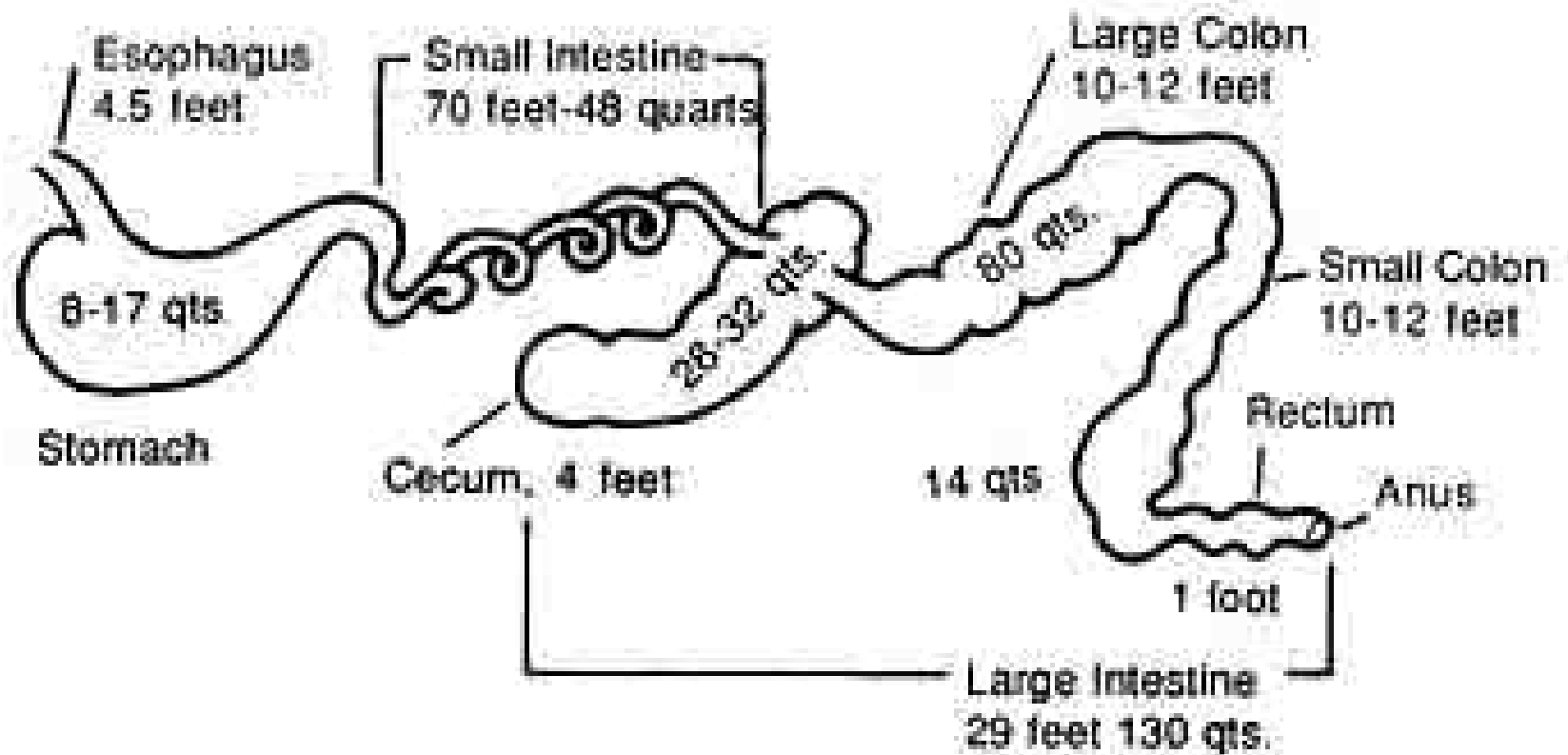




Restricted Free Feeding

How to Have a Healthier, Happier
Horse and Save Time, Effort, and
Money Too!

Brynn Bollinger



The Digestive System of the Horse

Equine Digestion - Mouth

- Begins in mouth—mechanical breakdown into small particles 1.6 to 2.0 mm by grinding of teeth. No digestive juices, but 1-3 gallons of saliva per day (one source says up to 10 gallons (85#)
 - Chew 60-75 times per minute
 - Horses competing for food or in a hurry to eat may not break food down enough—too dry, particles too large – choke or colic possible

Digestion – Stomach

- Stomach usually holds less than gallon of water, and empties in 15-30 minutes (fasted horse u/t 24 hrs)
 - Unable to vomit
 - Only 10% of digestive capacity
 - Food mixed with pepsin (protein enzyme) and HCL
 - Bacteria produce lactic acid
 - Acidic Ph

Digestion-Small Intestine

- Small intestine - 70 feet long, holds 48 quarts
 - Major digestion
 - Pancreatic enzymes break down sugars/starches (carbohydrases); proteins into amino acids (proteases)
 - bile emulsifies fats/suspend in water
 - Bile flows constantly from liver – no gall bladder
- 50 – 70 % carb digestion; almost 100% protein digestion. Nutrients absorbed thru walls into blood
- Toxins absorbed before detox can take place
- Food takes only 30 – 90 minutes to pass through

