A HANDOUT

Wannabet only one hand will move from the center of a yardstick when you try to part your hands?

THE SETUP

We’ve recently discovered there’s more to the yardstick balancing act than we originally thought. The second part is even more mysterious.

Balance a yardstick with the center resting on both of your outstretched index fingers. Slowly move your fingers apart. Surprisingly, only one hand moves.

INSIDER INFORMATION

In the first trick, the meeting place of your hands was determined by the stick’s center of gravity. The same forces are operating when you move your hands apart.

Proprioception is at work here too, automatically coordinating your body movements to keep the stick in balance. Notice only one hand moves at a time. This happens because the moving hand requires something to pull against in order to move. The friction between the stationary hand and the ruler is the force the moving hand pulls against.

When you move your hands apart quickly, things change. Speed reduces friction. Now both hands can be moving at the same time. However, the hand with the least amount of friction moves farther.