YOUR INTERNAL SENSE OF TOUCH

Meeting Fingertips (pg. 11) • Mirror Writing (pg. 12) • Do You Want to Be a Helicopter Pilot? (pg. 12) • Zeroing In (pg. 13)

Close your eyes and imagine the position of your body at this moment. You know where your legs and arms and hands are. You know if you are sitting or standing. Your ability to sense your body and its motions is called *proprioception.* Talented athletes and dancers have a heightened proprioceptive sense. Learning to dance, to type, or to play a musical instrument or a sport, for example, involves practice. Repeated motions train your proprioceptive nerves so that eventually you have a muscle "memory." You can repeat the motion without thinking about it.

Here are some simple activities that investigate your proprioceptive sense.

MEETING FINGERTIPS

CHALLENGE LEVEL

MATERIALS AND EQUIPMENT

- 2 pencils

How good are you at touching your index fingers together? Here are a few tests that make a challenge out of a no-brainer.

Method of Investigation

1. Stand up and extend your arms sideways. Rotate your extended arms from your shoulders three times. Now close your eyes and try to get your fingertips to meet without going past each other.
2. With your eyes open, try this again using pencils pointing directly at each other. Are you more or less accurate with the pencil points than with your fingers? Try again, this time keeping one eye closed. Then try with both eyes closed.
3. Close your eyes and raise both hands over your head. Keep your left hand perfectly still. Touch the tip of your nose with the index fingertip of your right hand. Quickly try and touch the thumb of your left hand (which is still over your head) with your right index fingertip. Try this motion several times, first touching your nose and then attempting to touch your left thumb.

Observations & Suggestions

Do you improve with practice? Does it make a difference when you switch hands? What happens when you wiggle your fingers? Does wiggling help your proprioceptive sense to locate your thumb in space?

Key Words: kinesthesis • proprioception

CHALLENGE LEVEL

MIRROR WRITING

MATERIALS AND EQUIPMENT

- paper
- pencil
- light
- mirror

Can you write backward? Try writing a sentence while looking at your writing hand in a mirror. This is nearly impossible because vision dominates your proprioceptive sense. Moving your hand from left to right is difficult because you're seeing it in reverse in the mirror.

Method of Investigation

You can actually fool your proprioceptive sense into doing mirror writing. Place a half sheet of paper on your forehead. Hold it in place with your nonwriting hand. Holding a pencil with your other hand, place the point on the left side of your forehead. Then write your name or a word such as *hello* in cursive script going from left to right across your forehead. Imagine the page is in front of you and that you are writing normally. Don't think too hard about what you're doing. When you look at what you've written, it appears illegible. But if you look at it in a mirror, or if you turn the paper over and hold it up to the light, it can be easily read.

Key Words: mirror writing • proprioception

CHALLENGE LEVEL

DO
A [illegible]

RIALS D MENT

nds

How
ha
not keep
balance

ss a test of
friends:

Metho

Stand at
fists and
straight

r eyes
s position

Key Words: proprioception • sense of balance

CHALLENGE LEVEL

ZEROING IN

MATERIALS AND EQUIPMENT

- pencil or pen
- paper

If you were blind, how quickly would you learn to feel your way around? Would it be easier to do some things than others? Here are some tests to help you find out.

Method of Investigation

1. Make a zero about ½ inch in diameter on a sheet of paper that is lying on a tabletop. Raise your pen or pencil above your head, close your eyes and make a dot on the paper as close as possible to the center of the zero. How close did you zero in on the zero? Try again. Any better luck? Now try with your eyes open.
2. On a lined sheet of paper, sign your name. Place your pen or pencil after the signature on the same line, close your eyes, and sign your name again. Try writing other words. Can you tell the difference between what you wrote with your eyes closed and what you wrote with your eyes open?

Most people find that looking at the zero between trials improves their performance. Practice also improves performance. Vision seems to be essential for real accuracy. However, vision is not necessary for reproducing written words. We are used to the "feel" of writing from the proprioceptors in our hands and fingers.

Key Words: proprioception · hand-eye coordination