Digestion - Cecum

- Sack 4' long-holds ~40 quarts food/fluid.
 - Microbial breakdown (fermentation) of fibrous feeds—needs long stem fibers
 - Entrance/exit both at top—requires enough water to exit
 - Rapid change of feed requiring different microbes may cause compaction > colic
 - 3 weeks to develop new microbes for new feed
- Needs to be full constantly
 - Partly full—may colic
 - Partly empty creates gap, allowing potential twist/colic
- Different blood supply than small intestine (more neutral Ph vs acidic Ph in small intestine) Mineral balance keeps Ph correct

What Is Restricted Free Feeding

- It is NOT “Free Feeding”
 - Horses free fed still consume their feed rapidly
 - Can consume too much feed for weight gain, too much sugar at once, etc.
 - Overloads digestive system
- RFF IS having food available to horses 24/7
- Feed intake is limited by speed, not amount
- Hay is fed through feeders that permit only a small amount of feed to be pulled into the mouth at a time

Why Restricted Free Feeding?

- Horse designed to eat almost all day
 - In the wild, horses eat about 16-18 hours a day
 - Able to convert low-quality forage into energy and nutrients
 - Typical diet is low sugar, low starch, high fiber
 - Many areas have sparse grazing with much movement required
- Domestic horses often get only 2-3 meals a day
 - Feed concentrated, higher in sugar, starch, and protein than in the wild
- Fast eating, stress, chemicals, nitrates, changed diet, antibiotics, etc. create incomplete digestion and many problems

Why Restricted Free Feeding, continued

- Prevents ulcers. Estimated 60% of American domestic horses have ulcers.
- Changes in Ph in small intestine and large intestine create irritation
 - Pathological bacteria move up from lg. Intestine to small intestine, creating irritation and diarrhea>ulcers
 - Acid-loving bacteria move from small to large intestine, creating irritation>ulcers
- Bile produced continuously—no gall bladder
 - If no feed in system, linings become irritated>ulcers

Why Restricted Free Feeding, continued

- Goes a long, long way to prevent laminitis
 - Current pasture/hay seed designed for cattle, with fast weight gain desired – too sweet and starchy for horses
 - Laminitic/ insulin resistant horses should have <10% sugar/starch (NSC) in feed (daily total)
 - Most horses <15% sugar/starch (NSC)
 - Hard working 20 – 25% NSC (endurance race)
- RFF prevents large amounts of sugar/starch eaten at once—can tolerate somewhat higher content in feed. If desired, can use wheat or oat straw to cut cost and give them something to munch on all day.

Why Restricted Free Feeding, continued

- Saves time/labor
 - Horses can get the 24/7 feeding they need without owner having to feed every 1.5 hours
 - Little cleanup—no hay scattered on ground (what a mess in wet weather—ugh!)
- Saves money
 - Little if any wasted hay
 - They cannot pick out what they like and leave the rest—it all gets eaten
 - When horses learn there is hay 24/7 they slow down feeding, and consume less. Digestive system becomes more efficient, requiring less volume for good nutrition₁

Why Restricted Free Feeding, continued

- Saves money (cont.)
 - Less need for supplements, grain, etc.
 - Healthy digestive system extracts maximum from hay—vitamins, minerals, etc.
 - No need for probiotics, etc. (unless on antibiotics)
- Saves the ranch/barn/stall from destruction
 - Eliminates boredom-horses too busy eating to crib, get into mischief, kick stalls, etc.
- Can encourage beneficial movement
 - Thoughtfully placed feeders makes horses move more, especially two or more horses in same area which leads to better feet.

Why Restricted Free Feeding, continued

- Ideal weight gain/loss
 - Heavy horses tend to lose weight to an ideal weight
 - Thinner horses tend to gain weight to ideal weight
- Less fighting among horses together
 - Food always available so no fighting
 - Even horses low in the pecking order get to eat enough

Why Restricted Free Feeding, continued

- Injured or ill horses on stall rest benefit greatly (as in Whiskey's situation!!)
 - Keeps horse from stomach/small intestine/cecum irritation/pain/colic from acids/bile, bacteria
 - Relieves boredom, keeps horse busy, content and relaxed
 - Allows horse to maximize nutrition and to obtain what he needs for healing of tissues, bones, etc.

Why Restricted Free Feeding, continued

- And, last, but still very important!!
 - Allows working Club members to attend club meetings without guilt of having hungry horses at home (as in Andi)

Types of Restricted Free Feeders

- Horizontal boxes with 2”x2” grid on top of hay (grazing feeders)
- Vertical boxes with 2”x2” grid in front of hay (side feeders)
- Nets

Horizontal (Grazing) Restricted Free Feeders

- Allows horse to eat with head down almost at ground level
- Need to be cleaned out daily to prevent mold/mildew
- Easy to fill
- Hay may get compacted under grid



This is my “Patrick”
enjoying his feeder

Vertical (Side) Restricted Free Feeders

- Great for horses in stalls
- Sometimes easier for horse to pull out hay
- Construction needs to be fairly exact
- Good for outdoor use
- Can hold a lot of feed



Nets and Hay Bags

- Great for travel
 - Camping
 - Competition
 - Local rides
 - Long distance trips
- Great for large round bales
- Great for infrequent feeding



Photos/details on Slow Feeders “Big Boy”

- **Big Boy is divided in the middle and looks the same from both sides.**



Photos/details on Slow Feeders

- This type of feeder works very well in a stall, either a corner, or against a wall
- Horse is happy, well-fed, and not bored
- Easy to fill, no wasted hay



Photos/details on Slow Feeders

This is my friend Goldie's new feeder—full of wheat straw. Horse is boarded.



