

pp. 189-190, Chap. XIII

(c) In Tug o' War the performer keeps contact with the object, as in the fundamental skills of pushing or pulling.

In this sport, if the resistance is light ~~ix~~ arm action alone will suffice. When the resistance is greater, the force can be increased by leaning away from it. Leg extension and the back extensors may be brought into play. In moving backward, the back extensors fix or set the trunk.

VIII.

In these couple balancing stunts the top couples in each case are maintaining the more correct positions because they conform more closely to the principles which govern balancing. First, the area of support is broader in the top figures. There must always be a center of support and the top performer should be placed so as to keep the weight line near this center. All balancing must be performed with respect to the center of gravity of the persons doing the balancing. As long as the center of gravity falls inside or behind the arc of the base of support upon which the balancing is being done the balancing will be stable. But the center of gravity of the one being balanced must not pass beyond that edge. In all balance events, the performers must have a thorough understanding of the rules of stability, dealing principally with the size of the base and the location of the center of the gravity with respect to the base. There is, however, the factor of rotary momentum to be considered. Rotary momentum is usually necessary to assume balancing positions. Therefore, in the drawings the weight is more easily supported by the top figures because weight is easier to hold if the legs of the base are in a vertical position, unless the base figure is standing, then the legs may be widened to spread the area of support.

IX-A.

p. 332, Chap. XIX.

- (1) It is a support for the weight of the trunk.
- (2) It is the solid point of attachment for most of the muscles anchoring and controlling the pectoral girdle, as well as the latissimus dorsi which moves shoulder joint.
- (3) It encloses and protects the spinal cord and the nerves which lead to and from it. This requires a firm, carefully articulated, and not too flexible column.
- (4) It absorbs jolts and jars which come to the body even from such commonplace activities as walking, running and jumping.

IX-B.

P. 339, Chap. XIX.

- (1) Wand lowering between shoulders. This exercise is good for round shoulders, kyphosis, and forward head.

p. 340

- (2) Hanging from the horizontal bars. Passive hanging from the bar is economical of muscular effort but is not good for round shoulders; but in active hanging, the muscles contract to hold the weight and thus transform an activity which is poor for round shoulders into one which is beneficial.

p. 343.

- (3) Standing with feet together, lift inner border of each foot but keep heels and toes on the floor, weight on outer borders of the feet. The main value of this exercise is in strengthening these muscles which support the arch along its medial border.

p. 339, Chap. XIX.

- (4) Prone lying, arms extended sideward, palms down - raising of head, shoulders, and arms from floor. This exercise when done properly is localized hypertension of the thoracic region, with a little hyperextension of the cervical region. Care must be taken to localize the action in the thoracic regions, with no extreme tension in the lumbar region.

p. 338, Chap. XIX.

- (5) "breaking chains". Elbows flexed, arms horizontal, backward movement of arms