

DIGEST



UNC
SCHOOL OF MEDICINE

Our mission is to advance the biopsychosocial understanding and care of patients with functional GI & motility disorders through research, training and education.

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LOWER GI CHANGES IN PREGNANCY

BURDEN OF GASTROINTESTINAL DISEASE IN THE UNITED STATES

LOWER GI CHANGES IN PREGNANCY

- SARINA PASRICHA, MD, MSCR



Dr. Sarina Pasricha. Her clinical interests include upper and lower motility disorders, anorectal disease, constipation, fecal incontinence, hemorrhoid management and treatment, women's health, and nutrition.

She received her undergraduate degree cum laude from Harvard University and her medical degree from Northwestern Feinberg School of Medicine. She completed

her residency in internal medicine and received her Masters of Science in Clinical Research (MSCR) in epidemiology at the University of North Carolina at Chapel Hill.

The body goes through enormous modifications during pregnancy. In particular, the gastrointestinal tract is susceptible to alterations due to structural and hormonal changes. Given my own recent pregnancy, I decided to discuss some common

lower gastrointestinal symptoms that are often inevitable during pregnancy. I hope to use my medical background to help demystify some of the gastrointestinal pathophysiologic changes that are natural during pregnancy.

Constipation:

Constipation is extremely common during pregnancy. Nearly 40% of women deal with symptoms of constipation during or after pregnancy. The fetus places pressure on the rectosigmoid colon causing a physical obstruction that can lead to constipation. Additionally, the hormone progesterone can cause slowing of both small and large bowel motility (slow transit constipation). Another possible cause for constipation includes increased abdominal pressure resulting in levator ani dysfunction. The levator ani muscle is the primary muscle that forms most of the pelvic floor. Levator ani dysfunction is more commonly seen in multiparous women with a history of a prolonged second stage of labor (pushing). A combination of these factors, as well as potentially decreased intake of water and dietary fiber

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DIGEST is a quarterly publication of the UNC Center for Functional GI & Motility Disorders, a center of excellence within the Division of Gastroenterology and Hepatology, School of Medicine, University of North Carolina at Chapel Hill.

The Center's director is **William E. Whitehead, PhD**, Professor of Medicine and Gynecology.

Over the past decade, the UNC Center for Functional GI and Motility Disorders has enjoyed significant grant support from a number of private foundations and corporations. These grants have ranged from sponsorships of specific events (symposia or CME courses) to unrestricted grants in support of fellowships and the Center's education and training effort.

This activity is supported by an educational grant from Takeda Pharmaceuticals U.S.A., Inc. and Sucampo.

HAVE A QUESTION?

ASK THE CENTER PERSONNEL A QUESTION!

DIGEST

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DIGESTIVE DISEASE WEEK: ACCEPTED PUBLICATIONS AND PRESENTATIONS

DDW 2016

Center faculty and investigators will be well represented in presentations and posters at Digestive Diseases Week 2016 May 22 - 24, 2016 in San Diego, California

DDW is the premier research and clinical forum for scientists and clinicians within digestive diseases which includes gastroenterology, liver disease and gastrointestinal surgery. The American Gastroenterology Association (AGA) represents gastroenterologists. The UNC Center develops programs that focus on research and education for those with functional gastrointestinal disorders.

SUNDAY, MAY 22

CONTROL ID: 2444395

SESSION TYPE: Research Forum

SESSION TITLE: Esophageal and Gastric Dysmotility: What is New?

TITLE: Additive Effect of Pathophysiological Mechanisms in Determining Symptom Severity in Functional Dyspepsia.

AUTHORS: Jan F. Tack, Lukas Van Oudenhove, Hanne Vanheel, Florencia Carbone, Hans Törnblom, Olafur S. Palsson, Miranda A. van Tilburg, William E. Whitehead, Magnus Simren

TIME AND LOCATION: 9:15AM, 32
San Diego Convention Center (SDCC)

SUNDAY, MAY 22

CONTROL ID: 2434987

SESSION TYPE: Research Forum

SESSION TITLE: Pediatric Functional and Motility Disorders

TITLE: Parent-Only Intervention Reduces Symptoms and Disability in Abdominal Pain Patients

AUTHORS: Rona L. Levy, Miranda A. van Tilburg, Shelby Langer, Joan Romano, Lloyd A. Mancini, Shara I. Feld

TIME AND LOCATION: 5:02 PM 26 (SDCC)

SUNDAY, MAY 22

CONTROL ID: 2443962

SESSION TYPE: Research Forum

SESSION TITLE: Pediatric Functional and Motility Disorders

TITLE: Seasonal Variation in Functional Abdominal Pain Is Associated With Changes in Anxiety

AUTHORS: Katie Pollard, Christina Campbell, Megan M. Squires, Olafur S. Palsson, Miranda A. van Tilburg

TIME AND LOCATION: 5:16 PM 26 (SDCC)

SUNDAY, MAY 22

CONTROL ID: 2440310

SESSION TYPE: Research Forum

SESSION TITLE: Diagnosis and Advances in Understanding and Management of Irritable Bowel Syndrome

TITLE: Visceral hypersensitivity is associated with GI symptom severity in functional GI disorders: Consistent findings from five different patient cohorts.

