

Creatine Content of Human Voluntary Muscle.

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Although considerable data have been published on the creatine content of the muscle of laboratory animals, data on the creatine content of human voluntary muscle are somewhat meager. For this reason a study was made on material obtained from 74 human autopsy cases (less than 36 hours post mortem). Creatine was determined on 3 voluntary muscles, namely the psoas major, rectus abdominis and sternocleidomastoid, the average for the respective muscles being 402, 405, and 388 mg. per 100 gm. of fresh muscle.

If the average data secured on muscle obtained at autopsy may be taken as representing the normal creatine content of human voluntary muscle, the concentration is in the neighborhood of 400 mg. of creatine per 100 gm. of muscle. Although in this series there was a fairly even balance between groups of cases showing high and low creatine values, it is possible that the average value for strictly normal individuals is somewhat in excess of 400 mg.

It would appear on the basis of the data obtained on the 3 muscles studied, and also on unpublished data from this laboratory by Linegar and by Mangun for the pectoralis major, that the creatine concentration of various striated muscles in the human is essentially the same. The findings for these muscles may differ somewhat in an individual but the averages for a group are of the same order of magnitude.

The results of this work indicate that relatively high values for muscle creatine, to about 550 mg., may be found in uremia, pneumonia, tuberculosis, early malignancy, and in some cases with circulatory involvement, while low values (as low as 250 mg.) may be encountered in late malignancy, acute inflammatory diseases, uremia plus heart failure, and in some cases with circulatory involvement.