

A Comparative Study on Colic and Hoof Health in Domestically Bred Horses and Formerly Free Range Mustangs



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Purpose of this Research

This research was brought about by the question of if domestically bred horse's and formerly free range mustangs have different rates of colic, hoof health episodes and other related diseases and disorders, and if so, what makes them different?

This study could potentially help aid horse owners in understanding more about their equines health and possible prevention of colic, abscesses, laminitic hoof changes and more. This information could work alongside vets to be more aware of their clients health and allow them to catch sickness in the early stages and be able to treat them more accurately. I wanted to know how domestication can impact a horses welfare and quality of life.

Why Compare Mustangs and Domestically Bred Horses?

This study explores how environment, lifestyle, and feeding contribute to key health outcomes in two distinct equine populations.

- Mustang diet consists of natural forage, this could look like weeds, grasses, and more nutritionally-lacking foods.
- Domestically bred horse diet is more stable, they are fed around the same times every day, often fed with specialized diets with supplements and grains.
- There is a difference in freedom between Domestically bred horses and Mustangs which could contribute to their overall health

Colic and Hoof Health Concerns

Colic can be loosely defined as stomach pain.

- Gas Colic
- Impaction Colic
- Sand Colic.

Common hoof health concerns can look like...

- Abscesses
- Arthritis
- Thrush

Image of severe thrush in a horse's hoof



<https://redhorseproducts.com/blog/2017/11/01/hoof-infections-treatment/>

Data Collection

In order to conduct this study I used two different methods of data collection.

- Microbiome tests
- Equine health questionnaires

Mustangs can be identified by a branding on the left side of the neck



My horse has had a history of...

Please check yes or no. If your horse has an unknown history of any of these issues please check, "no." If your horse is currently being tested for any of these disorders, please check, "yes."

Colic

Yes

No

Tying Up

Yes

No

Hoof Abcess

Yes

No

Equine Health Questionnaire

A Comparative Study on Colic and Hoof Health Concerns in Domestically Bred Horses and Formerly Free Range Mustangs.

This questionnaire will go over any health concerns your horse has had in the past or present. If you do not know the answer to any questions then please leave it blank. If your horse is currently being tested for any disorders or diseases listed then please mark yes. If you are currently giving your horse medication or if they have a condition not listed there will be space later on to record this information, along with their diet.

Thank you for your participation.

Please contact Morgan Tekorius at mtekorius@carroll.edu or at 503-462-5560 for any questions or concerns.

* Indicates required question

Please elaborate on any of the above topics that are marked, "yes," and add any information on on medications being administered to this horse and why. *

Your answer

Please include your horses diet, what kind of hay they are fed, any grain or supplements. Please also include the amount and frequency of their feed, brands and where their hay is sourced. *

Your answer

Findings of the Questionnaire

Domestically Bred Horses

- 1) Hoof Abscesses: 38.1%
- 2) Thrush: 38.1%
- 3) Arthritis: 26.67%
- 4) Colic: 21.0%
- 5) Ulcers: 19.05%

Mustangs

- 1) Hoof Abscesses: 4.55%
- 2) Thrush: 22.7%
- 3) Arthritis: 13.64%
- 4) Colic: 9.09%
- 5) Ulcers: 13.64%

	Horse #1	Mustang #1	Mustang #2
Fibrobacter	12.1	9.3	9.6
Unassigned UC	12.0	12.2	15.3
Treponema	9.1	10.3	12.2
Rikenellaceae	7.5	6.0	2.2
Ruminococcus	4.3	7.1	1.1
Bacteroidales	5.7	4.7	19.6
Scarina Type 2	0.5	5.2	0.0
Kiritimatiellae	8.1	4.0	6.5

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Results of the Microbiome Tests

Due to budget constraints I was only able to conduct three microbiome tests.

For two out of the three all of the results came back normal, no harmful bacteria was detected.

For the third test, the fecal sample of “Mustang #2,” it came back with high levels of *Streptococcus Equinus*, a bacteria that causes the highly contagious disease known as strangles.

Results

Due to the results of the microbiome tests and the questionnaire, I believe that mustangs do in fact have a lower rate of colic, abscesses, thrush and more than domestically bred horses do.

This could be due to the fact that mustangs have rocky habitats, they have more natural movement and they don't require a farrier because their terrain shaves down their hooves.



Conclusion

This study concluded that mustangs do have lower rates of hoof health events and colic possibly due to their natural lifestyle of near-constant movement, a variety of forage and natural barefoot hoof-care.

In the future, this information could be taken into consideration for horse owners so they can provide preventative measure, adequate space for movement and regular feeding., as well as veterinarians to help better assess and treat their patients.

Acknowledgements

Dr Margo Demello

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Carroll College Anthrozoology Department

Carroll College IRB Committee

Carroll College IACUC Approval

Equine Owners for Microbiome testing

Equine Owners for DNA testing

All Equine Owner Participants for the
Questionnaire

Resources

<https://www.nature.com/articles/s42003-022-03116-2>

<https://www.mdpi.com/2076-2615/14/22/3222#:~:text=Colic%20in%20horses%20is%20a%20serious%20condition%2C%20and%20it%20is,the%20gastrointestinal%20tract%20%5B26%5D>

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