AUTHORS: Magnus Simren, Hans Törnblom, Olafur S. Palsson, Miranda A. van Tilburg, Lukas Van Oudenhove, Jan F. Tack, William E. Whitehead

TIME AND LOCATION: 2:48 PM 33 (SDCC)

SUNDAY, MAY 22

CONTROL ID: 2442768

SESSION TYPE: Research Forum

SESSION TITLE: Pediatric Functional and Motility Disorders

TITLE: Internet-Delivered Cognitive Behavior Therapy for Adolescents With Irritable Bowel Syndrome: A Randomized Controlled Trial

AUTHORS: Marianne Bonnert, Ola Olen, Maria Lalouni, Erik Hedman, Sarah Vigerland, Fabian Lenhard, Marc A. Benninga, Magnus Simren, Eva Serlachius, Brjann Ljótsson

TIME AND LOCATION: 4:48 PM 26 (SDCC)

SUNDAY, MAY 22

CONTROL ID: 2441554

SESSION TYPE: Research Forum

SESSION TITLE: Microbiota, FODMAP Diet and IBS

TITLE: Alterations in the Microbiota in Irritable Bowel Syndrome: A Comparison of Two Geographically Distinct Cohorts

AUTHORS: Ian Jeffery, Paul O'Toole, Marianne Fraher, Orla Craig, Magnus Simren, Lena Ohman, Marcus J. Claesson, Fergus Shanahan, Timothy Dinan, Eamonn M. Quigley

TIME AND LOCATION: 8:36 AM 25 (SDCC)

MONDAY, MAY 23

CONTROL ID: 2439615
 SESSION TYPE: Poster Session
 SESSION TITLE: Irritable Bowel Syndrome: Clinical
 TITLE: Fecal incontinence in irritable bowel syndrome (IBS): Prevalence and associated factors in Swedish and American patients.
 AUTHORS: Magnus Simren, Olafur S. Palsson, Steve Heymen, Antal Bajor, Hans Törnblom, William E. Whitehead
 TIME AND LOCATION: 9:30 AM Hall C (SDCC)

MONDAY, MAY 23

CONTROL ID: 2440057
 SESSION TYPE: Poster Session
 SESSION TITLE: Irritable Bowel Syndrome: Clinical
 TITLE: Age but Not Sex Affects the Sensitivity of the Rome IV Diagnostic Criteria for IBS
 AUTHORS: William E. Whitehead, Olafur S. Palsson, Miranda A. van Tilburg, Magnus Simren
 TIME AND LOCATION: 9:30 AM Hall C (SDCC)

MONDAY, MAY 23

CONTROL ID: 2441637
 SESSION TYPE: Poster Session
 SESSION TITLE: Irritable Bowel Syndrome: Clinical
 TITLE: Population Prevalence of Rome IV and Rome III Irritable Bowel Syndrome (IBS) in the United States (US), Canada and the United Kingdom (UK)
 AUTHORS: Olafur S. Palsson, Miranda A. van Tilburg, Magnus Simren, Ami D. Sperber, William E. Whitehead
 TIME AND LOCATION: 9:30 AM Hall C (SDCC)

MONDAY, MAY 23

CONTROL ID: 2434097
 SESSION TYPE: Poster Session
 SESSION TITLE: Pediatric IBD: Clinical and Translational Studies
 TITLE: Fatigue in Pediatric Inflammatory Bowel Disease: Associations With Disease Activity and Psychological Factors
 AUTHORS: Miranda A. van Tilburg, Robyn Claar, Shelby Langer Joan Romano, William E. Whitehead, Abdullah Bisher, Melissa DuPen, Tasha Murphy, Rona L. Levy
 TIME AND LOCATION: 9:30 AM Hall C (SDCC)

MONDAY, MAY 23

CONTROL ID: 2439593
 SESSION TYPE: Poster Session
 SESSION TITLE: Probiotics/Novel Therapeutics in Intestinal Disease (III)
 TITLE: Effect of a Fermented Milk Product Containing Bifidobacterium lactis CNCM I-2494 in Patients With Irritable Bowel Syndrome (IBS): A Randomized, Double-Blinded, Placebo-Controlled Trial
 AUTHORS: Boris Le Névé, Rémi Brazeilles, Denis Guyonnet, Lena Ohman, Hans Törnblom, Magnus Simren
 TIME AND LOCATION: 9:30 AM Hall C (SDCC)

