

# QCM méca solides indéformables

Extraits de Just-In-Time Teaching

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# Mouvement circulaire

Lors d'un saut en l'air, un athlète ne peut pas changer :

1. son moment cinétique
2. son moment d'inertie
3. sa vitesse angulaire
4. son énergie cinétique de rotation
5. il peut tout changer





**An ice skater, whose moment of inertia is  $I = 4 \text{ kgm}^2$ , is spinning at  $2 \text{ rad/sec}$ . She changes her moment of inertia to  $2 \text{ kgm}^2$  by changing the configuration of her body. Her**

- angular momentum remains the same**
- angular velocity increases**
- kinetic energy increases**
- all of above**

**It is possible for an object to experience**

- a net torque but no net force**
- a net force but no net torque**
- both A and B**
- neither A nor B is correct**



**The pictures to the left show Jack and Danny in static equilibrium before and after Jack extends his arms. (Before you call Social Services, be advised that Danny loved doing this!) The point of contact between the stilts and floor did not change as Jack extended his arms.**

**Consider the following three cases?**

**1. Static case with arms not extended (first picture).**

**Theoretically, could this position be maintained on a frictionless surface?**

**2. Static case with arms extended (second picture).**

**Theoretically, could this position be maintained on a frictionless surface?**

**3. Transition between the static positions, Jack extends his arms and moves Danny outward.**

**Theoretically, could this move be accomplished on a frictionless surface?**