



Management for a Healthy GI Tract

Kelly Payne, PAS

Triple Crown Feed



TRIPLE CROWN



How are horses designed to work?

24/7 forage
availability

Lots of
walking

Slide 2

CR1

Christina Reynolds, 10/25/2018



Modern Horse Management

Stalled part (or all) of day

Poor pasture

Grain meals

Limited movement



Hot Topics in Equine Athletes



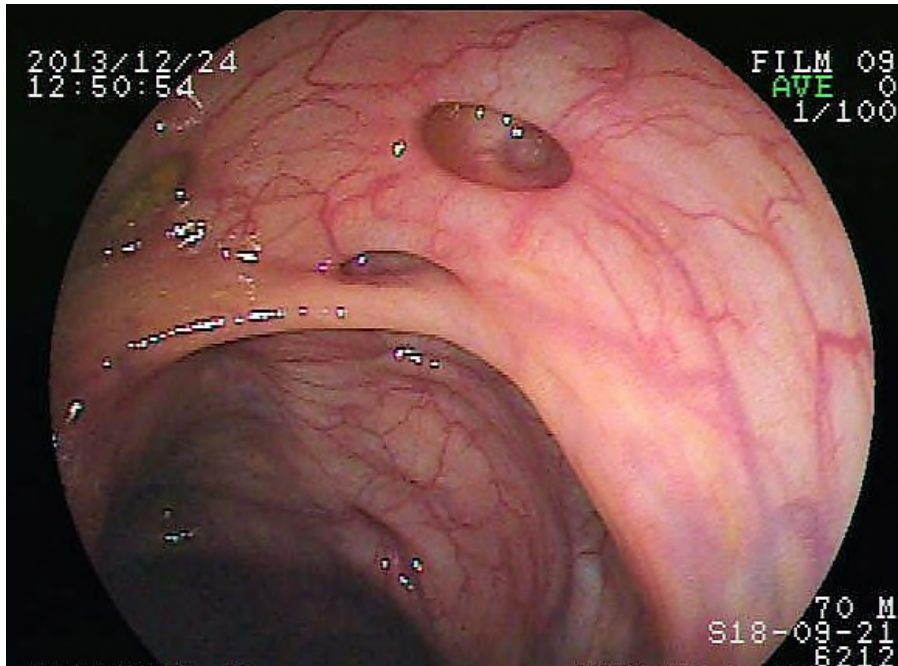
Gastric Ulcers

Hindgut Inflammation

Leaky Gut Syndrome



Gastric Ulcers



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Occur in the stomach

Two portions to the stomach- glandular and non-glandular, can get ulcers on both, as well as the pyloric region

Once present, require medical treatment

Management can help avoid occurrence and can help with recovery

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Gastric Ulcer Symptoms

- Biting at sides
- Eat bite of feed, retreat
- Girthiness- reactivity when saddling
- Lying down more than normal
- Stretching stance after eating
- Resistant to forward movement/leg aides



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Hindgut Inflammation & Hindgut Ulcers

Hindgut = cecum and large intestine, fermentation zone

44-60% horses have colonic ulceration, higher in performance horses, 70% in racehorses

SOME CAUSES:

Microbial balance out of whack ("alterations in intestinal microbiota")

- caused by feed, antibiotics, pasture changes

Stress

Mycotoxins/toxins/pathogens

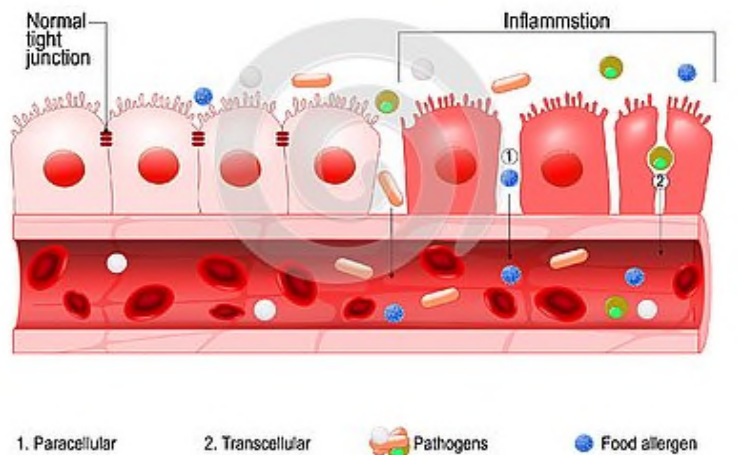
NSAIDs/other drugs

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Leaky Gut

LEAKY GUT



dreamstime.com

Increased permeability of the intestinal wall- increased space between the cells

Allows larger proteins out of the gut

Allows harmful substances to be absorbed into the bloodstream

Immune system can become hypersensitive

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Signs and Symptoms

Similarities between fore and hindgut issues:

