

Optimal Tensions for Various Types of Task as A Function of Proximity to Focal Musculature

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ABSTRACT

The investigation reported in this paper concerns itself with "Energetics" as defined by G. L. Freeman. The contention is that motor tasks set up muscular patterns in the body and that varying tensions produced at various focal points on the body should either facilitate or inhibit the performance of such a task. To study these optima and the patterns of facilitation and inhibition, two tasks involving approximately the same musculature were utilized: tapping for 30 seconds, and a single hole, 30 second steadiness task.

Sixteen members of a graduate class in psychology at the University of Oklahoma served as subjects for this experiment. Three half-hour sessions, every other day, were required of them. Five tension levels, (0, 15, 30, 45, and 60 per cent of maximal tension) were induced at three body loci: hand, leg, and trunk. Residual tensions were allowed to attenuate our scores. One locus, and one determination of maximal tension for this locus, was utilized each day.

Tapping and steadiness scores were each analyzed by a split design analysis of variance technique which provides separate error terms for the correlated and uncorrelated variables. Degrees of tension alone, were found to be significant for steadiness; degrees of tension and locus of tension were found to be significant for tapping. While our interpretation is tentative and awaits better determination of maximal tension and perhaps a wider range of tensions, evidently tension overshadows locus in its effect on a task of high qualitative demand, and locus of tension plays a significant role only on the grosser tasks.
