

V

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(a) Equilibrium, in all activities, is an active muscular process to control the center of gravity of the body and of its parts with respect to the base of support.

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(b) Newtonian Laws:

(1) The laws of inertia:

1. A resting body remains at rest if no external force operates upon it.
2. A body moving with uniform motion retains this uniform motion so long as no external force operates upon it.

(2) The laws of acceleration:

1. Acceleration is directly proportional to the force producing it.
2. Acceleration is inversely proportional to the mass of the body.
3. Acceleration is in the same direction as the force producing it.

(3) The law of reaction: Every force which meets resistance has an equal and opposite counterforce.

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(c) (a) Hip, knee, and ankle. One's weight is lifted by extension at all three articulations. Extension can not naturally take place at any one of these articulations without also occurring at the other two. (N.B. for class uses an exact description of this process would be advisable (see p. 134))