- *change in behavior/personality**
- *grumpy, doesn't like being touched/groomed**
- *"poor doer"- weight loss, poor performance**
- *poor hair coat**
- *reduced immune function**



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COMMON CAUSES OF LEAKY GUT SYNDROME

Stressors: Training/Injuries/Heat, Weather Changes/Trailing/Abrupt change in feed or hay

Excessive time spent in stalls

Socialization issues: new grouping or new horses

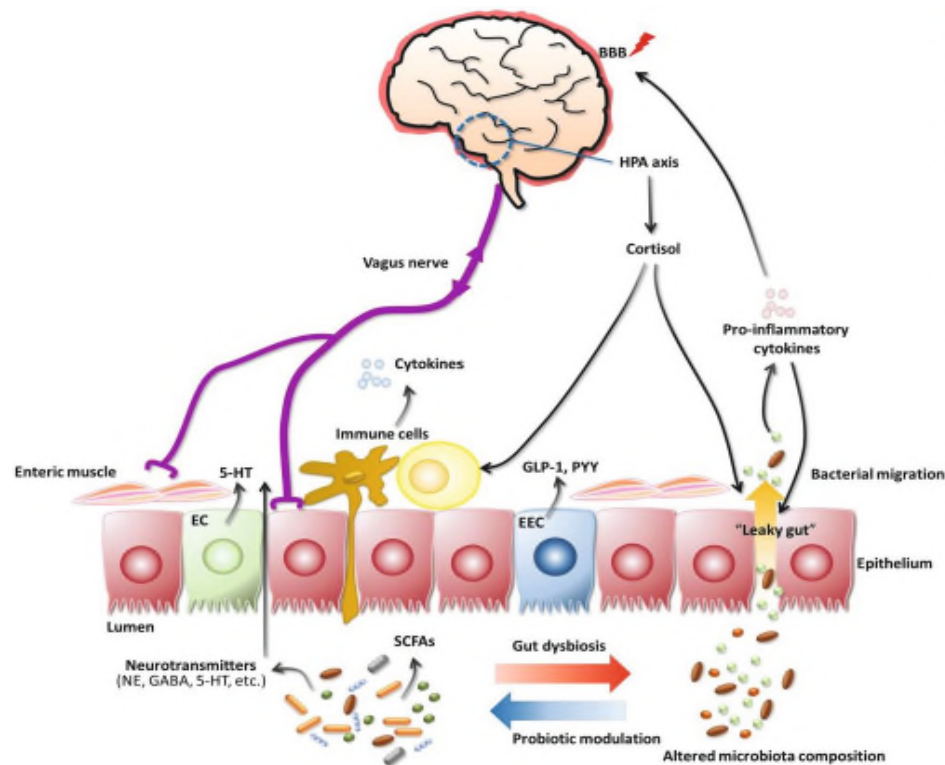
Pathogenic bacteria: Clostridium difficile, Clostridium perfringens, Salmonella etc..

