



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Mary M. Raymund	Project Number J1406
Project Title Saddle Sense: Which Saddle Pad Material Keeps the Horse at the Coolest Core Temperature After a Twenty Minute Workout	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The experiment is to examine different materials of saddle pads by measuring a horse's core temperature, after a twenty-minute work out. The comparison is between three different saddle pad materials: cotton, wool and neoprene. The pads are tested by exercising a single horse, for a specific amount of time, in a speed controlled setting. For twenty minutes the horse will be attached to a machine that will control the horses speed by leading it in a circle, at the end of fifteen trials, over fifteen different days.</p> <p>Methods/Materials A Healthy Quarter Horse; Halter with lead rope; Stud Chain; Large Animal; Rectal Digital Thermometer; Temperature Sensor by PASCO model PS-2000; Soapy water; Petroleum Jelly; Western Saddle weighing 15.9 Kilograms; Wool Pad; Cotton Pad; Neoprene Pad; Brush; Hoof Pick; Hot walker: Dayton DC; speed control with speeds 0-100; Lunge Whip; An instrument that measures weather temperature.</p> <p>Results The wool pad kept the horse at a cooler core temperature of 40°C after a 20 min workout, five times for each saddle pad. The controls were using the same horse, for the same amount of time in a speed controlled environment. The results demonstrates the neoprene pad does not perform well because the fabric does not breathe well. The cotton and wool saddle pads were closer in results, because they are both natural material and breathe more.</p> <p>Conclusions/Discussion The wool saddle pad performs the best of all three pads at keeping the horse at the coolest core temperature after a twenty-minute workout. This finding was determined by measuring the pad with the smallest change in core and surface pad temperature. If it was feasible, a test could be done verifying the independent variables on fifty horses to see if that would support my results. In conclusion, the wool saddle pad is the best one to use to maintain the horse's coolest core temperature and keep the horse from overheating and collapsing from exhaustion.</p>	
Summary Statement Three different saddle pads, wool, cotton and neoprene, were tested to determine which material keeps the horse at the coolest core temperature after a 20 minute workout.	
Help Received Supervision of Mentor when taking rectal temperature; My Mom assisted with the timer for the trials; Science teacher let me borrow the Pasco Sensor Probe and reviewed lab report: Used hot walker at Ortega Equestrian Center.	