MONDAY, MAY 23

CONTROL ID: 2433951
 SESSION TYPE: Poster Session
 SESSION TITLE: Pediatric IBD: Clinical and Translational Studies
 TITLE: Chronological Age When Health Care Transition Skills Are Mastered in Adolescents/Young Adults With Inflammatory Bowel Disease
 AUTHORS: Miranda A. van Tilburg, Yi Zhong, Donna Gilleskie, Meaghan L. Nazareth, Karina Javalkar, Sandra C. Kim, Maureen Kelly, Steven Lichtman, Maria Ferris
 TIME AND LOCATION: 9:30 AM Hall C (SDCC)

MONDAY, MAY 23

CONTROL ID: 2438787
 SESSION TYPE: Poster Session
 SESSION TITLE: Irritable Bowel Syndrome: Clinical
 TITLE: Patient Satisfaction With IBS-Care Correlates With the Physician's Confidence in Managing IBS-Patients: A Preliminary Investigation
 AUTHORS: Per Johan Lindfors, Guadalupe Fuentes, Airene Lindfors, Hans Törnblom, Magnus Simren, Brjann Ljótsson
 TIME AND LOCATION: 9:30 AM Hall C (SDCC)

DIGESTIVE DISEASE WEEK: ACCEPTED PUBLICATIONS AND PRESENTATIONS

DDW 2016

Center faculty and investigators will be well represented in presentations and posters at Digestive Diseases Week 2016 May 22 - 24, 2016 in San Diego, California

TUESDAY, MAY 24

CONTROL ID: 2439803

SESSION TYPE: Poster Session

SESSION TITLE: Anorectal Dysmotility (Including Fecal Incontinence, Dyssynergia and Pelvic Floor Disorders)

TITLE: Electromyography (EMG) From the Anal Canal Is a Stronger Predictor of Dyssynergic Defecation Than Anal Canal Pressure Measured by High Resolution Anorectal Manometry

AUTHORS: Krista M. Edelman, Sarina Pasricha, Sheila Crawford, Magnus Simren, William E. Whitehead

TIME AND LOCATION: 9:30 AM Hall C (SDCC)

TUESDAY, MAY 24

CONTROL ID: 2440359

SESSION TYPE: Poster Session

SESSION TITLE: Anorectal Dysmotility (Including Fecal Incontinence, Dyssynergia and Pelvic Floor Disorders)

TITLE: Conservative Treatment for Fecal Incontinence: Predictors of Treatment Completion and Symptom Improvement

AUTHORS: Steve Heymen, Olafur S. Palsson, Magnus Simren, William E. Whitehead

TIME AND LOCATION: 9:30 AM Hall C (SDCC)

TUESDAY, MAY 24

CONTROL ID: 2440325

SESSION TYPE: Poster Session

SESSION TITLE: Irritable Bowel Syndrome: Pathophysiology

TITLE: Families of Irritable Bowel Syndrome (IBS) Patients Have Elevated Prevalence of Chronic Medical Conditions

AUTHORS: Olafur S. Palsson, Miranda A. van Tilburg, William E. Whitehead

TIME AND LOCATION: 9:30 AM Hall C (SDCC)

TUESDAY, MAY 24

CONTROL ID: 2440637

SESSION TYPE: Poster Session

SESSION TITLE: Irritable Bowel Syndrome: Pathophysiology

TITLE: Additive Effect of Pathophysiological Factors on Patient Reported Outcomes in IBS

AUTHORS: Magnus Simren, Hans Törnblom, Olafur S. Palsson, Miranda A. van Tilburg, Lukas Van Oudenhove, William E. Whitehead, Jan F. Tack

TIME AND LOCATION: 9:30 AM Hall C (SDCC)

TUESDAY, MAY 24

CONTROL ID: 2443637

SESSION TYPE: Poster Session

SESSION TITLE: Irritable Bowel Syndrome: Pathophysiology

TITLE: Distinct Subtypes of Irritable Bowel Syndrome Are Defined By Psychological Symptoms, Visceral Pain Sensitivity, Stool Consistency, and Motility

AUTHORS: Miranda A. van Tilburg, Magnus Simren, Olafur S. Palsson, Hans Törnblom, William E. Whitehead

TIME AND LOCATION: 9:30 AM Hall C (SDCC)

