A MATCH THAT’S NO CONTEST

Bet you can't break a match!

THE SETUP
Place a wooden match across the back of your middle finger and under the first and third fingers at the joints nearest the fingertips. Try to break the match by pressing up with the middle finger and down with the two others. Can't do it? Try pressing down with the middle finger and up with the other two. Still can't do it? Don't let the thumb and little finger help out. That's considered cheating.

INSIDER INFORMATION
This is an impossible situation because you are not using your fingers to gain a mechanical advantage. Your fingers can be used as levers, which are devices that can increase a force when used properly. The key to a lever is the location of the fulcrum, or point of attachment, and the force being delivered to it. When the force is close to the fulcrum, the force is increased. Thus, a crowbar can easily remove a nail from wood. But when the force is a distance from the fulcrum, it is weaker. In this trick, the fulcrum is the set of knuckles where your fingers attach to your hand. When you try to deliver a force far from this point of attachment, your muscles are too weak to do the job. But move the match to the other side of the middle joints close to the knuckles and see how easily you can break it. Now your lever fingers can supply enough power.