NEW STANDARD ON STOOL ASSESSMENT

Dr. Marisol Teijeiro, ND

QUEEN OF THE THRONES™

DISCLAIMER

The information delivered throughout this course does not replace the advice of your health care professional. This course does not suggest a patient/doctor relationship. Do not proceed without consulting your healthcare professional. This course is for educational purposes only.

#1 PRODUCT OUR BODY PRODUCES NOT #2

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Pop Quiz: What % of stool is bacteria?

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5%

15%-20%

25%-30%

30-50%

??????????????

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30-50%
WHAT!!!??

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The smell in the bathroom, is one of the ways you can inspect your poo and you share your Microbiome!!!

Save Unsuspecting Victims!

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MICROBIOME MAYHEM
REMEMBER PASTEUR?
GERM "BUG" THEORY

“THE TERRAIN IS EVERYTHING”
PASTEUR ON HIS DEATH BED

“WE ARE ALL BROKEN, AND THAT’S HOW THE LIGHT GETS INSIDE.”

Ernest Hemingway

PURPOSE #1
POTTY TRAINING

What Happened?

LEST WE FORGET!

ROYAL FLUSH (A.K.A. THE PERFECT POO)

- Experience of complete evacuation (no straining, comes out like butter) “I did that!”
- Little to NO smell “Nothing!”
- Easy wipe “Wipe once, wipe clean!”
- Sink into bowl, no mess “No shame!”
- Food to relief is 24 hours “No bloat, tummy feels flat!”
- Daily Sausage “Wow, I’m proud!”

THE 11 GOLDEN NUGGETS

- Timing - frequency, transit time
- Characteristics - color, call of nature, smell
- Feeling - consistency, mess, wipe, satisfaction, sink, form

TABLE OF CONTENTS

- Review of drugs cause symptoms - constipation/diarrhea and mimic IBS
- One of the 11 Golden Nuggets that affects IBS
  - Transit time - OATT, CTT, WGTT
  - Factors that affect
- Quick Naturopathic Treatment Review
- Castor oil packs - terrain medicine
- Focus on the future - Sharing of this Information

STOOL STATISTICS

- 14% of the worlds population has Functional Constipation (classified by Rome III criteria)
- 12-19% of people in North America have IBS (Bellini M et.al IBS-C and Chronic Constipation)
  - Reports state underreported
  - Women higher incidence CC and IBS than men
  - Highest levels are in South America - 21%
  - Lowest level are in South Asia - 7%
- 60-78% of IBS is caused by SIBO
- 1-40% of controls have SIBO
- SIBO and IBS-D (Diarrhea), Blind Loop Syndrome - mimic each other
- Multiple drugs, lifestyle factors that implicate

DRUGS AND CONSTIPATION

- NSAIDS - Acetaminophen/Paracetamol (Tylenol) Ibprofen (Advil,Motrin), Naproxen (Aleve)
- Anti Cholinergic Drugs & Anti Histamines Diphenhydramine (benadryl) Cetirizine (Zyrtec) Fexofenadine (Allegra), Loratadine (Claritin), Oxybutynin (Ditropan XL) Toletrodine (Detrol-Urinary Incontinence) Dry Mouth- It will constipate you
- Opiates- Acetaminopphen/Hydrocodone (Vicodin, Norco) Acetaominphen/Codeine (Tylenol 3), Hydromorphone (Dilaudid)

LORATADINE - CLARITIN

- Treats hay fever, allergies
- SX - dry mouth, sleepiness and headache
- Very common prescription - OTC - highly discussed in research with gut issues

DRUGS AND CONSTIPATION OTC

- Pepto Bismol - high doses constipation - bismuth subsalicylate - kaopectate
- Alka Seltzer - calcium carbonate
- Nexium - PPI, Imodium - Loperamide
- Buscapina - Hyoscine butylbromide - Select countries, treat crampy abdominal pain, esophageal spasms, renal colic, and bladder spasms – from deadly nightshade (hyoscine)

DRUGS AND CONSTIPATION

- Cortisone, Prednisone
- Blood Pressure - diltiazem and verapamil (calcium channel blockers) and beta blockers (drugs ending in – OL like atenolol) - symptom throat cough
- ** IRON SUPPLEMENTATION **

DRUGS AND CONSTIPATION

- BCP - High estrogens reduced smooth muscle motility
- Anti-viral medications- Acyclovir, Valaciclovir
- Anti-anxiety- Benzodiazepines
- Anti-depressants TriCyclic (acetylcholine- SmMSCM), SSRI - It depends on what you are on

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PAXIL

- SSRI - most often causes laxation and not constipation
- But if it constipates it can be a doosy
- Often prescribed for neurotic bowel- IBS - constipation

DRUGS AND CONSTIPATION

- Urinary Incontinence - Ditropan XL, Detrol - anti-cholinergic
- Finasteride (hair loss in men) androgen - will cause breast enlargement - constipation as well
- Tamsulosin (Flomax)
- Cialis - Tis
- Ondansetron- serotonin antagonists (Zofran)
  - cancer patients

DRUGS AND CONSTIPATION DIURETICS

- Loop - Furosemide
- Thiazide - Hydrochlorothiazide
- Carbonic anhydrase inhibitors - Acetozolamide, Methazolamide,
- K sparring diuretics
  - Aldosterone antagonizers - Spironolactone
  - Epithelial sodium channel blockers- amiloride and triamterene
- Ca - sparing diuretics - Thiazides and K sparring Diuretics - unwanted in Hypercalcemia, wanted in Hypocalcemia.
- Osmotic diuretics - Mannitol - SUGAR biggest diuretic of them all (think diabetes)
- Low ceiling diuretics - Thiazides

