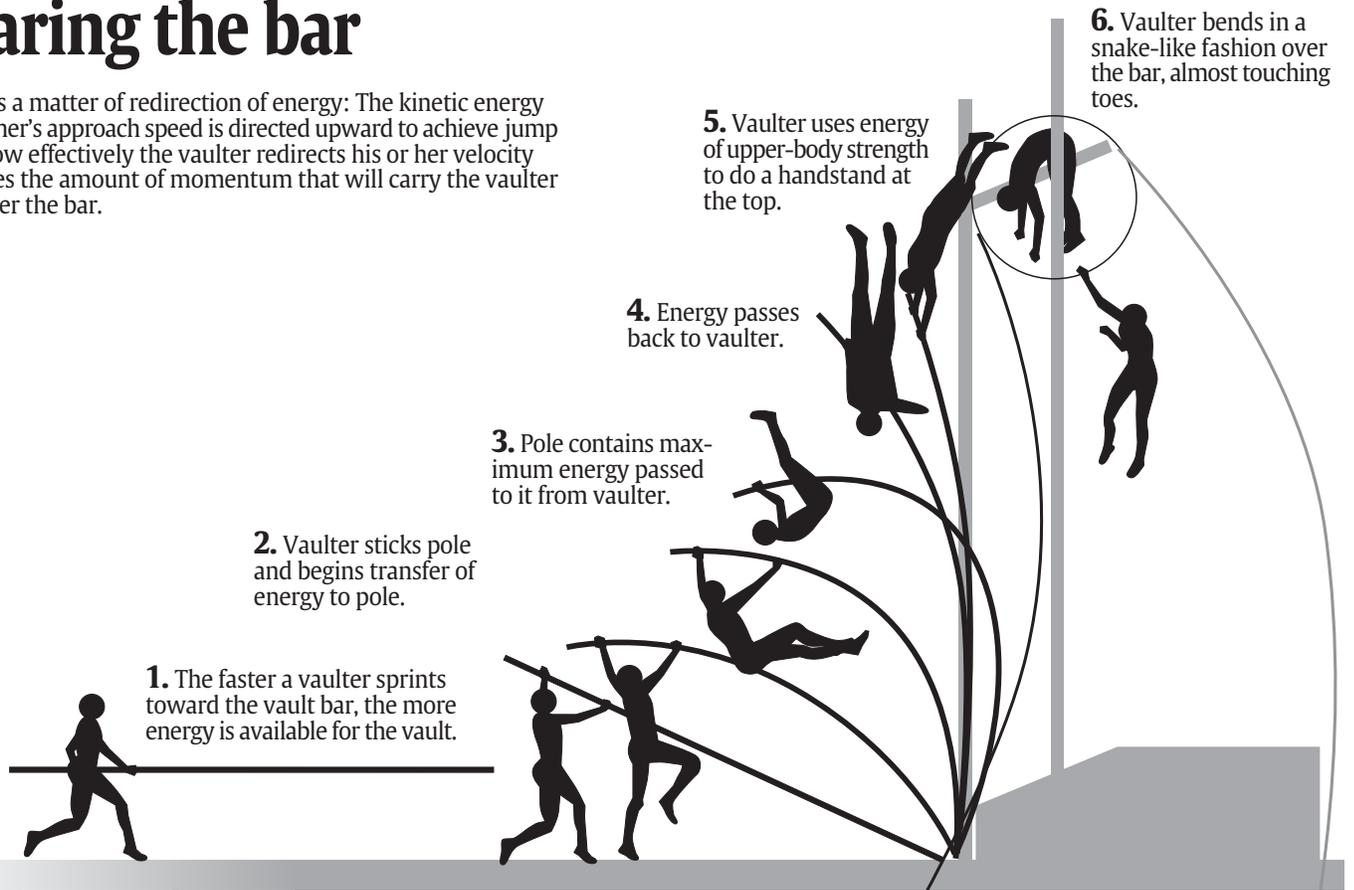


Clearing the bar

Vaulting is a matter of redirection of energy: The kinetic energy of the runner's approach speed is directed upward to achieve jump height. How effectively the vaulter redirects his or her velocity determines the amount of momentum that will carry the vaulter up and over the bar.



1. The faster a vaulter sprints toward the vault bar, the more energy is available for the vault.

2. Vaulter sticks pole and begins transfer of energy to pole.

3. Pole contains maximum energy passed to it from vaulter.

4. Energy passes back to vaulter.

5. Vaulter uses energy of upper-body strength to do a handstand at the top.

6. Vaulter bends in a snake-like fashion over the bar, almost touching toes.

Men vs. women

Key factors:

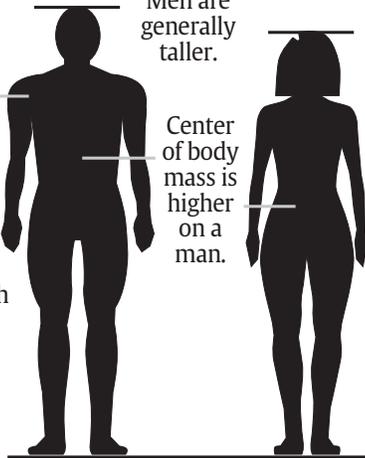
Men are generally taller.

Men run faster and therefore carry more velocity and energy into the jump.

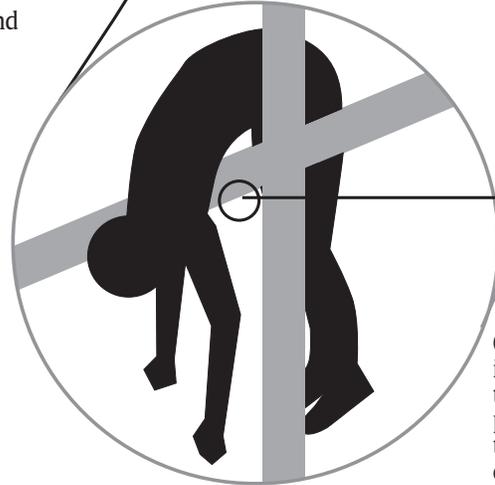
Larger upper-body mass and superior upper-body strength allow men to "climb" pole farther up at the top of the jump.

Center of body mass is higher on a man.

Men weigh more, which enables them to carry more momentum into the jump.



By bending over the bar, the vaulter is able to lower his center of gravity, making him able to lift parts of his body in sequence. First, the legs, then the midsection and last the upper torso and arms.



Center of gravity is effectively transferred to a point between the thighs and chest.