



# CALIFORNIA STATE SCIENCE FAIR 2006 PROJECT SUMMARY

<b>Name(s)</b> Michael M. Case	<b>Project Number</b> <b>J1306</b>
<b>Project Title</b> <b>Determining the Development and Transferability of Bacteria from One Piece of Athletic Equipment to Another</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My objective was to find out how much bacteria accumulated/developed on a baseball bat, and basketball under normal use. I then used that data as my baseline for the tests I conducted determining how much bacteria transferred from the ball to the bat, and vice versa.</p> <p><b>Methods/Materials</b> The way I completed my project was first I checked how much bacteria was on a basketball, and a baseball bat grip after using each for a 2 hour practice period. I checked the amount of bacteria present by swabbing each piece of equipment with a sterile cotton swab, and then streaked an agar treated petri dish. I let the dish culture for 48 hours, and then counted the number of bacterial cultures present in the dish. I completed 5 of each of these pre-tests, so that I'd have a good idea how much bacteria typically exists on these surfaces. I then wanted to see how much bacteria could be transferred from one surface to another. I put on two sets of sterile latex gloves, so that no bacteria could or would come into contact with my skin. I cleaned the basketball with two alcohol/antibacterial wipes. I swung the bat for two minutes (about 25 pitches), so that the bacteria might possibly transfer onto my glove covered hands. I then handled the ball for two minutes, without letting it touch the ground. I then tested the basketball for transferred bacteria. I also did the test in the reverse order of ball to bat. I made certain that I changed gloves after every test so that I wouldn't contaminate any of the results. I did each type of transferability test five times so that I would get conclusive results.</p> <p><b>Results</b> I thought that the bacteria would be passed most easily from the ball to the bat. I was wrong, because more than double the amount of bacteria was transferred from the bat to the ball, than from the ball to the bat.</p> <p><b>Conclusions/Discussion</b> What I learned from my investigation is that it is much more safe to handle a basketball, than it is a baseball bat. The bat's pre-tests had more than double the bacterial amounts than the basketball's pre-tests. Also, I learned it is much safer to play with the basketball, and then the baseball bat, and not vice-versa. The bat to the ball transferability tests had more than double the bacteria than the ball to the bat tests.</p>	
<b>Summary Statement</b> Discovering if bacteria can be transferred from a basketball to a bat, and vice versa	
<b>Help Received</b> My advisor helped me with my procedural steps, and the actual testing, my mom helped with my project board assembly.	