TUESDAY, MAY 24

CONTROL ID: 2443158

SESSION TYPE: Poster Session

SESSION TITLE: Pediatric Functional and Motility Disorders

TITLE: Maternal Inheritance of Functional Symptoms Is Common in Functional Abdominal Pain

AUTHORS: Lindsey Lewis, Miranda A. van Tilburg

TIME AND LOCATION: 9:30 AM Hall C (SDCC)

TUESDAY, MAY 24

CONTROL ID: 2439805

SESSION TYPE: Poster Session

SESSION TITLE: Irritable Bowel Syndrome: Pathophysiology
TITLE: Colonic Immune Cells in Irritable Bowel Syndrome: A Systematic Review and Meta-Analysis

AUTHORS: Mohammad Bashashati, Shirin Moossavi, Nima Rezaei, Sharareh Moraveji, Cesare Cremon, Patrick A. Hughes, Zx Bian, Chang Hwan Choi, Oh-Young Lee, Moïse Coëffier, Lin Chang, Lena Ohman, Max J. Schmulson, Magnus Simren, Keith A. Sharkey, Giovanni Barbara

TIME AND LOCATION: 9:30 AM Hall C (SDCC)

TUESDAY, MAY 24

CONTROL ID: 2434874

SESSION TYPE: Poster Session

SESSION TITLE: Pediatric Functional and Motility Disorders
TITLE: Parental Protectiveness Partially Mediates the Association Between Parent-Reported Child Self-Efficacy and Child Health Outcomes in Pediatric Functional Abdominal Pain

AUTHORS: Melissa DuPen, Shelby Langer, Tasha Murphy, Miranda A. van Tilburg, Joan Romano, Rona L. Levy

TIME AND LOCATION: 9:30 AM Hall C (SDCC)

TUESDAY, MAY 24

CONTROL ID: 2434783

SESSION TYPE: Poster Session

SESSION TITLE: Pediatric Functional and Motility Disorders
TITLE: Evidence for Neuro-Immune Activation and Its Relationship to Abdominal Pain in Children With Irritable Bowel Syndrome (IBS)

AUTHORS: Robert Shulman, Lena Ohman, Magnus Simren, Mats Stridsberg, Margaret Heitkemper

TIME AND LOCATION: 9:30 AM Hall C (SDCC)

UNC HOSTS VISITING SURGEON FROM UK



Dr. Emma Carrington is an Honorary Senior Clinical Fellow in General / Colorectal Surgery at the Wingate Institute of Neurogastroenterology within the National Centre for Bowel Research and Surgical Innovation at Queen Mary's University of London. She received her MBBS and MSc from

the Imperial College School of Science, Technology and Medicine at the University of London and received her PhD in Surgery from Queen Mary University of London in March 2015.

Drs. William Whitehead, Olafur Palsson, and Steve Heymen will mentor Dr. Carrington while she is at

UNC. While here, she will observe and learn more about pelvic floor biofeedback training. She will also receive training on a study design for randomized controlled trials of surgical and behavioral interventions.

Dr. Carrington will also meet with faculty from urogynecology and colorectal surgery to discuss surgical and behavioral treatments for fecal incontinence.

In addition, she will be working alongside UNC faculty and disease specialist, Dr. Magnus Simren, to learn about current research and medical management of irritable bowel syndrome and fecal incontinence.

NIH INCREASES FUNDING FOR MEDICAL RESEARCH

The National Institutes of Health (NIH) is a federally funded governmental organization that funds research endeavors across the United States, many of which are awarded to the University of North Carolina at Chapel Hill. After several years of flat funding, the recent omnibus budget that was signed into law by President Obama includes a \$2 billion dollar increase for NIH. This puts the current funding level of the NIH close to \$32 billion. This important increase in funding will impact multiple facets of research into the etiology and treatment of a variety of medical conditions, and creates a brighter future for new and midlevel researchers.

