

# Newton's Laws of Motion

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1. Newton's First Law of Motion, or the Law of Inertia, states that "every object in a state of uniform motion tends to remain in that state of motion unless an external force is applied to it." This means that there is a natural tendency for a moving object to keep moving, unless an external force interferes.

For the martial artist - a punch moving toward you will continue to do so until an external force, ie a block, changes its direction or until it hits.

2. According to the Second Law of Motion, acceleration is produced when a force acts on a mass. The greater the mass, the greater the amount of force required. Force equals mass times acceleration.

The faster your fist (or foot) moves, the more force it exerts. Therefore, training to speed up your technique will result in a more powerful strike.

It also explains why the smaller fighters are also the faster fighters. Their size may be smaller but it takes less energy to get them moving. Through training, size matters less in effectiveness of strike..

3. The Third Law of Motion states that for every force, there is a reaction force that is equal in size, but opposite in direction. Therefore, whenever one object pushes another object, it gets pushed in the opposite direction equally as hard.

Two handed technique ! As one hand moves to strike or block, the other hand pulls back just as strongly. This opens up the chest and the shoulders, generating more speed and more power.

This also relates to strength of stance. As you make impact, not only does the force go into your opponent but it also flows back into you. If your stance isn't strong, the reaction will cause your stance to collapse, making you vulnerable.