“You’re listening to Brain Talk, from the Johns Hopkins Brain Science Institute.”

Dr. Krakauer: “I would say that it’s patently obvious by salaries of basketball players, baseball players, that we reward motor performance above everything else.”

Dale: “Dr. John Krakauer is a neurologist and professor of neuroscience at Johns Hopkins University. Today on Brain Talk, our motor skills and how we become good at them. What interests Dr. Krakauer is how we learn motor skills in everyday life, whether this means dancing, practicing yoga or playing a sport. But, what is a “motor skill?”

Dr. Krakauer: “It’s one of those terms everyone uses in a fuzzy, colloquial way, but can be quite hard to define. So, we in the lab will define motor skill as the ability to improve performance at a designated task through practice.”

Dale: “Dr. Krakauer points out there is a lot going on between the brain and the rest of the body when you play a sport like tennis.”

Dr. Krakauer: “For example, you need to know that you need to pick up the tennis racket, you need to walk on to the court, the point of the game is to hit the ball over the net and not get it out. So those are all highly cognitive things that you need to know.”

Dale: “In his research, Dr. Krakauer shows that the exceptional motor skill ability of an Olympic swimmer, like Michael Phelps, is not a matter of chance, it’s the result of hard work. Yes, your coaches and music teachers were right all along.”

Dr. Krakauer: “So, in other words it really takes years and years and hours and hours of practice per day to become a concert level violinist, or professional tennis player. So, we don’t really know why so much practice is required nor do we know how practice works... why repeating under challenging conditions do you get better at something.”

Dale: “So practice does makes perfect. Or nearly so. The key is this: a person must be continually challenged.

Dr. Krakauer: “So, in other words, you are not going to become an expert golfer by ten thousands of hours putting with the ball one inch from the hole, right, so it’s not just accumulating hours; it’s what are you doing in those hours, and that's why people have couches, people who push you, people that put you in some sort of interface between the easy and the difficult. That's where you have to be.”

Dale: “But here’s what researches are really after: understanding how the brain learns motor abilities. If doctors know that, there just might be help for people wanting to improve movement after a brain injury or stroke. New techniques might help to speed up the process of learning of motor skills. Dr. Krakauer believes that truly effective intervention could have huge consequences…”

Dr. Krakauer: “So, let’s say that I could speed up the rate of acquisition of a skill, well that would be a way of to counter the ever shortening length of stay in hospitals, you could compress the equivalent number of training days into a shorter time by having the brain stimulation happen.”
Dale: “Knowing how movement triggers pleasure circuitry in our brain just might help too. Armchair athletes derive pleasure from watching televised sports, just as an athlete on the field derives pleasure from participation. But why do we love movement?”

Dr. Krakauer: “We have to assume that there is some evolutionary reason for why practicing and playing and moving are beneficial. But what we are left with is a system that seems to love moving in of it self”

Dale: “To learn more about Dr. Krakauer’s research, our motor skills and how we become good at them, log on to brainscienceinstitute.org. I’m Dale Connelly and this is Brain Talk, from Johns Hopkins University.

Learn more about Dr. Krakauer
Learn more about Johns Hopkins' Brain, Learning, Animation, and Movement Lab (BLAM-Lab)

http://www.brainscienceinstitute.org