Medications: NSAIDS, deworming, Omeprazole, Antibiotics

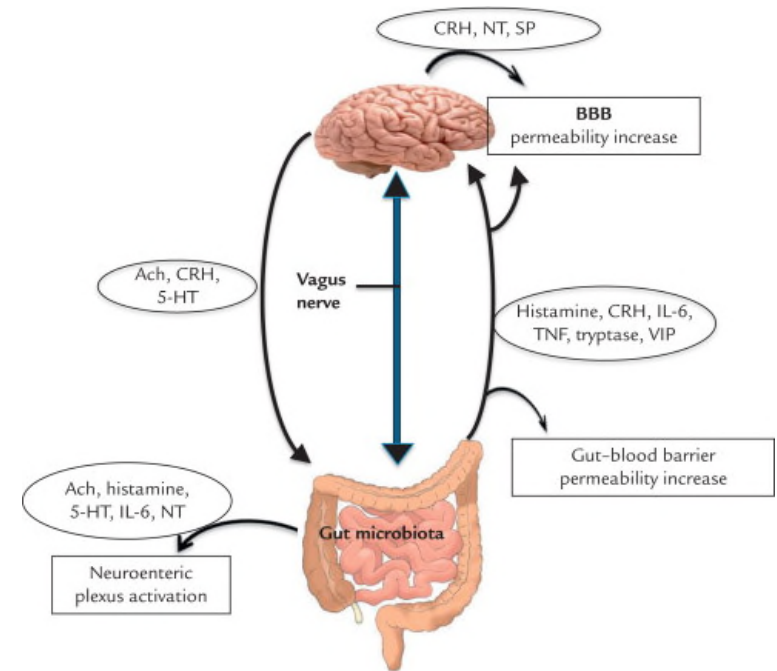
Toxins from mold, parasites



Leaky gut = leaky brain



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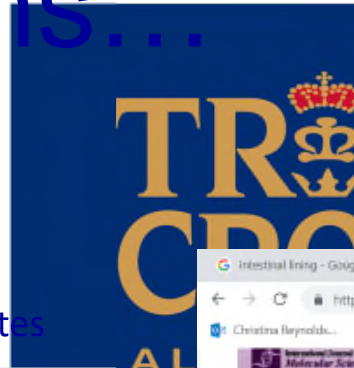


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In Humans...

Gut dysbiosis linked with:

Anxiety	Hypertension	Dementia
Depression	Rosacea	Alzheimer's
Autism	Psoriasis	Autoimmune
Parkinson's	Eczema	Allergies
Migraines	Hashimoto's	Type 2 Diabetes



Linking the microbiome-gut-brain axis
and environmental factors in the
pathogenesis of systemic and
neurodegenerative diseases ☆

van Gaias, Joshua Maher, Anumantha Kanthasamy
https://doi.org/10.1016/j.pharmthera.2015.11.012

Abstract

The gut microbiome comprises the collective genome of microorganisms residing in our gastrointestinal ecosystem. The interaction between the host and its gut microbiome is a relationship whose manipulation could prove critical in treating not only various gut disorders, like irritable bowel syndrome (IBS) and ulcerative colitis (UC), but also central nervous system disorders, such as Alzheimer's and Parkinson's disease.

Original Article | Published: 12 April 2018

Gut microbiome remodeling induces depressive-like behaviors through a pathway mediated by the host's metabolism

P. Zheng, B. Zeng, C. Zhou, M. Liu, Z. Fang, X. Xu, L. Zeng, J. Chen, S. Fan, X. Du, X. Zhang, D. Yang, Y. Yang, H. Meng, W. Li, N. D. Melgert, J. Ucinio, H. Wei, & P. Xia

Molecular Psychiatry 21, 786–796 (2016) | Download Citation

242 Citations | 228 Altmetric | Article metrics

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Abstract
References
Acknowledgements
Author information
Supplementary information

Intestinal lining - Google Search | All Wound Up Is Your Horse | gut brain axis - Google Search | JEMS | Free Full-Text | Microbiome | how to screenshot on pc

https://www.mdpi.com/1422-0067/19/6/1689/html

Microbiome-Gut-Brain Axis and Toll-Like Receptors in Parkinson's Disease

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Accepted: 3 June 2018 / Published: 6 June 2018

Abstract: Parkinson's disease (PD) is a progressively debilitating neurodegenerative disease characterized by α-synuclein pathology. The gut-brain axis (GBA) is a bidirectional communication between the brain and the gut that is markedly influenced by the gut microbiome. The gut microbiome interacts with the host via a series of biochemical and functional inputs, thereby influencing the GBA and health. Indeed, a dysregulated microbiota-gut-brain axis in PD might lie at the functions which predominantly emerge many years prior to the diagnosis. The pathological process is spread from the gut to the brain. Toll-like receptors (TLRs) recognize conserved motifs primarily found in microorganisms and a dysregulation of the TLRs may be implicated in α-synucleinopathy, such as PD. An overstimulation of the TLRs in the gut dysbiosis and/or small intestinal bacterial overgrowth, together with higher

Intestinal lining - Google Search | All Wound Up Is Your Horse | gut brain axis - Google Search | Increased human intestinal barrier permeability plasma biomarkers | Microbiome-Gut-Brain Axis and Toll-Like Receptors in Parkinson's Disease | Increased human intestinal barrier permeability plasma biomarkers

https://gut.bmj.com/content/67/11/1555.2.full-term=usage-012019&utm_content=consumer&utm_campaign=gut&utm_medium=pc&utm_source=trend...

