

When a person jumps from a moving train he falls down if he doesn't runs in the direction of motion of train. Why?

Solution:

When a person jumps from a moving train, he is still moving at a speed of the train. When legs of a person touch the ground, it is acting reaction force from the ground against the motion. But this force acts only on the legs, so a person with a high speed bends forward, which could lead to a fall (serious injury). If a person starts to move in the direction of motion of train, then the effect of the force of the movement and friction force decrease the value of the reaction force, the person leans back and much less chance of injury is minimal (equilibrium state).