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DRUGS AND DIARRHEA

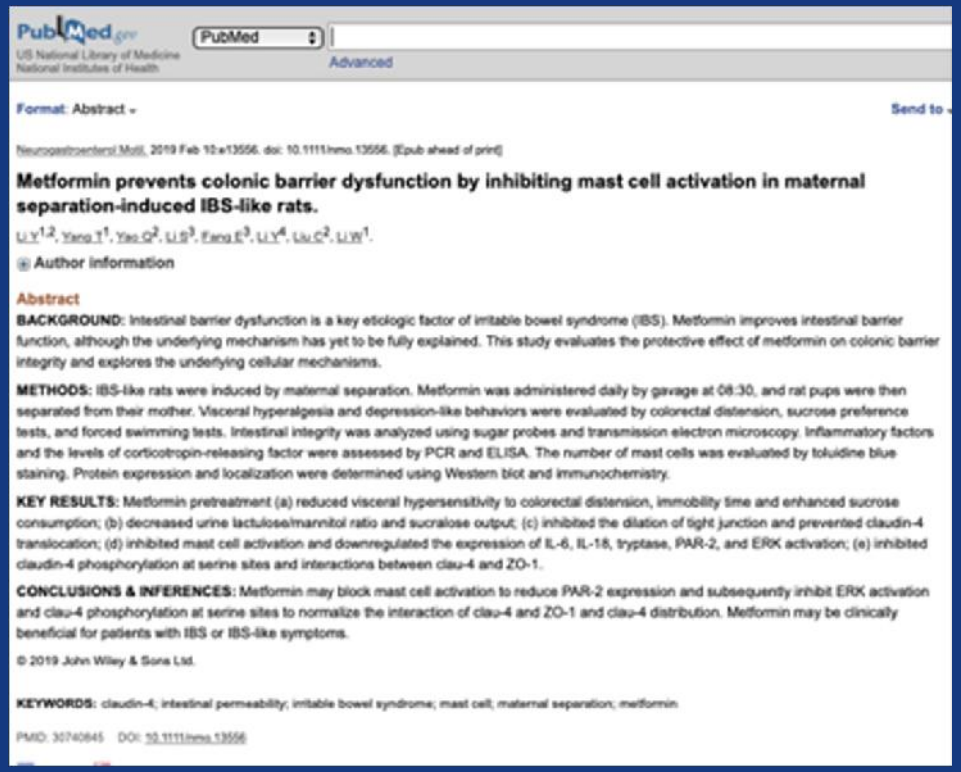
- Metformin
- Vasopressin - anti diuretic hormone
- Thyroxine, Cytomel, Armour Thyroid
- Prostate Drugs/ED - Tadalafil - Cialis,
- Erectile Dysfunction - Tadalafil - Cialis - Sildenafil - Viagra, Vardenafil - Levitra
- Castor oil PO- 1-3 Tbsp per day, severe constipation
- Laxatives
- Magnesium, Melatonine, GABA, Marijuana (THC)
- CELEXA, Sertraline, Citralopram

METFORMIN HIGHLIGHT

KEY THINGS:

- Reduced visceral hypersensitivity
- Reduced immobility time
- Enhanced sucrose absorption
- Reduced urine lactulose/mannitol and sucralose output
- Inhibit dilation of tight junction
- Blocked mast cell activation
- Reduced inflammation markers
- Certain GENE expressions

Possible benefit for IBS or IBS-like symptoms



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Neurogastroenterol Motil. 2019 Feb 10:e13556. doi: 10.1111/nmo.13556. [Epub ahead of print]

Metformin prevents colonic barrier dysfunction by inhibiting mast cell activation in maternal separation-induced IBS-like rats.

Li Y[1,2], Yang T[1], Yao Q[2], Li S[3], Fang E[3], Li Y[4], Liu C[2], Li W[1].

Author information

Abstract

BACKGROUND: Intestinal barrier dysfunction is a key etiologic factor of irritable bowel syndrome (IBS). Metformin improves intestinal barrier function, although the underlying mechanism has yet to be fully explained. This study evaluates the protective effect of metformin on colonic barrier integrity and explores the underlying cellular mechanisms.

METHODS: IBS-like rats were induced by maternal separation. Metformin was administered daily by gavage at 08:30, and rat pups were then separated from their mother. Visceral hyperalgesia and depression-like behaviors were evaluated by colorectal distension, sucrose preference tests, and forced swimming tests. Intestinal integrity was analyzed using sugar probes and transmission electron microscopy. Inflammatory factors and the levels of corticotropin-releasing factor were assessed by PCR and ELISA. The number of mast cells was evaluated by toluidine blue staining. Protein expression and localization were determined using Western blot and immunochemistry.

KEY RESULTS: Metformin pretreatment (a) reduced visceral hypersensitivity to colorectal distension, immobility time and enhanced sucrose consumption; (b) decreased urine lactulose/mannitol ratio and sucralose output; (c) inhibited the dilation of tight junction and prevented claudin-4 translocation; (d) inhibited mast cell activation and downregulated the expression of IL-6, IL-1β, tryptase, PAR-2, and ERK activation; (e) inhibited claudin-4 phosphorylation at serine sites and interactions between clau-4 and ZO-1.

CONCLUSIONS & INFERENCES: Metformin may block mast cell activation to reduce PAR-2 expression and subsequently inhibit ERK activation and clau-4 phosphorylation at serine sites to normalize the interaction of clau-4 and ZO-1 and clau-4 distribution. Metformin may be clinically beneficial for patients with IBS or IBS-like symptoms.

KEYWORDS: claudin-4; intestinal permeability; irritable bowel syndrome; mast cell; maternal separation; metformin

PMID: 30740845 DOI: 10.1111/nmo.13556

A CROWN JEWEL OF POO

- OATT - Oro Anal
- CTT - Colonic
- WGTT - Whole Gut

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- N= 610 382 (treated)
  228 (non-treated)
- Radio opaque markers and X-ray
- Diary - MD TX,
  Life FX, Stool Habits,
- Perceived Constipation & Abdominal Pain

Acta Radiol Open. 2018 Oct 22;7(10):2058460118807232. doi: 10.1177/2058460118807232. eCollection 2018 Sep.