PostScript Letter

Increased human intestinal barrier permeability plasma biomarkers zonulin and FABP2 correlated with plasma LPS and altered gut microbiome in anxiety or depression

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Author affiliations +

View Full Text
http://dx.doi.org/10.1136/gutjnl-2017-314759

Statistics from Altmetric.com

32 Blogged by 1
46 Tweeted by 46
On 3 Facebook pages
91 readers on Mendeley

See more details

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ALWAYS BEYOND



Simple Changes to Help with GI Issues

1

Maximize
turnout time

2

Ensure free
choice forage

3

Low carb
concentrate
when needed

4

Limit stress



Turnout Time



Eating

More eating

Walking

More walking

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Free Choice Forage

Grass- metabolic limitations, seasonal limitations

Hay- choose by calorie needs so horse can eat 1.5-2% of body weight, slow feeder nets/bags

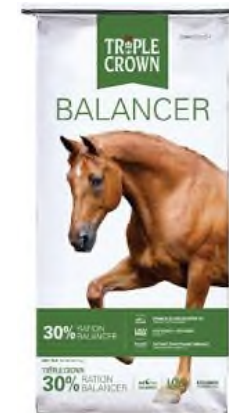
Bagged forage- can be soaked if needed, use ways to slow down intake

Soaked cubes- multiple meals per day for horses with compromised teeth, feed before riding/travelling



Lower Carbohydrate Ingredients:

- Avoid “grains”- corn, wheat, barley, oats
- Look for high digestible fiber- alfalfa meal, soybean hulls, wheat middlings
- Look for high fat (if you don't have an easy keeper)



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Limiting **Stress**

- Easier said than done...
- Transport
- Training
- Stall neighbors/
pasture buddies
- Heat stress



Additional ideas

Good quality probiotic, prebiotics

- Look for at least 1 Billion CFUs of each strand

Omega 3:6 ratio- help decrease inflammation

- Good sources of O3: fish oil powder, ground flax, grass

Beet pulp-based concentrate- produces helpful volatile fatty acids that help with villi regeneration

- TC Senior/TC Senior Gold

Buffering agents- help decrease acidity in stomach

- Alfalfa, supplements, StressFree



How Can Triple Crown Products Help

- EquiMix Technology: Found in all Triple Crown Products
- ButiPEARL Z EQ: an encapsulated form of Butyric Acid and Zinc
 - Acts as an energy source for the epithelial cells and strengthens the tight junctions of the intestinal lining
 - Helps reduce gut inflammation and promotes healing
 - Promotes a strong barrier against pathogens, parasites and toxins
 - Improves nutrient absorption

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Triple Crown EquiMix

- **Probiotics** - 1Billion of each strain. Helps crowd out pathogens, better digestion and utilization of nutrients
- **Hydroxy minerals**
- **Prebiotic fiber** feeds the “good bugs” and helps them flourish (beet pulp)
- **Digestive enzymes** for better utilization of protein and fiber
- **Mannanoligosaccharides (MOS)** bind to pathogens such as E coli and salmonella
- **ButiPearl Z EQ** encapsulated butyric acid helped strengthen the gut wall
- **Clostat (Bacillus subtilis PB6)** Has a proven mode of action in its inhibition of equine-specific pathogens including a variety of *Clostridium* species.²
- **Lysoforte** natural emulsifier that increases fat digestion

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New Terminology for the Microbiota

- Prebiotics: Feed ingredients that stimulate growth or activity of the probiotic bacteria.
- Probiotics: Live micro-organisms themselves, that confer a health benefit to the horse
- Postbiotics: result of probiotic activity. Non living by products or metabolites; examples include short chain fatty acids (acetate/butyrate: help reduce inflammation)



Any Questions?



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