

Sea Jellies: Reflex Activities

Objective:

Sea jellies have no brains or bones, but it is no problem! These fascinating creatures have nerves at the end of their tentacles that detect touch, temperature, and salinity. They simply float around living life based on automatic reflexes. Here's some simple, at home activities you can try to test your reflexes!



Reflex Exercise 1: Pupils

1. You can either do this exercise with a friend/family member or on your own.
2. Start by either looking into a mirror or another person's eyes.
3. Dim the lights in a room, then after a few minutes look at either your eyes or the eyes of another person and note the size of their pupils.
4. After this exercise, turn the room lights back on and check the size of the pupils again. The pupils should now be smaller.

Discussion

- Why does this happen?
 - This is the pupillary response, whereby it automatically keeps out excessive light that may damage the eye.

Reflex Exercise 2: Knee Jerk Reflex

1. This exercise should be done in pairs.
2. Ask your partner to sit on a chair, ideally with their legs dangling down.
3. Hit the leg just below the knee with the side of your hand, causing the leg to kick out immediately.

Discussion

- Why does this happen?
 - This reflex is called a monosynaptic reflex as there is only one synapse in the circuit needed to complete the reflex. It only takes about 50 milliseconds between the tap and the start of the leg kick. The tap below the knee causes the thigh muscle to stretch. Information is then sent to the spinal cord. After one synapse in the ventral horn of the spinal cord, the information is sent back out to the thigh muscle that then contracts.

Reflex Exercise 3: Think Fast!

1. Ask someone to stand behind a see-through barrier, like a window or a windscreen.
2. Then throw a cotton ball or a similar, light and soft object at the person.
3. Pay close attention to see if they blink. (Chances are that they did!)

Discussion

- Why does this happen?
 - This reflex test shows how our reflexes protect us. In this case, it serves to protect our eyes from damage.

Reflex Exercise 4: How fast are you?

1. For this exercise you need a ruler holding it at the end (the highest number) and letting it hang down. Another person should put his or her hand at the bottom of the ruler, having them ready to grab it.
2. This person, however, should not be touching the ruler. Inform the other person that you will drop the ruler sometime within the next 5 seconds. Tell them that they are supposed to catch the ruler as fast as they can from the moment it has been dropped.
3. Take note of the level, in inches or centimeters, that the ruler has been dropped (using the chart below to track the time).
4. Test the person 3 to 5 times, varying the time of dropping the ruler with the 5-second drop zone.
5. To convert their reaction time, use the table below:

Distance	Time
2 in (~5 cm)	0.10 sec (100 ms)
4 in (~10 cm)	0.14 sec (140 ms)
6 in (~15 cm)	0.17 sec (170 ms)
8 in (~20 cm)	0.20 sec (200 ms)
10 in (~25.5 cm)	0.23 sec (230 ms)
12 in (~30.5 cm)	0.25 sec (250 ms)
17 in (~43 cm)	0.30 sec (300 ms)
24 in (~61 cm)	0.35 sec (350 ms)
31 in (~79 cm)	0.40 sec (400 ms)
39 in (~99 cm)	0.45 sec (450 ms)
48 in (~123 cm)	0.50 sec (500 ms)
69 in (~175 cm)	0.60 sec (600 ms)

Discussion

- This exercise does not test simple reflex. Rather, it is an activity designed to measure your response time to something that you see. If you live with other people, try this exercise with everyone and see the varying results!