

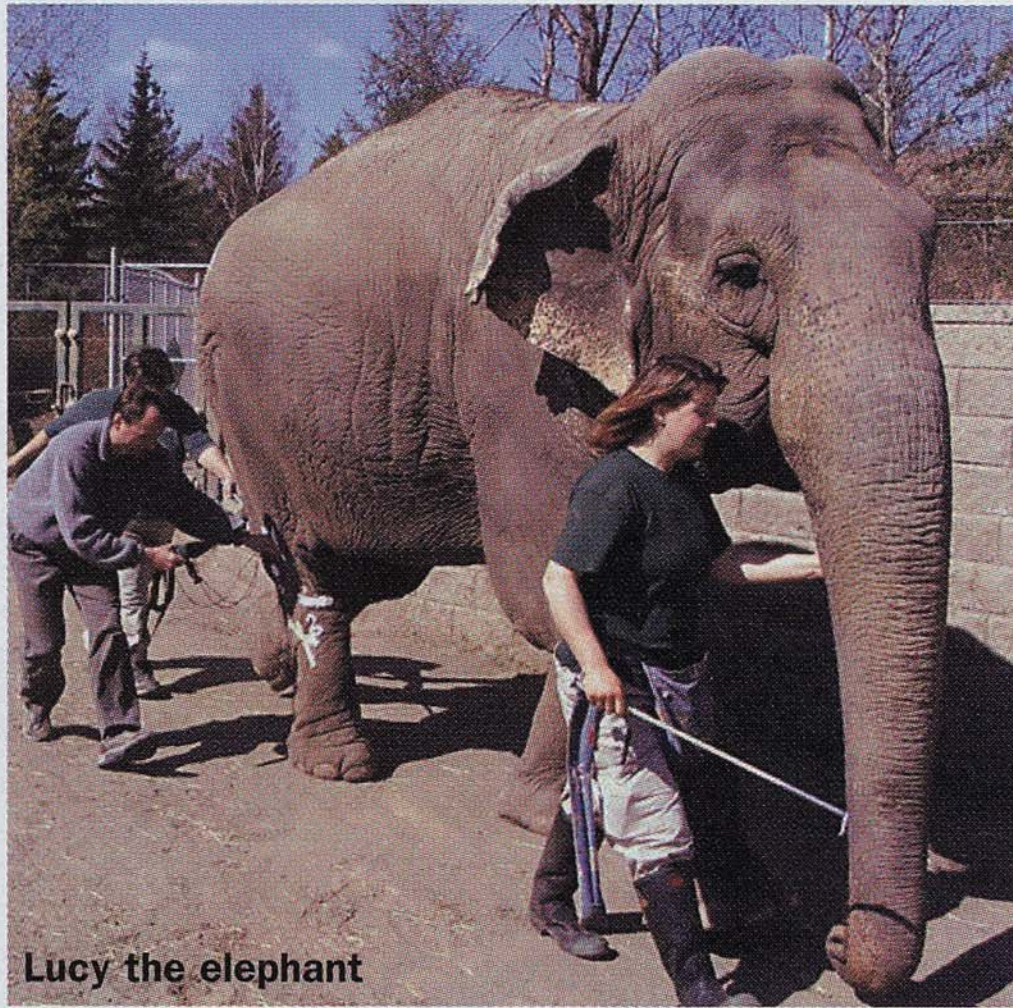
Really BIG Research

An elephant from the Edmonton Valley Zoo was recently put to work by U of A neuroscientists to help them better comprehend neuromuscular control systems in large animals.

Dave Collins, '98 PhD, and Doug Weber, of the Faculty of Physical Education and Recreation, met up with the Asian elephant known affectionately as Lucy.

“We went and met her — and I say ‘met her’ because it did feel like a meeting,” says Collins about the research team’s encounter with Lucy, best known for the colourful paintings she does with brushes and rollers she holds with her trunk. “You really get the feeling that the lights are on and she’s looking at you as much as you’re looking at her.”

The goal of the researchers’ (including Steve Aung of the U of A Faculty of Medicine and Dentistry and lead investigator Max Donelan from Simon Fraser University) was to gauge the rate at which the elephant’s nerves carried signals. Their original



Lucy the elephant

theory was that nerve impulses would move faster in large animals in compensation for their bulk and longer neurons and relatively slower in smaller animals. But the findings contradicted this hypothesis.

“We found that the nerve conduction velocity is very similar to our nerves and those in mice,” says Collins.

The experiment also demonstrated the viability of using adhesive electrodes to record muscle activity. Less invasive than using a thin needle to embed wires into the muscle underneath the skin, the electrodes also gave a more accurate reading.