This is the back side of the feeders, showing the “slide” which keeps the feed up against the feeding grid 22

Photos/details on Slow Feeders

This side feeder is made from a cage, used in industry to transport large drums. It has the addition of a center divider, tops, and the 45-degree angle slide to allow the hay to move down to the eating grids. The different size grid openings pose no problem as the horses eat mostly from the bottom area. This is a large feeder, and would need to be moved with a fork-lift under the pallet.



Photos/details on Slow Feeders



This stall feeder is simple to make. What doesn't show is the "slide" that causes the hay to fall forward to the grid. Holes in the lid for opening are an option to keep horses from lifting or chewing.

Photos/details on Slow Feeders

This feeder has an opening for the grid to slide through, and then drop down into feeder



Photos/details on Slow Feeders



This grazing feeder allows two horses to eat at the same time—the barrier in the middle prevents disruption—if the dominant horse wants to change feeders he has to come around to the other side.

Photos/details on Slow Feeders



In hay-scarce Tasmania, above feeders save feed and money. One for each horse plus an extra—horses play with them also.

Photos/details on Slow Feeders



This net feeder holds a round bale that lasts 2 Arabs and 2 Shetland Ponies 9 days. It is on a pallet and hung so that the weight of the bale is supported, yet the hay is always where the horses can eat it easily. All 4 eat from it at the same time.

Photos/details on Slow Feeders



My favorite! Texas Lg. Rd. bale Feeder. Horses change places often on this Merry Go Round! Instead of \$210 for 10 days, now spends \$65 for one round bale for 10 days, and has happier, healthier horses and less work for her!

My Restricted Free Feeder Experience



First one. Made from one of my “tuff-stuff” tubs. Grid cut to fit bottom (slanted sides and curves made it difficult). Rope to keep grid in if dumped over (holes drilled in ends of tub). Pat uses it because other 2 horses pawed it/dumped it over. Takes a little while for horses to get used to new method of eating.

My Restricted Free Feeder Experience, continued



“Grazing” – black ABS to keep grid in—one end “perm” and other end with wing nuts (not used now). Up on “tuff stuff” tub to keep Cav from pawing it. Tied to post to keep them from dumping it over. Soon will remove tub to see if pawing has stopped to feed closer to ground. Added dowel and PVC pipe to sides of grid which was slightly too narrow, and allowed feed to be eaten too fast (horse used his head!)

My Restricted Free Feeder Experience, continued



My fourth—a vertical (side) feeder under construction. Painted for outdoor use. Hinged top for putting in hay. Sloped top for water run-off. Slightly larger grid. On ABS skids underneath. Slide not in yet.

Notes/Resources

- Grid should be at least 3/16 steel wire, 2"x2" openings (no bigger)
 - Available locally at Flynn & Enslow, 1573 17th St. San Francisco. 800 726-9473 \$110 for 4x8' sheet.
 - Scout out local salvage yards (I found mine in Oakley)
 - Slightly larger grid available—see me for detail

Notes/Resources, continued

- Slide for vertical feeders can be metal, painted wood, - - must be smooth -- and at 30-45 degree angle
- Boxes for outside should be primed (Zinnser 123 works great) and painted with quality semi-gloss latex (light color to detect mold/mildew easier)
- Because horses get hay damp from their breath, horizontal (grazer) feeders should be cleaned out each time new hay added (I use a small dustpan and whisk broom.) Old hay goes on top of it on top of new hay. Holes (1") in four corners of bottom allow air circulation, and debris to fall/be swept through. Best for sheltered locations

Notes/Resources, continued

- Nets - Netting can be obtained from folks who sell driving range/hockey field nets. Samples on their way to me.
 - Should be 4cm x 4cm openings (~1.6” x 1.6”) even slightly less 3.5 x 3.5 cm is better. Thickness of net should be 3mm to 5mm
 - Openings equivalent to 2” x 2” wire grid
 - Can hang low to ground, but if holes are too large, could be hazard for shod horses. Barefoot horses no problem
 - Need to close at top so horse cannot eat from top
 - Rope border recommended

Notes, Resources, continued

- Small mesh hay nets available from Smith Brothers, Miller's, Dover, etc. Hold 13 lbs, can cost <\$10—reported very durable. Two or more in different locations encourages movement also.
- Larger sized nets available from www.Freedomfeeder.com
 - Hold 30# of feed, 4' x 2.5', nylon netting, can be hung from tie-line, trailer, fence, etc. Cost \$49.95 +t/s (ask me about a discount for a group order)