Longer colonic transit time is associated with laxative and drug use, lifestyle factors, and symptoms of constipation.

Bohlin J[1], Dahlin E[1], Dreja J[2], Roth B[1], Ekberg O[2], Ohlsson B[1].

Author information

Abstract

BACKGROUND: Gastrointestinal symptoms and changes in colonic transit time (CTT) are common in the population.

PURPOSE: To evaluate consecutive patients who had been examined for CTT, along with completion of a diary about laxative and drug use, lifestyle factors, and gastrointestinal symptoms, to identify possible associations with longer or prolonged CTT.

MATERIAL AND METHODS: A total of 610 consecutive patients had undergone the radiopaque marker method with an abdominal X-ray for clinical purposes. The patients had completed a diary regarding medical treatment, lifestyle factors, stool habits, and their perceived constipation and abdominal pain during the examination period. The associations between CTT and laxative use, lifestyle factors, stool habits, and symptoms were calculated by logistic regression.

RESULTS: Women had longer CTT (2.5 [1.6-3.9] vs. 1.7 [1.1-3.0] days, $P < 0.001$), lower weekly stool frequency (6 [3-10] vs. 8 [5-12], $P = 0.001$), and perceived more constipation ($P = 0.025$) and abdominal pain ($P = 0.001$) than men. High coffee consumption ($P = 0.045$), bulk-forming ($P = 0.007$) and osmotic ($P = 0.001$) laxatives, and lower stool frequency, shaped stool, and perceived constipation (P for trend < 0.001) were associated with longer CTT. In total, 382 patients (63%) were treated with drugs affecting motility. In the 228 patients without drug treatment, longer CTT was associated with female sex and smoking, and lower frequency of symptoms and prolonged CTT were observed compared to patients using drugs. Tea, alcohol, and abdominal pain did not associate with CTT.

CONCLUSIONS: Female sex, coffee, smoking, drug use, infrequent stools, shaped stool, and perception of constipation are associated with longer or prolonged CTT.

KEYWORDS: Colonic transit time; constipation; functional gastrointestinal disorders (FGID); laxatives; lifestyle factors

PMID: 30364803 PMCID: PMC6198400 DOI: 10.1177/2058460118807232

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TRANSIT TIME
BOHLIN ET AL

- Slow transit - longer CTT and + GI symptoms or problems
- Men faster than women regardless of lifestyle factors
  - CTT Men 1.7 days Women 2.5 days ($p < 0.001$)
  - FREQUENCY/week Men 8 Women 6 ($p = 0.001$)
  - Women PERCEIVED MORE PAIN (P=0.001)
  - Women PERCEIVED MORE CONSTIPATION ($p = 0.025$)

TRANSIT TIME
BOHLIN ET AL

- Association with Longer CTT
  - High coffee consumption (P=0.045)
  - Bulk forming (P=0.007)
  - Ossmotic laxatives (P= 0.001)
  - Lower Stool Frequency, Shaped Stool and Perceived Constipation (P for trend<0.001)
- Tea, alcohol, abdominal pain had NO association CTT
- Men drank more beer, women more wine

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BRISTOL STOOL CHART

Type 1	Separate hard lumps	SEVERE CONSTIPATION
Type 2	Lumpy and sausage like	MILD CONSTIPATION
Type 3	A sausage shape with cracks in the surface	NORMAL
Type 4	Like a smooth, soft sausage or snake	NORMAL
Type 5	Soft blobs with clear-cut edges	LACKING FIBI
Type 6	Mushy consistency with ragged edges	MILD DIARRH
Type 7	Liquid consistency with no solid pieces	SEVERE DIAR

Scand J Gastroenterol. 1997 Sep;32(9):920-4.

Stool form scale as a useful guide to intestinal transit time.

Lewis SJ[1], Heaton KW.

Author information

Abstract

BACKGROUND: Stool form scales are a simple method of assessing intestinal transit rate but are not widely used in clinical practice or research, possibly because of the lack of evidence that they are responsive to changes in transit time. We set out to assess the responsiveness of the Bristol stool form scale to change in transit time.

METHODS: Sixty-six volunteers had their whole-gut transit time (WGTT) measured with radiopaque marker pellets and their stools weighed, and they kept a diary of their stool form on a 7-point scale and of their defecatory frequency. WGTT was then altered with senna and loperamide, and the measurements were repeated.

RESULTS: The base-line WGTT measurements correlated with defecatory frequency ($r = 0.35$, $P = 0.005$) and with stool output ($r = -0.41$, $P = 0.001$) but best with stool form ($r = -0.54$, $P < 0.001$). When the volunteers took senna ($n = 44$), the WGTT decreased, whereas defecatory frequency, stool form score, and stool output increased (all, $P < 0.001$). With loperamide ($n = 43$) all measurements changed in the opposite direction. Change in WGTT from base line correlated with change in defecatory frequency ($r = 0.41$, $P < 0.001$) and with change in stool output ($n = -0.54$, $P < 0.001$) but best with change in stool form ($r = -0.65$, $P < 0.001$).

CONCLUSIONS: This study has shown that a stool form scale can be used to monitor change in intestinal function. Such scales have utility in both clinical practice and research.

PMID: 9299672 DOI: 10.3109/00365529709011203

[Indexed for MEDLINE]

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TRANSIT TIME (TT)

LEWIS ET AL.

