



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

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| <b>Name(s)</b><br><b>Allyson Buescher; Gemma Ypparila</b>   | <b>Project Number</b><br><b>S0302</b> |
| <b>Project Title</b><br><b>Touchy Feely: A Project on Diabetes and Neuropathy</b>   |                                       |
| <p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b><br/>The purpose of our project is to find out if one's skin nerve receptors sensations differ between diabetic's and non-diabetic's, females and males, and diabetics that have been diagnosed for a longer and shorter periods of time.</p> <p><b>Methods/Materials</b><br/>The method we used was one of the sixty subjects would run their right hand briefly over the square shaped sandpaper measured in 220 grits, the circle measured in 150 grits, the star measured in 100-c grits, and lastly the heart measured in 60 grits. The higher the number in grits, the smoother the sandpaper is. The subjects would then fill out a small packet with questions asking personal information like sex, age, and if they were diabetic. It also inquired which piece of sandpaper felt the smoothest, the roughest, and if there was a small difference, a large difference, or no difference at all between the sandpaper pieces. The control experiment was testing non-diabetic people, the independent variable was the different grits of sandpaper, and the dependent variable was the person's sex and severity of their diabetes.</p> <p><b>Results</b><br/>In result to our project, 69 percent of females chose which piece of sandpaper was the roughest and the smoothest correctly while only 44 percent of males chose correctly. 71 percent of diabetics diagnosed for ten years and under chose which piece of sandpaper was the roughest and smoothest correctly while 39 percent of diabetics diagnosed for over ten years chose correctly. Overall, diabetics had a harder time detecting a difference between the sandpaper pieces than non-diabetics. Only 55 percent of the diabetics chose correctly while 90 percent of the non-diabetics chose correctly.</p> <p><b>Conclusions/Discussion</b><br/>The results of the project proved that the hypothesis was correct. The females were more sensitive to the differing textures than the males, and the longer the diabetic had been diagnosed for the harder it was for them to tell apart the different grits of sandpaper. Overall, the diabetic subjects had a more difficult time telling the differences in texture as opposed to the non-diabetic subjects.</p> |                                       |
| <b>Summary Statement</b><br>Touchy Feely tests whether or not non-diabetic subject's skin nerve receptors will be more sensitive to touch than diabetic subjects.   |                                       |
| <b>Help Received</b><br>Venessa Buescher helped test subjects   |                                       |