

Flow-cytometric analysis of oxidative and proteolytical activities in tissue-associated phagocytes from normal and hypertrophic muscles.

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The study was conducted by the known tendencies of increased stress-susceptibility and metabolic disorders in individuals with hypertrophied muscles due to innate factors or intensive exercise which can induce the overtraining syndrome. Using an animal model, muscle-associated cells from normal (N) and hypertrophic (H) skeletal muscle (m.semitendinosus) were examined in their resting and phorbolmyristate acetate (PMA) stimulated oxidation of dihydrorhodamine (DHR) as well as cathepsin B and L activities. Phagocytes were phenotyped by their casein receptors (CR) and fibroblasts by their surface collagens (I and IV). The portion of CR-cells in single cell suspension was 4-8% and 1-3% in H and N. The CR-cells were enriched by 200 g centrifugation and cultured for 5 days with and without cortisol (C), norepinephrine (NE) and indomethacin (I). NE suppressed dose-dependently CR-expression in N, with increase in H occurring. C, NE and I elevated cathepsin activities only in N. PMA stimulated DHR oxidation in H and N 5- and 2-fold. Only the oxidative rate in N reacted to C, NE and I significantly. The data suggest that the response of muscle-associated cells from hypertrophied and normal muscles to signals released in stress-coping significantly differs.