- N=66
- Baseline TT Correlated to Frequency (r=0.35, P=0.005), Stool Output (r=0.41, P=0.001), But BEST with FORM (r=0.54, P<0.001)
- Senna Laxative TT Decreased, Frequency, Form and Output Increased (P=0.001)
- Loperamide TT increased, Frequency, Form and Output Decreased
- Change From Baseline TT Correlated to Frequency (r=0.41, P<0.001) , Stool Output (r=0.54, P<0.001), But BEST with FORM (r=0.65, P<0.001)

THINGS THAT CAN AFFECT TT

- Microbiome & Biofilm
- Food processing, food combinations - gut glue
- STRESS
- Inflammation
- Lack of antioxidants
- Lack of digestive juices and inability to absorb and eliminate - enzymes, HCL, Musosal Lining health

Nat Microbiol. 2016 Jun 27;1(9):16093. doi: 10.1038/nmicrobiol.2016.93.

Colonic transit time is related to bacterial metabolism and mucosal turnover in the gut.

Roager HM[1], Hansen LB[2], Bahl MI[1], Frandsen HL[1], Carvalho V[1], Gøbel RJ[3], Dalgaard MD[2], Plichta DR[2], Sparholt MH[4], Vestergaard H[3], Hansen T[3], Sicheritz-Pontén T[2], Nielsen HB[2], Pedersen O[3], Lauritzen L[5], Kristensen M[5], Gupta R[2], Licht TR[1].

Author information

Abstract

Little is known about how colonic transit time relates to human colonic metabolism and its importance for host health, although a firm stool consistency, a proxy for a long colonic transit time, has recently been positively associated with gut microbial richness. Here, we show that colonic transit time in humans, assessed using radio-opaque markers, is associated with overall gut microbial composition, diversity and metabolism. We find that a long colonic transit time associates with high microbial richness and is accompanied by a shift in colonic metabolism from carbohydrate fermentation to protein catabolism as reflected by higher urinary levels of potentially deleterious protein-derived metabolites. Additionally, shorter colonic transit time correlates with metabolites possibly reflecting increased renewal of the colonic mucosa. Together, this suggests that a high gut microbial richness does not per se imply a healthy gut microbial ecosystem and points at colonic transit time as a highly important factor to consider in microbiome and metabolomics studies.

PMID: 27562254 DOI: 10.1038/nmicrobiol.2016.93

[Indexed for MEDLINE]

THE MICROBIOME AND TT
ROAGER ET AL.

- Greater Microbial richness of microbiome = **longer transit time**
- Higher transit time SWITCH from carbohydrate fermentation to **protein catabolism**
- **Shorter transit time** correlates to increases of metabolites used in **mucosal regeneration**

THE MICROBIOME AND TT

ROAGER ET AL.

TRANSIT TIME HELPS TO KNOW MICROBIOME

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SIBO, METHANE, AND OATT

Elevated methane levels in small intestinal bacterial overgrowth suggests delayed small bowel and colonic transit.

Suri J[1], Kataria R[2,1], Malik Z[2,1], Parkman HP[2,1], Schey R[2,1].

Author information

Abstract

Limited research exists regarding the relationship between small intestinal bacterial overgrowth (SIBO), small bowel transit (SBT), and colonic transit (CT). Furthermore, symptom analysis is limited between the subtypes of SIBO: hydrogen producing (H-SIBO) and methane producing (M-SIBO). The primary aims of this study are to: compare the SBT and CT in patients with a positive lactulose breath test (LBT) to those with a normal study; compare the SBT and CT among patients with H-SIBO or M-SIBO; compare the severity of symptoms in patients with a positive LBT to those with a normal study; compare the severity of symptoms among patients with H-SIBO or M-SIBO.A retrospective review was performed for 89 patients who underwent a LBT and whole gut transit scintigraphy (WGTS) between 2014 and 2016. Seventy-eight patients were included. WGTS evaluated gastric emptying, SBT (normal ≥40% radiotracer bolus accumulated at the ileocecal valve at 6hours), and CT (normal geometric center of colonic activity=1.6-7.0 at 24hours, 4.0-7.0 at 48hours, 6.2-7.0 at 72hours; elevated geometric center indicates increased transit). We also had patients complete a pretest symptom survey to evaluate nausea, bloating, constipation, diarrhea, belching, and flatulence.A total of 78 patients (69 females, 9 males, mean age of 48 years, mean BMI of 25.9) were evaluated. Forty-seven patients had a positive LBT (H-SIBO 66%, M-SIBO 34%). Comparison of SBT among patients with a positive LBT to normal LBT revealed no significant difference (62.1% vs 58.6%, P=.63). The mean accumulated radiotracer was higher for H-SIBO compared to M-SIBO (71.5% vs 44.1%; P<.05). For CT, all SIBO patients had no significant difference in geometric centers of colonic activity at 24, 48, and 72hours when compared to the normal group. When subtyping, H-SIBO had significantly higher geometric centers compared to the M-SIBO group at 24hours (4.4 vs 3.1, P<.001), 48hours (5.2 vs 3.8, P=.002), and at 72 hours (5.6 vs 4.3, P=.006). The symptom severity scores did not differ between the positive and normal LBT groups. A higher level of nausea was present in the H-SIBO group when compared to the M-SIBO group.Overall, the presence of SIBO does not affect SBT or CT at 24, 48, and 72 hours. However, when analyzing the subtypes, M-SIBO has significantly more delayed SBT and CT when compared to H-SIBO. These results suggest the presence of delayed motility in patients with high methane levels on LBT.

PMID: 29794732 DOI: 10.1097/MD.0000000000010554

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J Pediatr Gastroenterol Nutr. 2017 Apr;64(4):541-545. doi: 10.1097/MPG.0000000000001295.

Lactulose Breath Test Gas Production in Childhood IBS Is Associated With Intestinal Transit and Bowel Movement Frequency.

Chumpitazi BP[1], Weidler EM, Shulman RJ.

⊕ Author information

Abstract

OBJECTIVES: In adults with irritable bowel syndrome (IBS), bacterial gas production (colonic fermentation) is related to both symptom generation and intestinal transit. Whether gas production affects symptom generation, psychosocial distress, or intestinal transit in childhood IBS is unknown.