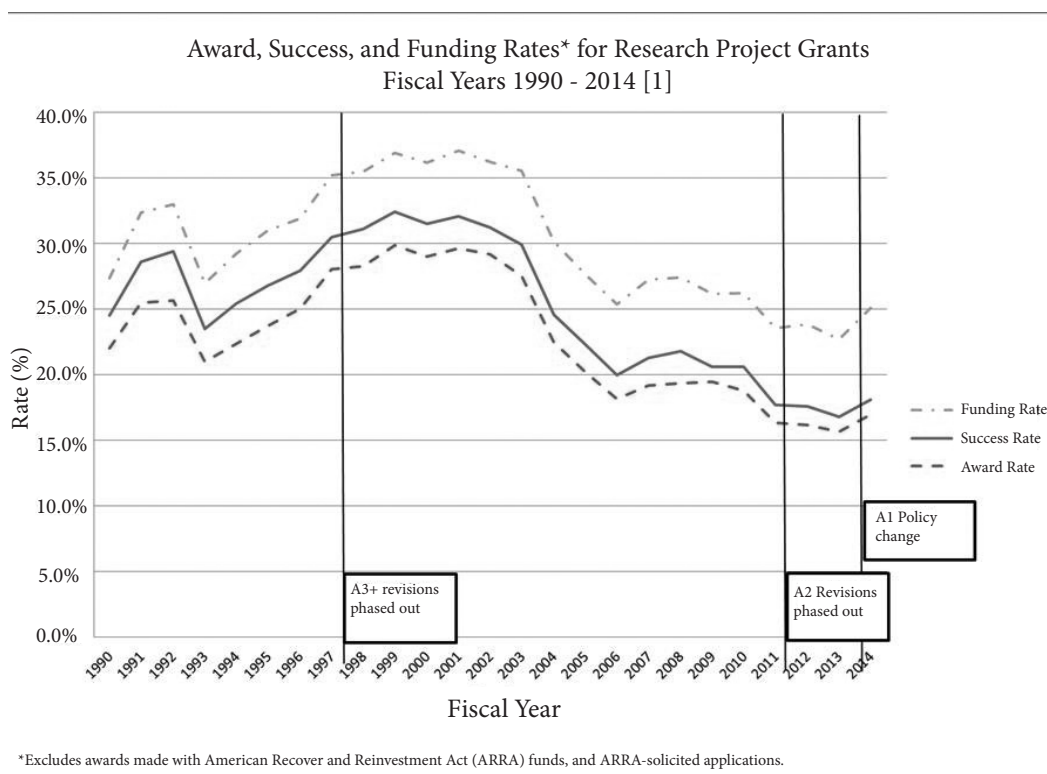
Common goals of medical research include curing diseases, testing medical devices and novel pharmaceuticals, improving quality of life, and identifying the causes of functional gastrointestinal disorders so that prevention is possible. The first step in bringing these discoveries to the public is for the investigator to have their project funded. Thousands of vital research grants submitted to the NIH are funded each year, but there is only enough money to fund a small fraction of them. According to the 2014 NIH record, 54,519 applications, including resubmissions, were submitted to the NIH but only 9,241 grants were funded, calculating the success rate of being funded at 17%.[1] Many of the grants that did not receive funding were recommended by review committees for funding because they had the potential for advancing treatment.

Looking at the graph, it is easy to see how there has been a direct correlation between the decline in NIH research funding and the number of researchers receiving grants for critical research. This also has a direct impact on whether young people decide to become scientists or choose other fields. There has been a decline in “new blood” (i.e., the number of applications submitted by new graduates

and first time applicants) over the past few years due to the fierce competition for dwindling funds. The recent increase in NIH funding opens the doors for new researchers to establish themselves and help take the place of retiring academics and researchers.

In the past several years, multiple research projects supported by NIH were conducted at UNC or in collaboration with other institutions, which have led to new medical discoveries on etiology and treatments/therapies for functional GI disorders. Below is an abbreviated list:

1. Whitehead WE, Rao SS, Lowry A, Nagle D, Varma M, Bitar KN, Bharucha AE, Hamilton FA. Treatment of fecal incontinence: state of the science summary for the National Institute of Diabetes and Digestive and Kidney Diseases workshop. *Am J Gastroenterol.* 2015 Jan;110(1):138-46
2. Wald A, Bharucha AE, Cosman BC, Whitehead WE. ACG Clinical Guideline: Management of benign anorectal disorders. *Am J Gastroenterol* 2014;109:1141-57



3. Palsson OS, Baggish J, Whitehead WE. Episodic nature of symptoms in irritable bowel syndrome. *Am J Gastroenterol* 2014;109:1450-60.
4. Levy RL, Langer SL, Romano JM, Labus J, Walker LS, Murphy TB, Tilburg MA, Feld LD, Christie DL, Whitehead WE. Cognitive mediators of treatment outcomes in pediatric functional abdominal pain. *Clin J Pain*. 2014 Dec;30(12):1033-43.
5. van Tilburg MA1, Palsson OS, Whitehead WE. Which psychological factors exacerbate irritable bowel syndrome? Development of a comprehensive model. *J Psychosom Res*. 2013 Jun;74(6):486-92.
6. van Tilburg MA, Whitehead WE. New paradigm for studying genetic contributions to irritable bowel syndrome. *Dig Dis Sci*. 2012 Oct;57(10):2484-6.

