

The Strength for Tension and Bursting of Human Fasciae

K. Katake

Department of Anatomy, Kyoto Prefectural University of Medicine.

The tension and bursting tests were undertaken on the ilio-tibial tract, fascia lata and fascia cruris removed from four fresh cadavers of the third decade, and the following results were obtained.

1. The Maximum tensile load per 1cm wide of the fasciae of the lower limb is 10.9 ± 1.1 kg for the direction parallel to fibers. At the ilio-tibial tract, however, it corresponds to 2.0 times as strong as the above.

2. The tensile strength of the fasciae, in general, is 1.39 ± 0.14 kg/mm² for the direction parallel to fibers. In such special case as the ilio-tibial tract, however, it corresponds to 1.6 times as strong as the above.

139kg/mm² kilogram-force per square centimeter = 1977.04 pound-force per square inch
--

3. The ultimate elongation of the fasciae, in general, is $15.6 \pm 0.36\%$ for the direction parallel to fibers. In such special case as the ilio-tibial tract, however, it corresponds to four-fifths of the above.

4. Generally in the fasciae the large initial elongation which corresponds to two-thirds of the ultimate elongation is presented up to the stress which corresponds to 15% of the tensile load.

5. The bursting strength of the fasciae of the lower limb is 52 ± 1.7 kg/cm² for the 7mm diameter of the test area. At the ilio-tibial tract, however, it is a little weaker than the above.

6. The bursting strength per 1mm thick of the fasciae, in general, is 67.6 ± 1.1 kg/mm² for the 7mm diameter of the test area. In such special case as the ilio-tibial tract, however, it corresponds to two-thirds of the above.

7. The ultimate expansion of the fasciae, in general, is 0.07 ± 0.001 ml for the 7mm diameter of the test area. At the ilio-tibial tract also is the same as in the above.