METHODS: Children (ages 7-17 years) with pediatric Rome III IBS completed validated psychosocial questionnaires and a 2-week daily diary capturing pain and stooling characteristics. Stool form determined IBS subtype. Subjects then completed a 3-hour lactulose breath test for measurement of total breath hydrogen and methane production. Carmine red was used to determine whole intestinal transit time.

RESULTS: A total of 87 children (mean age 13±2.6 [standard deviation] years) were enrolled, of whom 50 (57.5%) were girls. All children produced hydrogen and 51 (58.6%) produced methane. Hydrogen and methane production did not correlate with either abdominal pain frequency/severity or psychosocial distress. Hydrogen and methane production did not differ significantly by IBS subtype. Methane production correlated positively with whole intestinal transit time ($r=0.31$, $P<0.005$) and inversely with bowel movement frequency ($r=-0.245$, $P<0.05$). Methane production (threshold 3 ppm) as a marker for identifying IBS-C had a sensitivity of 60% and specificity of 42.9%.

CONCLUSIONS: Lactulose breath test total methane production may serve as a biomarker of whole intestinal transit time and bowel movement frequency in children with IBS. In children with IBS, lactulose breath test hydrogen and methane production did not, however, correlate with abdominal pain, IBS subtype, or psychosocial distress.

Increased methane = lower # of bowel movement
Increased methane = increased transit time!

The New Frontier Gasotransmitters

Think ‘neurotransmiter’ of the gut

Makes things happen. What type of gas matters…

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GUT GLUE

WHEAT

DAIRY

BAKING SODA

VINEGAR

(STOMACH ACID)

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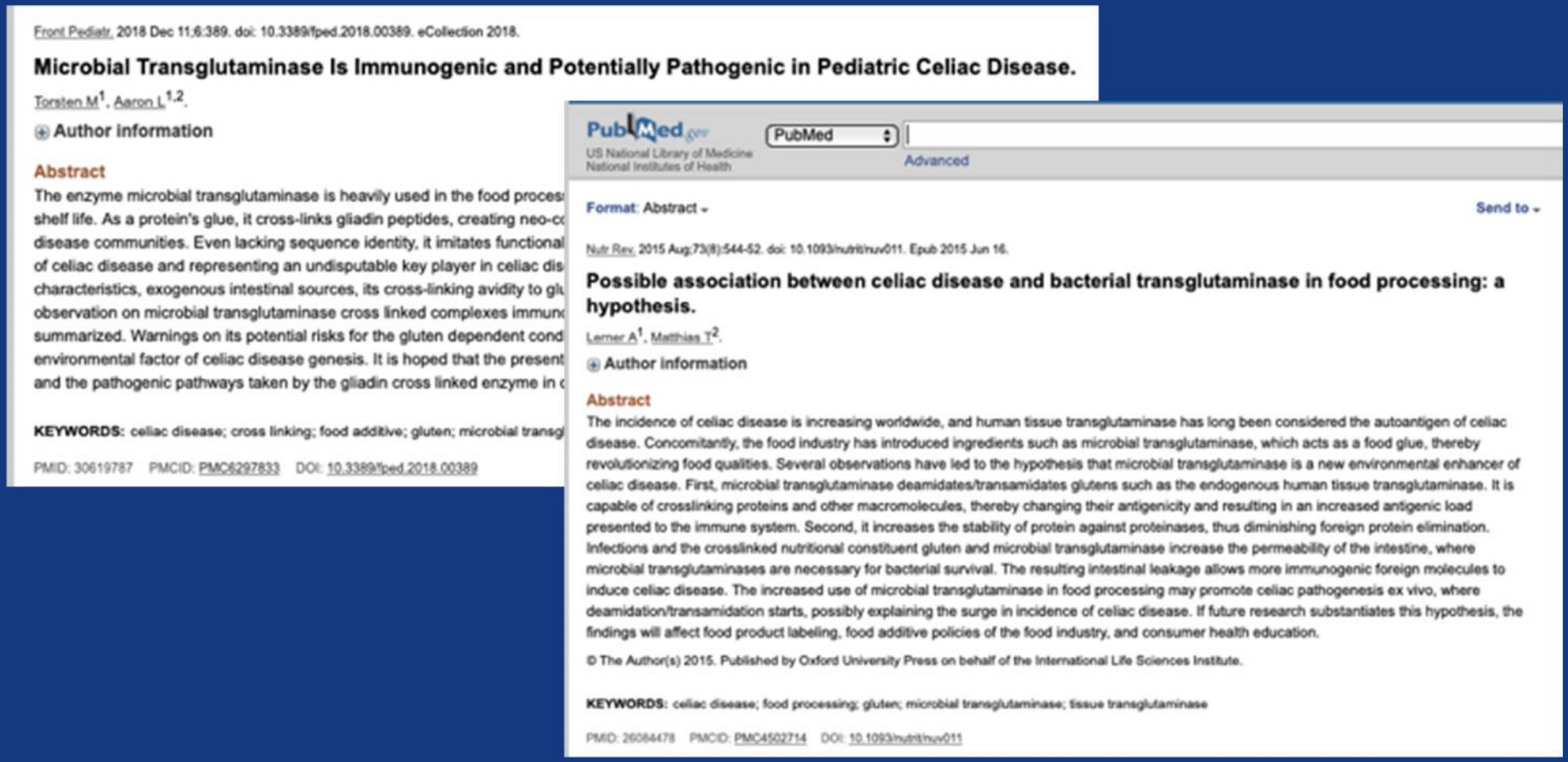

Front Pediatr. 2018 Dec 11;6:389. doi: 10.3389/fped.2018.00389. eCollection 2018.

Microbial Transglutaminase Is Immunogenic and Potentially Pathogenic in Pediatric Celiac Disease.

Torsten M[1], Aaron L[1,2].