A current NIH research grant awarded to the Center is an interactive patient utilized website for the conservative management of accidental bowel leakage. This is currently being tested by research volunteers, and the goal of this project is to provide physicians and patients another treatment tool to help patients conservatively manage their accidental bowel leakage. Previous research conducted at the Center has shown that conservative therapies can help delay admission to a skilled nursing facility, which has a drastic impact on a patient's financial burden, quality of life, and the potential financial encumbrance of Medicaid and/or Medicare.[2,3] This research showed that individuals with accidental bowel leakage had on average \$2800+ per year higher health care costs than those without accidental bowel leakage.[3]

The increase in NIH funding for medical research is very likely to lead to increases in our understanding of the etiology and treatment for medical disorders such as gastroparesis, irritable bowel syndrome, pelvic floor disorders, accidental bowel leakage, functional dyspepsia, functional abdominal pain, and several other functional gastrointestinal disorders. President Obama stated in his State of the Union Address, "Medical research is critical." That could not be more potent as we reflect on the accomplishments of previous medical discoveries and await the discoveries yet to come.

References

1. Rockey S. National Institutes of Health. Extramural Nexus. Rock Talk. <http://nexus.od.nih.gov/all/2015/06/29/what-are-the-chances-of-getting-funded/> Accessed 13 January 2016.
2. Nyrop KA, Grover M, Palsson OS, Heymen S, Palmer MH, Goode PS, Whitehead WE, Busby-Whitehead J. Likelihood of nursing home referral for fecally incontinent elderly patients is influenced by physician views on nursing home care and outpatient management of fecal incontinence. *J Am Med Dir Assoc*. 2012 May;13(4):350-4
3. Dunivan GC, Heymen S, Palsson OS, von Korff M, Turner MJ, Melville JL, Whitehead WE. Fecal incontinence in primary care: prevalence, diagnosis, and health care utilization. *Am J Obstet Gynecol*. 2010 May;202(5):493.e1-6

Article written by Stefanie Twist

PREVALENCE AND HEALTH CARE OUTCOMES REGARDING FECAL INCONTINENCE AMONGST INDIVIDUALS WHO PARTICIPATE IN ANAL INTERCOURSE

A less often talked about risk factor for accidental bowel leakage is anal intercourse. Though it is not the easiest topic to discuss, it is important to acknowledge the implications this has on internal and external sphincter tone and the increased risk for developing accidental bowel leakage among both women and men.

The National Health and Nutrition Examination Survey (NHANES) database is a national sample of non-institutionalized adults in the United States that combines questionnaire and physical examination data. Data collected is used by researchers to better understand the health status of the general population. The information collected covers a variety of topics from gastrointestinal health, sexual health, cardiovascular health, metabolic and diabetic health, and many more data points. Though data collection has been ongoing, the specific year of data collection for this study was 2009-2010. Roughly 6,000 individuals aged 20 and older participated in the survey for those particular calendar years.

Before reviewing the findings of the data, it should be said that the questions used to measure rates of anal intercourse of men and women varied, as the male population was asked about oral and anal sex in the same question. This makes it hard to definitively identify how many true positives for this question really exist.

The publication by Markland et al. found that anal intercourse was more frequently reported in women (up to 42%) than men (up to 6%).^[1] Of the women interviewed, the most frequent age group to report anal intercourse was women aged 20-49. Women who engaged in anal intercourse also reported higher rates of depression than men as well as higher rates of accidental bowel leakage (women: 8.3%; and men: 5.6%).^[1] An important revelation found in the data was that both men and women who had reported having anal intercourse also reported similar scores for fecal incontinence severity as measured by the Fecal Incontinence Severity Index (FISI) scores.

For women specifically, questions remain unanswered regarding what factor(s) led them to have a higher prevalence of anal intercourse than men. Interestingly enough, women who had never had a vaginal birth had higher rates of anal intercourse than women

who reported 1 or more vaginal birth.^[1] Could the prevalence in this population be explained as a form of birth control or are there other unknown factors contributing to the frequency of anal intercourse? The study also provoked many additional questions about populations engaging in anal intercourse. Women who had not attended college and were at or below the poverty level endorsed higher rates of anal intercourse.^[1]

The bigger concern is how anal intercourse affects the anal sphincter muscles. Of the research conducted in males, there were no defects noted in the internal or external anal sphincters as noted by endoanal ultrasound, but those who engaged in anal intercourse had significantly lower resting pressures in the anal canal as measured by manometric perfusion catheter^[2,3] Research also suggests that anal intercourse reduces the maximum squeeze pressure in the anal canal.^[3] The loss in resting tone as well as maximum squeeze pressure increases the risks for accidental bowel leakage, and multiple studies have shown anal intercourse is a direct risk factor for accidental bowel leakage.^[1,3]

As with most research, with every question answered, new unexplained phenomenon come to light. Information presented in the findings should be considered as a primer for health care providers to educate their patients on the risks of anal intercourse, and should alert them to screen for accidental bowel leakage in patients with alternative lifestyles.

