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CAN ELECTRICITY FROM ELECTRIC EELS TRANSFER GENETIC MATERIAL TO NEARBY ANIMALS?

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The electric eel can release up to 860 volts, which is enough to run a machine. In a recent study, a research group from Nagoya University in Japan found electric eels can release enough electricity to genetically modify small fish larvae (*PeerJ —Life and Environment*). The researchers' findings add to what we know about electroporation, a gene delivery technique. Electroporation uses an electric field to create temporary pores in the cell membrane. This lets molecules, like DNA or proteins, enter the target cell.

Researchers from Nagoya University realised that electric eels in the Amazon River could well act as a power source, organisms living in the surrounding area could act as recipient cells, and environmental DNA fragments released into the water would become foreign genes, causing genetic recombination in the surrounding organisms because of electric discharge. The researchers discovered that 5% of the larvae had markers showing gene transfer. "This indicates that the discharge from the electric eel promoted gene transfer to the cells, even though eels have different shapes of pulse and unstable voltage compared to machines usually used in electroporation," Dr. Atsuo Iida says in a release.