Author information

Abstract

The enzyme microbial transglutaminase is heavily used in the food proces
shelf life. As a protein's glue, it cross-links gliadin peptides, creating neo-c
disease communities. Even lacking sequence identity, it imitates functional
of celiac disease and representing an undisputable key player in celiac dis
characteristics, exogenous intestinal sources, its cross-linking avidity to gl
observation on microbial transglutaminase cross linked complexes immun
summarized. Warnings on its potential risks for the gluten dependent cond
environmental factor of celiac disease genesis. It is hoped that the present
and the pathogenic pathways taken by the gliadin cross linked enzyme in

KEYWORDS: celiac disease; cross linking; food additive; gluten; microbial transg

PMID: 30619787 PMCID: PMC6297833 DOI: 10.3389/fped.2018.00389

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Nutr Rev. 2015 Aug;73(8):544-52. doi: 10.1093/nutrit/nuv011. Epub 2015 Jun 16.

Possible association between celiac disease and bacterial transglutaminase in food processing: a hypothesis.

Lerner A[1], Matthias T[2].

Author information

Abstract

The incidence of celiac disease is increasing worldwide, and human tissue transglutaminase has long been considered the autoantigen of celiac disease. Concomitantly, the food industry has introduced ingredients such as microbial transglutaminase, which acts as a food glue, thereby revolutionizing food qualities. Several observations have led to the hypothesis that microbial transglutaminase is a new environmental enhancer of celiac disease. First, microbial transglutaminase deamidates/transamidates glutens such as the endogenous human tissue transglutaminase. It is capable of crosslinking proteins and other macromolecules, thereby changing their antigenicity and resulting in an increased antigenic load presented to the immune system. Second, it increases the stability of protein against proteinases, thus diminishing foreign protein elimination. Infections and the crosslinked nutritional constituent gluten and microbial transglutaminase increase the permeability of the intestine, where microbial transglutaminases are necessary for bacterial survival. The resulting intestinal leakage allows more immunogenic foreign molecules to induce celiac disease. The increased use of microbial transglutaminase in food processing may promote celiac pathogenesis ex vivo, where deamidation/transamidation starts, possibly explaining the surge in incidence of celiac disease. If future research substantiates this hypothesis, the findings will affect food product labeling, food additive policies of the food industry, and consumer health education.

KEYWORDS: celiac disease; food processing; gluten; microbial transglutaminase; tissue transglutaminase

PMID: 26084478 PMCID: PMC4502714 DOI: 10.1093/nutrit/nuv011

BACTERIAL TISSUE TRANSGLUTAMINASE

- Prevents breakdown of food, elongates shelf life - highly UTILIZED
- To improve the texture, appearance, hardness, and shelf life of meat;
- To increase the hardness of fish products;
- To improve the quality and texture of milk and dairy products;
- To reduce the calorie content and improve the texture and elasticity of candy;
- To improve the stability and appearance of protein films;
- To improve the texture and volume of foods in commercially baked goods

A Lerner, T Matthias. Possible association between celiac disease and bacterial transglutaminase in food processing : a hypothesis. Nutr Rev. 2015 Aug: 73 (8);544-552. PMID: 26084478

BACTERIAL TISSUE TRANSGLUTAMINASE

- Enzyme from bacteria - we have a human version
- Processed deamidates/transamidate proteins such as HUMAN tissue transglutaminase
- Cross link proteins changing antigenicity caused increase antigenic load
- Increases STABILITY of PROTEIN agains Proteinases (slows foreign protein elimination)
- Increases permeability of the intestine (crosslink gluten with BTT)
- Linked to increasing incidence of Celiacs

"RESISTANT TO DIGESTION OR SURVIVAL ALONG THE DIGESTIVE TRACT SEEMS TO INCREASE THE SENSITIZATION CAPACITY OF A FOOD COMPONENT AND RENDERS IT MORE IMMUNOGENIC AND/OR ALLERGENIC."

I Pali-scholl, E Untersmayr, M Klems, E Jensen-Jarolim. The Effect of digestion and digestibility of Allergenicity of Food . Nutrients. 2018 Sep; 10(9); 1129. PMID 30134536

STRESS & MUCOSAL BARRIER FUNCTION

- Regulated by immune, nervous and epithelial cell interaction
- Sympathetic response = lack of epithelial integrity **(leaky gut)**
- Change in bowel frequency, form, smell etc.

What to do?

Where to start?

Is there any hope?

Food Allergies, Deficiency in Digestion, Absorption, and Elimination

Antioxidant Status

Inflammation

Stress

Microbiome Mayhew

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TO-DO #1

ASK YOUR CLIENTS ABOUT THEIR POO!

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TO DO #2- Know Everything about POOP

- **Download 50 Shades of Poo (www.drmarisol.com)**
- Transit time test - Don't miss a BEET
- Food, fluids, fat log
- Form, frequency, quantity, color, smell
- Food combinations
- Follow me **@queenofthethrones**

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TO DO #3- Work the TERRAIN

- **F**unction of the Digestion, Absorption, Elimination
- **A**ntioxidants Status
- **I**nflammation Balance
- **T**ension and Stress Reduction
- **H**ost with The mostest- Microbiome/Biofilm

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Regain the FAITH that we CAN heal

WE CAN FEEL BETTER!!!

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THINGS THAT MAKE YOU GO…

- Coffee - Caffeine, Nicotine
- Tea – Theophylline
- Chocolate - Caffeine
  - Initial help BUT long term rebound constipation (BOHLIN 2018)
- Magnesium citrate, glycinate
- Castor oil packs - Ricinoleic acid
- Fasting - MMC - stimulates a pause from food
- Power of the Pause - meditation, gratefulness practice
- CASTOR OIL PO WHEN ALL ELSE FAILS!

