



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

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**Project Title**  
**Got Sand?**

**Abstract**

**Objectives/Goals**  
The large colon is where a majority of sand is accumulated; the weight of the sand weighs down the horse and causes the colon to impact and not allow feces to pass causing excruciating pain and death. I compared 3 horses against a control horse for 7 days to determine the amount of sand they had in their colon. This testing method is used by veterinarians for quick ER assessments. My goals were to determine if the method is reliable by checking it against a control horse that was just seen by a vet, and determine if any of the other 3 horses had dangerous amounts of sand in the colon. I want to educate horse owners how to monitor their horses for sand and keep them healthy.

**Methods/Materials**  
Collect 3 fecal apples, place into bag with water, mix into slurry, hang sideways for 1 hour, use water stream to flush debris, add more water, settle for 15 mins, pinch sand in corner, gently pour out water, measure sand, record results.  
horses, baggies, gloves, Marker, Water, Clips, Magnifier

**Results**  
3 of 4 horse stools tested acceptable. The 4th horse had very high amount of sand in the colon. Ranger had from 1/2 tsp to 1 1/4 tsp of sand per 3 fecal apples. The allowable amount is 1/4 tsp per 3 fecal apples. Immediate care needed to be taken of this animal so I took my project 1 step further and continued to measure the amount of sand in his stool while feeding him a special diet designed to eliminate sand in the colon. The diet consisted of feeding 3lbs bran, 2 cups psyllium, 2 cups vegetable oil and 2 TBS salt added to his feed twice daily for 4 days.

While on the sand reducing diet, I continued to monitor Ranger's progress and record his sand output. He was excreting large amounts of sand, which meant that my special diet was working. Within 4 days, Ranger's sand level seemed to level off, I monitored it for another 4 days and it was at an acceptable level of 1/2 tsp to 1/4 tsp of sand per 3 fecal apples.

**Conclusions/Discussion**  
My hypothesis was incorrect; all horses had sand. Oldest horse had most sand, was at dangerously high colic risk. I learned all horses have sand in their intestine. I also learned if you don't treat sand colic quickly they are liable to need surgery or die. The best thing about my experiment is knowing that by testing horses and treating them I might have saved a life. My project helped humanity by making horses' lives better. Just knowing I could make an animal's life better is a great feeling!

**Summary Statement**  
Test horse stool samples to determine if there are dangerous amounts of sand in their large intestines that could cause them to colic and die, and apply and test remedy.

**Help Received**  
My mom helped me with some typing and with some gluing on my project board.