

November 20, 1958

Your poignant letter just emphasizes how helpless we still are in the face of certain medical problems. I'm afraid that there is very little I could do to help or encourage you if only for the reason that this question is rather outside the field of my own immediate work at the present time. You can be sure that there are literally hundreds or thousands of physicians and medical research workers who are dedicating their energies to alleviating such tragedies as you have suffered.

What you say is of course perfectly true: exercise cannot regenerate a destroyed nerve cell and a reconnected nerve fiber, if a connection is established, is likely to be very much less effective than the one it succeeded. On the other hand many patients have had tremendous benefit from the persistent devotion of their families and themselves to rehabilitation measures. If there is any nervous function left at all these measures can make the most of it. Nerve fibers cannot be reconnected, in the present state of our knowledge, but there is an amazing reserve of control that can be relearned when new muscles have to be taught to do old tasks. In my own family I have been gratified, and in a certain sense surprised, to see how far my father has been able to recover from a cerebrovascular accident that seemed at the time to leave him in a utterly hopeless condition. Likewise I have seen one of my graduate students recover to a remarkable degree from what otherwise might have been an utterly incapacitating brain injury.

I am confident that your own medical advisors would not be bouying you up with false hopes if there were utterly no basis for it. If there is anything left to work on at all their measures are the best we now have to make the best use of residual function.

I suspect that you addressed your letter to me less in the hope that I would have any personal expertise pertaining to your problem than that I might be able to point the way to someone who is as you say on the "threshold of some new discovery". I do not know of any work that could give you more comfort and help than the procedures you are now using. There have been a number of exciting discoveries on the plasticity of the central nervous system in early development and you might find a recent review of these by Eccles in a recent issue of the periodical "Perspectives in Biology and Medicine" published by the University of Chicago Press. These studies are along the lines that you

surmised of attempts to discover the basic biological factors involved in the "wiring arrangement", but sad to say, these studies offer no immediate prospect of even the remotest application to human disease at the present time. We can only hope that this research or other work like it will ultimately give us some answers. In the circumstances I can only hope that you can take courage and most important help as best you can to imbue your wife with the confidence and hope that she will need to get the most out of her exercises. I am sure that your physician can quote tangible cases where his procedures have given substantial help to patients afflicted in the way that your wife has been.

Yours sincerely,

Joshua Lederberg
Professor of Medical Genetics

JL/jp