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BIOCHEMISTRY OF CASTOR OIL

- Unique vegetable oil
- Glycerol backbone w/ 3 TG chain
  - 90% Ricinoleic Acid
  - Remainder oleic and linoleic acid
- Unique structure (ricinoleic acid)
  - Unsaturated fatty acid
  - Hydroxyl on the 12th carbon (fatty hydroxyacid)
- Structure similar to ProstaGlandin E1(anti-inflammatory)
- Algaecide for cyano bacteria
- Molecular weight of ricinoleic acid 298 Daltons
  - Below 500 Da for transdermal absorption

PO CASTOR OIL…

- 1-3 TBSP daily in severe to strong constipation
- History - Caribbean cultures, Mediterranean, Egyptian, Chinese, Indian.
- Not the be confused with Cod Liver Oil
- Approved by Health Canada, FDA as a pharmaceutical agent - Stimulant LAXATIVE

PO CASTOR OIL…

- Laxation will work in 6-8 hours
- Increasing urgency with increasing dose!
- No toxicity. Ricin protein (biological warfare), not found in oil - People will ask (“I saw it on CSI Miami!”)
- Advise to drink water - some people may be so dehydrated that smooth muscle is a desert and won’t contract

PO CASTOR OIL…

- Pregnancy CAUTION
- Uterus is a smooth muscle
- Midwives and hospital tradition
- 1 cup of orange juice, blended in a bullet with OJ (consider a green drink, celery, parsley, spinach, POM juice)
- Patients, if have done castor oil PACK, can continue
- During pregnancy no oral use - except in case of induction

QUALITY OF CASTOR OIL

- 100% pure
- Cold pressed
- Hexane-free
- Bottled in amber glass

QUEEN OF THE THRONES™

UN SNAKE-Like SNAKE OIL

Castor oil delivers on it's promises

for so many things unlike Snake oil

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My Big Fat Greek Wedding

Like the Father loved his Windex for everything

Castor oil is my go to

QUEEN OF THE THRONES™

Much Better than Castor oil orally

The Legendary Castor oil pack

QUEEN OF THE THRONES™

Poop BETTER
Sleep BETTER
Cleanse BETTER
Bloat LESS
Stress LESS

FEEL BETTER

QUEEN OF THE THRONES™

CASTOR OIL PACKS VS. LAXATIVES

Complement Ther Clin Pract. 2011 Feb;17(1):58-62. doi: 10.1016/j.ctcp.2010.04.004. Epub 2010 May 18.

An examination of the effect of castor oil packs on constipation in the elderly.

Arslan GG[1], Eşer I.

Author information

Abstract

This research, conducted at two rest homes in Manisa, Turkey, was undertaken to examine the effect of castor oil pack (COP) administrations on constipation in the elderly. Study participants were monitored for 7 days before, 3 days during, and 4 days after COP administration utilizing the Recall Bias and Visual Scale Analog (RB-VSAQ) as well as the Standard Diary developed by Pamuk et al. Wilcoxon Signed Ranks, Repeated Measures, Bonferroni, and Mann-Whitney U tests were used for data analysis. Eighty percent of study subjects had been constipated for 10 years or longer. COP administration did not have an effect on the number of bowel movements or amount of feces, but decreased the feces consistency score, straining during defecation and feeling of complete evacuation after a bowel movement, thus decreasing symptoms of constipation. We conclude that COP may be used for controlling symptoms of constipation.

PMID: 21168117 DOI: 10.1016/j.ctcp.2010.04.004

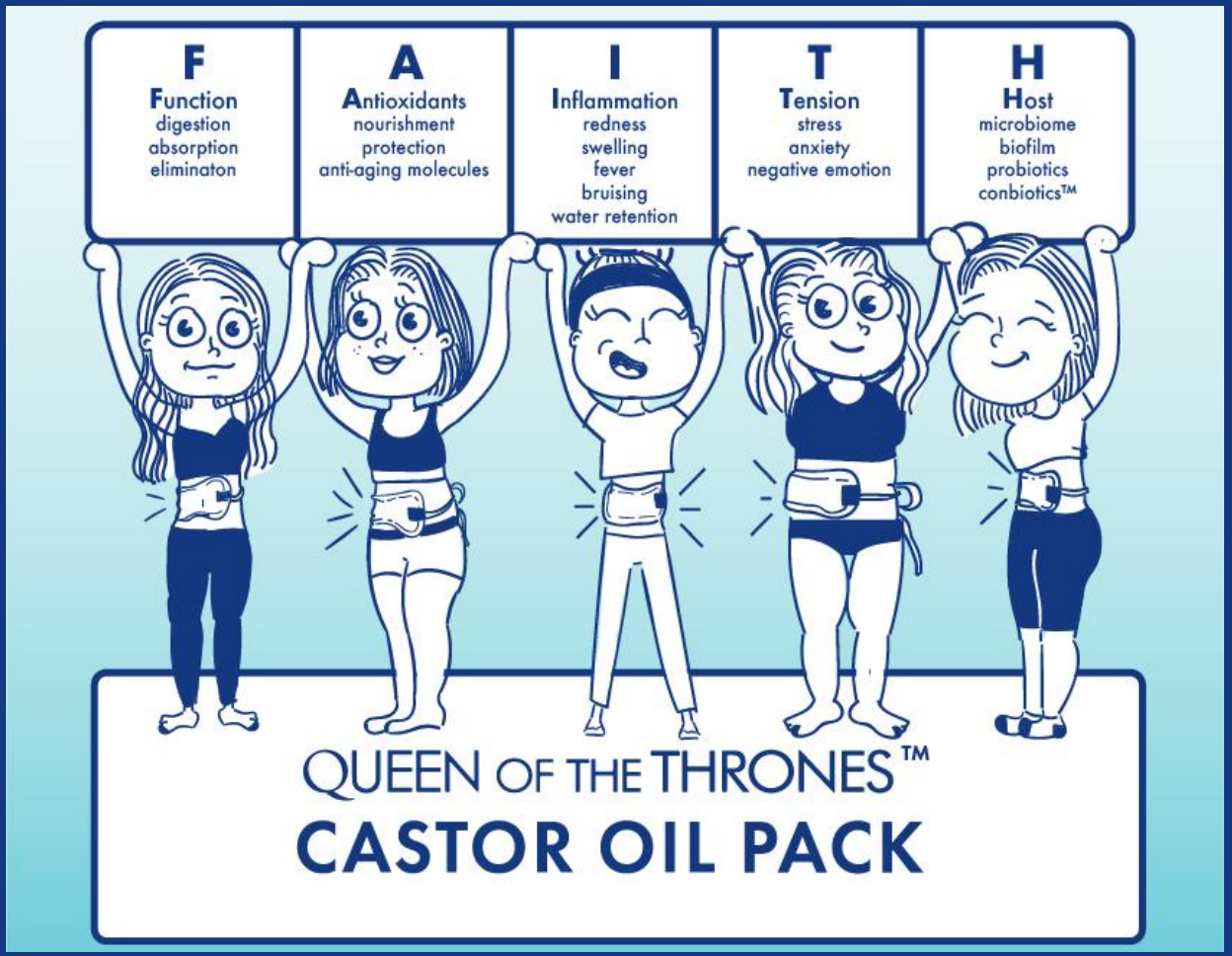
[Indexed for MEDLINE]

