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Effect of casein non-phosphopeptides on muscle group analysis using computed tomography scanning technology

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CNPP (high dose group of 10g/kg/d, moderate dose group 5g/kg/d, low dose group of 2.5g/kg/d and blank group of 0g/kg/d) was fed to 160 male rats (32-weeks-old). The different muscle group of rats which were classified into resistive exercise group (REG) and free exercise group (FEG) were determined by transverse spiral computed tomography (CT) scanning. The REG do the climbing stairs exercise 5 min and have a rest for 1 min, repeat above procedure for 3 times by inducing the rat. The FEG haven't any intervention training. At feeding 0, 15, 25, 35, 50 days, the anesthetized rats were put in the transverse helical CT scanner at prone position, respectively. The skeletons of the rats were as the mark, and corresponding muscle groups were selected in the CT images. The cross-sectional area of these muscle groups were determined by the CT software. The content of growth hormone, insulin level, and testosterone content of rat's blood was analysis by kit method, respectively. *Lactalbumin* feeding group was as the contrast.

The results showed that cross-sectional area growth rate of the trunk and the roots of the left upper limb muscle group, beta scapular muscle group of FEG rats after feeding 50 days moderate dose CNPP were increased significantly than that of blank ( $P<0.05$ ). The back muscles, cross-sectional area growth rate of the trunk and the roots of the left upper limb muscle group of REG rats which feeding low dose CNPP, or the lumbar muscles, cross-sectional area growth rate of the trunk muscle group of REG rats which feeding high dose CNPP were increased significantly at feeding 50 days than that of blank ( $P<0.05$ ). The testosterone level, content of growth hormone and insulin level in the blood of REG and FEG rats of CNPP feeding group were all increased significantly at feeding 50 days than that of at 0 day ( $P<0.05$ ).

Our studies have demonstrated that the leucine-rich CNPP stimulates the synthesis of certain muscles such as back muscles, beta scapular muscle group, and increases the blood levels of insulin, growth hormone, and testosterone.