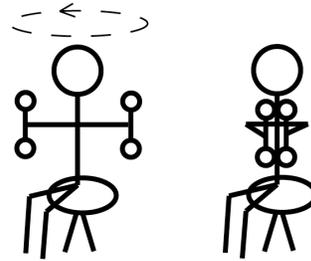


Your instructor sits on a stool which is rotating on a frictionless axle. As shown at the left, he is holding two dumbbells out at arm's length. He pulls his arms in so that the dumbbells are close to the center of the stool. He will:

- 1) rotate in the same direction but faster.
- 2) rotate at the same speed and direction.
- 3) rotate in the same direction but slower.
- 4) rotate in the opposite direction.
- 5) experience a twisting force that makes him tend to fall over to the side.
- 6) Both (5) and one of the others are true.
- 7) None of the above are true.

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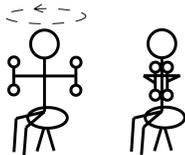


Your instructor sits on a stool which is rotating on a frictionless axle. As shown at the left, he is holding two dumbbells out at arm's length. He pulls his arms in so that the dumbbells are close to the center of the stool. The instructor:

- 1) does positive work.
- 2) does zero work.
- 3) does negative work.

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Your instructor sits on a stool which is rotating on a frictionless axle. He is holding two dumbbells out at arm's length and then pulls his arms in. What happens to angular momentum (L) and kinetic energy (KE) in this process?

- 1) L and KE both increase.
- 2) L increases, KE is unchanged.
- 3) L increases, KE decreases.
- 4) L is unchanged, KE increases.
- 5) L and KE both are unchanged.
- 6) L is unchanged, KE decreases.
- 7) L decreases, KE increases.
- 8) L decreases, KE is unchanged.
- 9) L and KE both decrease.
- 10) None of the above are true.

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