Probing Question: Can you change the handedness you were born with?

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The other day I tried to toss my roommate some car keys. My right hand was clutching a stack of books so I threw with my left, sending the keys sailing directly into a ceiling tile. This left my roommate chuckling and me, in a shower of cheap foam particles, wondering: My left hand, though undoubtedly connected to my brain, constantly defies orders to be more like its brother. Is it possible to make this appendage more adroit?

According to Clare Porac, a professor of psychology at Penn State Erie, humans are born with two genes for handedness, either "dextral" or "chance." The dominant dextral gene induces right-handedness whenever it turns up. The chance gene leaves the decision to, well, chance. It takes a pair of the latter to make a person left–handed. This occurs in approximately 10 percent of the overall population.

Nerves connect our hands to the areas of the brain responsible for motor skills, Porac continues. There's a separate set for each hand. As it happens, however, the wiring is crossed: the right hand is hooked up to the left side of the brain and vice versa.

The path from brain to dominant hand is well-traveled, she explains. But when a person starts using the non-dominant hand more than usual, the brain has to start activating areas that have remained comparatively dormant. Like an atrophied muscle, the motor control areas connected to the off hand are smaller and less developed than those associated with the dominant one.

Despite our genetic predispositions, however, many people do change handedness. Mostly, they are forced to switch as a result of injury, Porac says. She has seen many cases, mostly long-time righties who had to go left. "If they're forced to, they can switch a lot of their behaviors," she says.

Changing is somewhat easier for left handers, who already live in a right-handed world and have had to use their non-dominant hand more often. But either way it is no simple task. "It takes quite a while to switch," Porac says, but whether that means months or years depends largely on motivation and practice.

And some things are easier than others to convert. One student she studied had been in an accident that permanently injured his dominant hand, Porac remembers. Eating with a fork and other basic activities translated well, but she wanted to know how he took notes in class. The student could print very quickly and clearly, she found, but his cursive handwriting remained illegible. "Printing and handwriting come from different regions of the same part of the brain, a strip across the parietal lobe," Porac explains. Handwriting is a fine motor skill, while printing is not. Although she has seen a few people who were able to fully transfer handwriting to their non-dominant hand, most got no further than being able to scrawl their signature.

Penmanship aside, it sounds like good news for those working with wood chippers, hay balers, or sharks: With a lot of brain training your new dominant hand can be just as good as the old. And for anyone else out there, it might not be too late to start. Being ambidextrous might just come in…handy.

Source: Research/Penn State, By Joe Anuta