HOW CASTOR OIL PACKS HELP YOU GO

- Reduced straining
- Increased feeling of complete evacuation
- No cramping or uncomfortable urgency

HOW CASTOR OIL PACKS HELP YOUR TERRAIN

1. Neurologically PACK Calming EFFECT (Sato 1987, 1997, Barron 2003, Rolls 2003, Olson 2010, Rolls 2010) - increases **DOPAMINE, OXYTOCIN**
2. Reduction of Inflammation and Edema (Viera 2000, Grady 1998, Kennedy 2010)- Improves Alkalinity.
3. Via Prostaglandin PGE3 Receptors, Increased Bowel Movement, Improved OATT, Digestion and Absorption (Arslan 2011, Tunaru 2012)
4. Source of Essential Fats- Omega 6, Omega 9 and end result of Fish oils (Prostaglandins)
5. **GLUTATHIONE** Preserving, Liver Depuration (Kennedy 2010, Holm 2013)
6. Biofilm Breakdown, Improve Microbiome (Andrade 2014, Sales 2015, Badarro 2017)
7. Increases **NITRIC OXIDE** ! Anti Aging, Healing (multiple studies)



CASTOR OIL PACK

TERRAIN MEDICINE HYPOTHESIZED MECHANISM

Reduce Inflammation

Improve Alkalinity

= Better Stomach HCL

=Better function of Digestion

Reduce Stress

Reduce leaky gut , Reduce Allergenicity

= You CAN HEAL

YOU ONLY HEAL IN THE RELAXED STATE

YOU ONLY CLEANSE IN THE RELAXED STATE

Gut Love

Ther Adv Chronic Dis. 2011 Sep;2(5):333-42. doi: 10.1177/2040622311412420.

Glucocorticoids are Gastroprotective under Physiologic Conditions.

Filaretova L.

Abstract

Stress may contribute to the development and progression of gastrointestinal disorders. Activation of the hypothalamic-pituitary-adrenocortical (HPA) axis is one of the main characteristics of stress. For several decades it was generally accepted that glucocorticoids released during stress are ulcerogenic hormones. We designed some experimental studies in rats to clarify the validity of this widely held view. To achieve this goal, we examined the effect of glucocorticoid deficiency followed by corticosterone replacement or the glucocorticoid receptor antagonist, RU-38486, on stress-induced gastric erosion and the parameters of gastric function in rats. The data obtained shows that the reduction in the stress-induced corticosterone release, or its actions, aggravates stress-caused gastric erosion. It is suggested that an acute increase in corticosterone during stress protects the stomach against stress-induced injury. According to our results, various ulcerogenic stimuli, similar to stress, induce an increase in corticosterone that helps the gastric mucosa to resist against a harmful action of ulcerogenic stimuli. Glucocorticoids exhibit their gastroprotective effect by both maintaining local defensive factors and inhibiting pathogenic elements. Furthermore, the contribution of glucocorticoids to gastroprotection is tightly related to their contribution to general body homeostasis. Glucocorticoids provide gastroprotective actions in co-operation with prosta-glandins, nitric oxide and capsaicin-sensitive sensory neurons. The results obtained do not support the traditional paradigm and suggest that glucocorticoids released during acute activation of the HPA axis are naturally occurring gastroprotective factors. In this article, we review our recent publications on the role of glucocorticoids in gastroprotection.

KEYWORDS: anti-inflammatory drugs; gastric erosion; gastroprotection; glucocorticoids; hypothalamic—pituitary—adrenocortical axis; stress

PMID: 23251759 PMCID: PMC3513888 DOI: 10.1177/2040622311412420

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PRACTICE THE PAUSE

Nightly Practice

Ideally Overnight

Minimum for One Hour

High Histamine? Oxalates?

Can you use a castor oil pack?

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REVIEW FOR ROYAL FLUSH

- Experience of complete evacuation
- Little to no smell
- Easy wipe
- Sink into bowl with no mess
- Food to relief - 24 hours
- Daily sausage

THE 11 GOLDEN NUGGETS

- Timing - frequency, transit time
- Characteristics - color, call of nature, smell
- Feeling - consistency, mess, wipe, satisfaction, sink, form

✓ Download 50 Shades of Poo to get an idea to start

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Castor oil packs NIGHTLY Practice

Terrain Medicine at its finest.

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Sleep BETTER
Cleanse BETTER
Bloat LESS
Stress LESS

FEEL BETTER

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NEXT STEPS

LEARN MORE AND JOIN ME IN OUR MOVEMENT

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Common Sense Isn't Always Common Practice

Let's Together Make

KNOWING YOUR POO

and

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COMMON PRACTICE!!!!

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