1. Markland, AD, Dunivan GC, Vaughan CP, Rogers RB. Anal intercourse and fecal incontinence: Evidence from the 2009-2010 National Health and Nutrition Examination Survey. *Am J Gastroenterol*. 2016 Jan 12. doi: 10.1038/ajg.2015.419
2. Chun AB, Rose S, Mitrani C, Silvestre AJ, Wald A. Anal sphincter structure and function in homosexual males engaging in anoreceptive intercourse. *Am J Gastroenterol*. 1997. Mar; 92(3): 465-8.
3. Miles AJ, Allen-Mersh TG, Wastell C. Effect of anoreceptive intercourse on anorectal function. *J R Soc Med*. 1993; 86(3): 144-7.

Article written by Stefanie Twist

Save the Date

June 25, 2016

The UNC Center for Functional GI and Motility Disorders is currently developing a continuing medical education (CME) program "Introduction to Rome IV and Update on Diagnostic and Treatment Algorithms for IBS and other Functional Gastrointestinal Disorders."

This program is unique in that it will be held online as well as in person. The program has been approved for 7.25 AMA PRA Category 1 Credit™ for physicians and 0.725 Continuing Education Units (CEU's) / 7.25 contact hours for other health care professionals. This event will be attended in-person and live streamed on UNC Chapel Hill's campus in the Bioinformatics Building. The live video feed will be streamed all day (8:30am – 5:30pm) based on Eastern Standard Time. The course will identify and apply new Rome IV Diagnostic Criteria, discuss current methodology in treatment for Irritable Bowel Syndrome (IBS) and other functional gastrointestinal disorders (FGIDs). Additional topics will include (1) What's new in Rome IV, (2) Clinical Management of FGIDs, (3) IBS Disease Mechanism, (4) Treatments for IBS including centrally and peripherally acting pharmaceuticals, psychological treatments, and dietary advice for IBS, (5) Etiology and treatment of upper GI disorders, and (6) Etiology and treatment of lower GI disorders.

If you are interested in participating, please visit <http://bit.ly/1UduSLq>.

We are still in the process of finalizing the course, but expect to hold this event in conjunction with the Center's patient day the following day, Sunday June 26. There is a charge to participate in the continuing education program, however patient day is free to participate in.

Patient day will be available to participate in online and in person. We strive to offer patients all across the state, country, and world the opportunity to participate from the comfort of their homes. The live video feed will be streamed all morning into mid-afternoon (8:00am – 1:00pm) based on Eastern Standard Time. As in previous years, you will be able to submit your questions online either through the websites forum or through Twitter. We will try to address as many questions as possible during the panel discussions after each section of speakers. Topics to be discussed include (1) an overview of Irritable Bowel Syndrome (IBS), (2) IBS Symptoms and Constipation (3) IBS, Diarrhea, and Fecal Incontinence, (4) Upper GI Disorders including gastroparesis, heartburn, and esophageal disorders, and (5) Non-Drug Treatments including diet, biofeedback, mindfulness, cognitive behavioral therapy (CBT), and hypnosis for the treatment of functional gastrointestinal disorders (FGIDs).



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BURDEN OF GASTROINTESTINAL DISEASE IN THE UNITED STATES

Recently, several UNC faculty gastroenterologists and researchers published an article in the journal *Gastroenterology* on the burden of gastrointestinal illness. This brief synopsis will focus specifically on the results provided for functional gastrointestinal and motility disorders. The information reviewed for this article came from health care utilization statistics from the Centers for Disease Control and Prevention in ambulatory and inpatient settings across the United States from 2007 through 2012.

Functional gastrointestinal and motility disorders, specifically symptoms associated with these disorders, directly impact patient burden and health care utilization.

In 2010, the four top symptoms reported for ambulatory treatment were ;

1. Abdominal pain
2. Diarrhea
3. Vomiting
4. Nausea

Of the diagnosis codes used in 2012 for emergency department visits in 2012, patients coded for functional and motility disorders topped the list with 941,202 visits. Compared to 2006, this was a 39% increase in the number of ED visits.

The full article can be viewed by the below citation;
Peery AF, et al. Burden of Gastrointestinal, Liver, and Pancreatic Diseases in the United States. *Gastroenterology*. 2015; 149: 1731-41.

