

WHERE IS OUR BODY SENSITIVE TO TOUCH?

PREVIEW

Introduction

Against a background of babies cooing and sighing, Arlena starts to talk to the group of parents sitting on the floor in front of her. She is telling the parents, all of whom have babies with special medical or developmental needs, how infant massage fosters closeness and communication between parent and infant, how it can even help baby overcome colic.

"We know that massage and rocking are beneficial to fragile and premature babies and promote early recovery and bonding," says Arlena. In a study in 1984, 20 hospitalized preterm babies who were massaged regularly had better weight gain and higher activity levels than the control group of babies who had not received regular massage. In another study, preterm babies who were massaged daily after leaving the hospital showed a higher level of neurological activity than a control group after only four months.

"So the benefits of massage are well known, although the reasons for which massage improves infant health and development haven't been fully analyzed. We do know that babies are highly sensitive to touch. They actually have many more touch receptors per area of skin than adults do."

By now the babies are restless, and Arlena begins to demonstrate to the parents how to give a therapeutic massage to their infants. After a while there is very little sound in the room at all, only the soft gurgles of six delighted babies.

Purpose

In this lab, you will determine the relative density of touch receptors on five areas of your arm and hand.

Lab Objective

When you've finished this lab, you will be able to—

- Determine the relative density of touch sensors on different areas of a test subject.

Lab Skills

You will use these skills to complete this lab—

- Evaluate relative value based on given criteria.
- Construct a bar graph to compare experimental values.

Materials and Equipment Needed

ruler

11 straight pins

5 rubbers stoppers, #4

blindfold

LAB PROCEDURE

Pre-Lab Discussion

Touch receptors are located in the skin. Some areas of the body are more sensitive than others—the more sensitive areas have more touch receptors. There are several types of touch receptors. The Meissner's corpuscles are believed to detect light touch, light pressure, and vibration. This is the type of touch receptor you will be mapping in this lab.

The density of touch receptors not only varies from area to area on the body, but also changes with age. An older person has a lower density of receptors (number of receptors per unit area) than a teenager. A teenager has a lower density of receptors than a young child.

Safety Precautions

- Take care not to stick yourself when inserting the straight pins into the stopper.
- Do not stab others with the pins.



Method

1. Prepare the probes as shown in Figure L1-1.

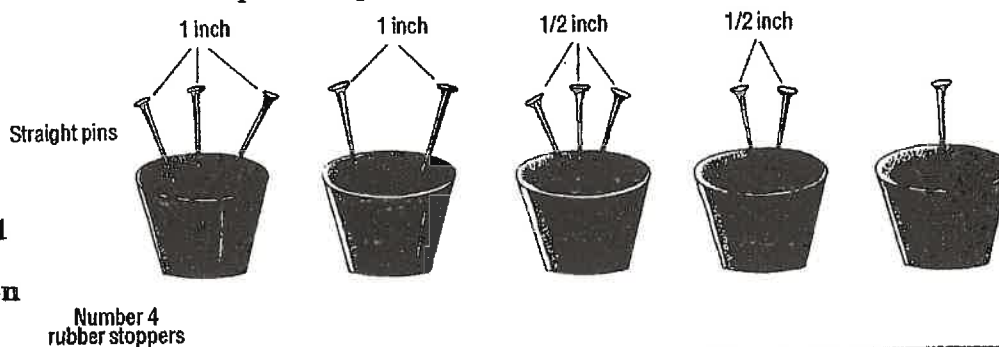


Figure L1-1
Probes
preparation

You will do two trials with one probe, two trials with two probes, and two trials with three probes. The probes will be separated by either one-half inch or one inch. Five sites on the arm and hand will be tested. The five sites are—the finger, the palm of the hand, the back of the hand, the inside of the forearm, and the outside of the forearm. See Figure L1-2. There are a total of 48 trials.

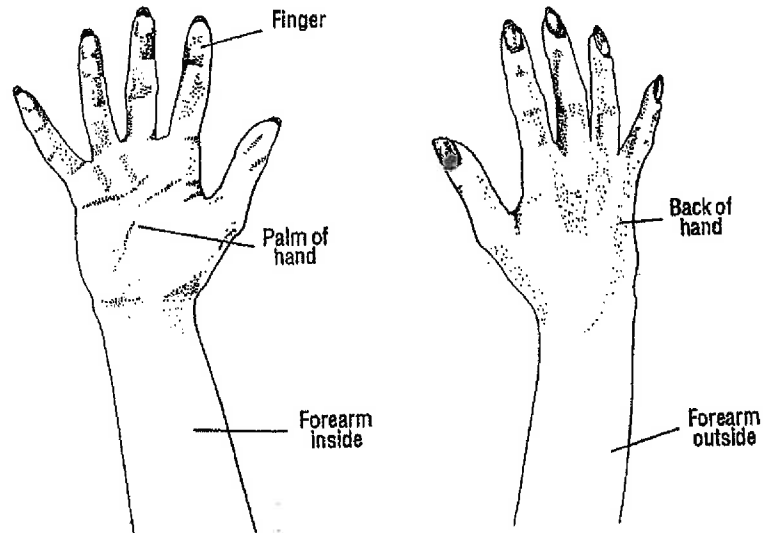


Figure L1-2
Sites to perform
touch trials



2. Blindfold one lab partner as a test subject and begin the testing.
 - Choose a setup at random from the data table for the trial.
 - Perform the trial by gently touching the test site with the arrangement of probes.
 - The test subject should respond with the number of probes felt. For a correct response, record a check in the data table. For an incorrect response, record the number of probes felt in the data table.
3. When all the trials are complete on one test subject, repeat all the trials using the other lab partner as the test subject.

Data Table

Test	Finger	Palm	Forearm Inside	Back of Hand	Forearm Outside
one probe					
one probe					
two probes 1/2" spacing					

two probes 1/2" spacing					
two probes 1" spacing					
two probes 1" spacing					
three probes 1/2" spacing					
three probes 1/2" spacing					
three probes 1" spacing					
three probes 1" spacing					
Totals					

Calculations

1. Count the number of correct responses (checks) for each site and enter this number in the data table in the *Totals* row.
2. Make a bar graph of the data for each lab partner similar to the one in Figure L1-3.

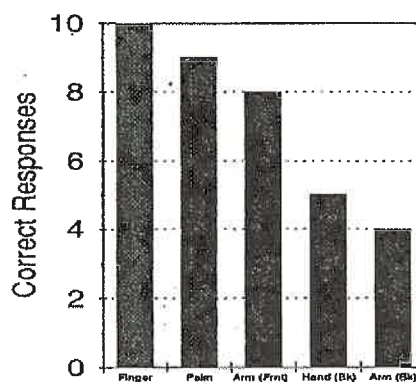


Figure L1-3
Bar graph
of sample data

3. Write the totals for both lab partners on the board. When all lab groups have completed the testing, sum the data for each site and construct a bar graph for the summed data from the entire class.

Cleanup Instructions

- Remove the straight pins from the rubber stoppers.
- Return all equipment to its proper storage location.