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Nerve Cell Functions/Uses Outside the Body

In this experiment, we tested whether or not a nerve cell can function outside the body. Crayfish were ordered since they have large, visible nerve chords suitable for testing. To prep the crayfish for dissection and to kill them humanely, they were frozen. The dissected nerve cells were put in a specific saline solution to keep them alive. We then proceeded to make a patch clamp with a micropipette and a long, extremely thin copper wire running through the pipet. The end of the wire that was not in the pipet was attached to one end of the electrode of a voltmeter, and the other electrode was touching the saline solution. The electrodes were connected to a voltmeter. The saline solution conductivity was measured by having the thin end of the pipette resting in the saline solution and the other electrode resting in the saline solution. The nerve cell conductivity was then tested by doing the same thing as testing the saline solution except the nerve cell was in the pipette touching the copper wire, and the conductivity was higher than the conductivity of the saline solution alone. These results indicate that nerve cells are capable of functioning outside the body, but only produce a small current.