Leading Gastrointestinal Symptoms Prompting and Ambulatory Visit, 2010 (Estimated # of visits)

Rank	Symptom	Office Visits	Emergency Department	Hospital Outpatient	Total
1	Abdominal Pain	15,028,011	10,416,899	1,655,073	27,099,983
2	Diarrhea	4,454,522	795,543	379,173	5,629,238
3	Vomiting	2,681,315	5,459,103	351,709	5,492,127
4	Nausea	2,343,409	2,187,272	184,238	4,714,919

Peery, et al. 2015

RESEARCH SUBJECTS NEEDED

Researchers in the UNC Center for Functional GI & Motility Disorders are finishing development of a complete 6 week online self-help program designed to enable individuals to reduce or get rid of accidental bowel leakage (fecal incontinence) on their own.

If you have been experiencing accidental bowel leakage, then the researchers would like your help to evaluate their new program in a research study that you can participate in entirely through your own computer.

You may be able to take part in this research study if you;

1. Have experienced accidental bowel leakage at least once a week in the past 6 months.
2. Are able and willing to log into a website and complete the learning tasks and answer diary questions for a few minutes each night for a six week period.
3. **Live in North Carolina or Virginia.**
4. Speak and write fluent English.

No study visits will be required.

You will be reimbursed up to \$200 for completing the 6 week study participation. For more information or to enroll in the study, go to the online consent form:

<http://bit.ly/1PFBv18>

TREATMENT STUDIES

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LOWER GI CHANGES IN PREGNANCY: CONTINUED FROM COVER

from nausea and vomiting, can lead to constipation symptoms in pregnancy.

Treatment:

Fortunately, there are treatment options for constipation. First, make sure you are staying hydrated and having adequate fiber intake by supplementing with 20-35 grams daily. Second, osmotic laxatives are generally safe to use in pregnancy and are the most commonly prescribed medications for constipation during pregnancy. Lactulose (15-30 ml/day) has a pregnancy category B (per the FDA, animal reproduction studies have failed to demonstrate a risk to the fetus). Polyethylene glycol, also known as Miralax (8-25 mg/day), has a pregnancy category C (per the FDA, there are no adequate studies in humans, but potential benefits may outweigh any potential risks). Lactulose and polyethylene glycol work by an osmotic effect of attracting water into the colon. Both of these medications are minimally absorbed and therefore thought to be generally safe during pregnancy.

Fecal Incontinence:

Up to 25% of first-time mothers report having symptoms of fecal incontinence for up to 6 weeks after delivering, but most women recover. Fecal incontinence is often an under-reported symptom, so the prevalence is likely to be higher. Typically however, patients who injure their pelvic floor muscles during childbirth do not develop fecal incontinence from delivery later in life, often in their 60s and 70s. Symptoms of fecal incontinence likely occur from damage to the anal sphincters during delivery and age, both of which can cause weakness of the pelvic floor muscles. Damage to the sphincters can also occur during an episiotomy, tearing (especially 3rd or 4th degree tears), or from pudendal nerve damage. If patients have pudendal nerve damage they may have decreased sensation and an inability to tell if they need to pass gas or stool, resulting in fecal leakage.

Treatment:

Fecal incontinence is often a multifactorial issue, therefore there are multiple treatment modalities. Medications to firm the stool are often the first-line treatment. These include Imodium, Lomotil and fiber. If symptoms persist, then patients are advised to complete anorectal physiologic testing and undergo pelvic floor retraining and biofeedback. Often times,

an anal ultrasound is also preformed to identify any residual sphincter damage. Surgery for sphincter repair is an option for patients who fail biofeedback. Lastly, sacral nerve stimulators are now being used to treat fecal incontinence and may also be a potential option for patients with ongoing fecal incontinence.

Hemorrhoids:

Hemorrhoids are inflamed and swollen veins in the anus and lower rectum, and they are common during pregnancy. Symptomatic hemorrhoids can cause pain, bleeding, and pruritis. Hemorrhoids during pregnancy are a result of straining during defecation and increased vascular engorgement from the enlarged gravid uterus. Many people also notice symptomatic hemorrhoids after delivery. This is often a result of pushing during the second stage of labor.

Treatment:

Treatment of hemorrhoids during pregnancy is similar to treatment in non-pregnant women. Initial management includes increasing dietary fiber and water. Medications, such as stool softeners, that target constipation can be used. Hydrocortisone suppositories are safe to use during pregnancy and can help reduce swelling. If medical management fails, then hemorrhoidal banding, infrared coagulation and surgical hemorrhoidectomy are potential safe options during pregnancy.

References:

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Trottier M, Erebara A, Bozzo P et al. Treating constipation during pregnancy. *Can Fam Physician*, 2012;58:836-838.



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