Title Lab 6/7- Sensory Physiology

Purpose

In this laboratory I will be able to understand the three components of sensation, know the basic types of receptors,accommodation and sensory adaptation and perception.

Procedure

A-1 Tests of cutaneous sensation

1. With your partner's eyes closed, apply two caliper pinpoints as closely together as possible on your partner's skin on the palm of his/her hand.
2. Remove the pins and move them 1 millimeter apart. Reapply the caliper points to your partner's skin. Repeat this procedure until your partner can discriminate between two distinct points.
3. Record this distance between pins at which your partner can discriminate two separate caliper points.

4. Compare results obtained from the following areas: a. palm of hand b. back of hand c. fingertip d. outer edge of the lipse. back of neck

5. Have your partner repeat this experiment on your skin.

6. Interpret the results you have obtained

A-2 Accommodation of thermoreceptors

1. Place your left fingers in 15 C water and your right fingers in warm water (37C) and record the sensation of each. Keep your hands immersed for 2 minutes.
2. After two minutes, describe the sensation in each hand.
3. Remove hands and promptly place them both in 2 C water.Describe the immediate sensation in each hand.

6/7-B Olfactory adaptation

1. Block your left nostril. Uncork and hold the bottle of camphor oil under your nose until you can no longer detect the camphor. Do not consciously sniff the contents of the vial! Record the adaptation time.
2. Remove the camphor and place the bottles of cloves, then peppermint oil under your nose. Distinguish the smells of cloves and peppermint oil.
3. Uncork and hold the bottle of camphor under your nose again until the smell is no longer recognized. Record this second adaptation time
4. Unblock your left nostril to determine if the camphor is detected.
5. Interpret these results.

6/7-E1 Demonstration of the blind spot

1. Cover your left eye and focus the right eye on the center of the cross below.
2. Slowly bring the page closer to your eye until the spot disappears.
3. Have your partner measure this distance from your eye to the page.
4. The image of the spot is now superimposed on the optic nerve. Explain the lack of vision at this point.

6/7-E2 The smell test

1. Stand 20 feet away from the Snellen chart. Cover your left eye.
2. Attempt to read the line designated “20”.
3. If you cannot read line 20, attempt line 30, 40, 50, 70, 100 or 200 until a line is legible.

Perform these attempts with your left eye, covering your right eye. 4. The Snellen chart is analyzed in the following way: Visual acuity = Distance you read the letters Lowest line read clearly at 20 feet Examples: Nearsightedness (myopia) = 20/30 Normal = 20/20 Farsightedness (hyperopia) = 30/20

In [ ]:

Out[ ]:

	A. Palm of hand	B. Back of hand	C. Fingertip	D. Outer edge of the lips	E. Back of neck
0	8mm	8mm	8mm	9mm	31mm
1	12mm	17mm	10mm	9mm	35mm

Results

A-2: 2. Both hands felt 37C after 2 minutes. 3. After immersing both hands in the 25C water the left hand in the old water felt warm and the one that was in the hot felt cold.

Results

B: 5. 23 seconds.

Results

E1: 3. 20 cm. 4. Because you are able to find the blind spot.

E2: My vision was 20/30.

E3: 4. I do have astigmatism.

6/7-E3 Astigmatism

1. Stand approximately 8–10 inches away from the radial astigmatism eye chart so that it fills your field of vision. Cover your left eye.
2. Focus on the lines in the vertical plane with your right eye.
3. If a blur appears in the lateral lines or the lines converge into one, you have an astigmatism in this plane of your eye.
4. Record the results of this test and repeat with the left eye.

Discussion

After doing these exercises in our laboratory I learned that we had different reactions or responses to stimuli. My partner and I both got various different results.

Conclusion

Sensation, the monitoring of environmental stimuli, involves the interaction of three basic components of the nervous system. Receptors generate impulses in response to specific environmental stimuli, sensory neurons relay these impulses through afferent pathways to the central nervous system (CNS), and interpretation centers of the cerebral cortex translate these impulses into perceived sensations.