutrition within the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). As director, Dr. James oversees planning, implementation, and evaluation of a national research effort focused on gastrointestinal, pancreatic, hepatobiliary, and nutrition diseases and conditions. Before joining the NIDDK in 2001, Dr. James directed the division of gastroenterology at the University of Maryland's School of Medicine for 10 years.

For People with Celiac Disease, Immune System May Play Role in Osteoporosis

"Osteoprotegerin antibodies may contribute to the pathogenesis of osteoporosis in celiac disease."

Stuart Ralston, M.D.
Professor of Rheumatology, University of Edinburgh

Celiac disease can severely reduce the absorption of nutrients, leading to vitamin and mineral deficiencies and the development of osteoporosis—thin or brittle bones. Researchers at the University of Edinburgh and the University of Liverpool in the United Kingdom have found evidence suggesting that the link between celiac disease and osteoporosis may also involve a disruption of the immune system that interferes with normal bone remodeling—a process in which new bone continually replaces older bone.

The researchers' investigation began when they found that a gluten-free diet reversed intestinal damage done by celiac disease but had no effect on osteoporosis in a 40-year-old patient. Treatment with vitamin D and calcium supplements also was unsuccessful, and the patient's osteoporosis worsened although repeated intestinal biopsies showed no celiac-related damage or abnormality.

The researchers found that the patient's osteoporosis was the result of abnormal immune activity that blocked the effect of osteoprotegerin, a substance that helps maintain bone density. The researchers examined blood samples from 10 healthy control patients, 15 patients with celiac disease, and 14 patients with hypothyroidism caused by abnormal immune response. They found that three of 15 celiac patients, but none of the control or hypothyroid patients, had antibodies against osteoprotegerin.

Stuart Ralston, M.D., professor of rheumatology at the University of Edinburgh, wrote, "These observations suggest that osteoprotegerin antibodies may contribute to the pathogenesis of osteoporosis in celiac disease." Ralston noted that much more work would be needed to determine whether there is an association between the two disorders. The research was described in the October 8, 2009, issue of *The New England Journal of Medicine.* ■

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tolerance rather than an attack reaction. Other avenues of investigation focus on intestinal wall permeability and include therapies that block the effect of zonulin, a protein that appears to be closely associated with abnormally high intestinal permeability. These possible therapies are still in the early stages of development and may never reach the level of clinical proof needed for approval as a treatment for celiac disease. Nonetheless, Fasano concluded, "given the apparently shared underpinning of immune disorders in general, researchers who investigate those conditions are eager to learn whether some therapeutic strategies for [celiac disease] might also ease other immune conditions that currently lack good treatments." ■

NIDDK Director Rodgers Elected to Institute of Medicine

Griffin P. Rodgers, M.D., M.A.C.P., director of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), has been elected to the Institute of Medicine (IOM). Election to the IOM, one of the highest honors in the fields of health and medicine, recognizes individuals who have demonstrated outstanding professional achievement and commitment to service.

"It is a great pleasure to welcome these distinguished and accomplished individuals to the Institute of Medicine," said IOM President Harvey V. Fineberg, Ph.D., M.D. "Each of these new members stands out as a professional whose research, knowledge, and skills have significantly advanced health and medicine and who has served as a model for others."

Established in 1970 by the National Academy of Sciences, the IOM is recognized as a national resource for independent, scientifically informed analyses and recommendations on health issues. With their election, members make a commitment to volunteer their services on IOM committees and boards and participate in other IOM activities.

Dr. Rodgers was named NIDDK director on April 1, 2007, having served as the NIDDK's acting director since March 2006. He was NIDDK deputy director from 2001 and chief of NIDDK's Molecular and Clinical Hematology Branch since 1998. Dr. Rodgers is widely recognized for his contributions to the development of the first effective—and now U.S. Food and Drug Administration-approved—therapy for sickle cell anemia. ■

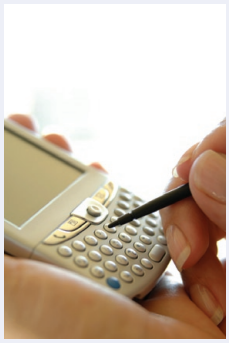
NIDDK Website Recognized

The National Institute of Diabetes and Digestive and Kidney Diseases' (NIDDK's) website won silver in the 2009 Strategic Health Care Communications eHealthcare Leadership Awards competition for "Best Health/Healthcare Content." The competition recognizes the best websites of health care organizations, online health companies, pharmaceutical companies, medical suppliers, and business improvement initiatives. More than 1,100 entries competed in 12 categories. The annual competition is organized by Strategic Health Care Communications, a health communications firm providing information on business development, marketing, and Internet strategies.

To learn who else won in this year's competition, visit *www.strategichealthcare.com/awards/winners.php*.

Visit the NIDDK website at *www.niddk.nih.gov*. ■

MedlinePlus Now Available for Mobile Devices



The National Library of Medicine, the world's largest medical library, now puts reliable health information at your fingertips with the release of Mobile MedlinePlus. This service offers a wide range of health information that can be searched and viewed on mobile devices. Learn about your new prescription's side effects while waiting for the pharmacist to fill your order. Or, the next time you're in a doctor's waiting room, visit the "Talking With Your Doctor" page to read about how to get the most out of your visit.

Mobile MedlinePlus is available in English and Spanish at *http://m.medlineplus.gov* and *http://m.medlineplus.gov/spanish.* ■

Changes for NIH Grant Applications

As of January 25, 2010, all National Institutes of Health (NIH) grant applications must be submitted using new forms and instructions. The changes are part of the NIH Peer Review Enhancements and Implementation Plan, a series of initiatives intended to streamline the grant application and peer review process, helping the NIH fund the best science, by the best scientists, with the least administrative burden.

The revised grant application forms are aligned with new grant review criteria and better emphasize the proposed research's potential impact. The NIH encourages all grant applicants and current grantees to familiarize themselves with the changes.

For more information, including informative slide and video presentations, and the new forms and instructions, visit the website, Enhancing Peer Review at NIH, at *http://enhancing-peer-review.nih.gov.* ■

Upcoming Meetings, Workshops, and Conferences

The National Institute of Diabetes and Digestive and Kidney Diseases Information Clearinghouses will exhibit at the following upcoming events:

Society of Gastroenterology Nurses and Associates 37th Annual Course

April 30–May 5 in Orlando, FL.
For more information, visit *www.sgna.org.*

Digestive Disease Week

May 1–5 in New Orleans.
For more information, visit *www.ddw.org.*

American Academy of Nurse Practitioners 25th National Conference

June 23–27 in Phoenix.
For more information, visit *www.aanp.org/AANPCMS2/Conferences/NationalConference.*

National Association of School Nurses 42nd Annual Conference

June 29–July 3 in Chicago.
For more information, visit *www.nasn.org.* ■

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