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Specific dynamic action and muscular efficiency on exclusive cereal and meat diets.

O. H. GAEBLER and CHARLES A. MORRISON. (Introduced by J. R. Murlin).

[*From the Department of Vital Economics, University of Rochester, Rochester, N. Y.*]

Measurements of the energy metabolism were made by means of the Benedict "Universal" respiration machine and of nitrogen excretion in the urine. Calculations were made by the Zuntz and Shumburg method. Work was performed on a bicycle ergometer fitted with a Prony brake. Dynamic action was obtained on alternate days in a reclining position. The schedule of rest and work periods was so arranged that the results of the work experiments could be compared directly with the specific dynamic action of the last meal. The meat used was practically free of fat. A wheat cereal and an oats cereal in the form of breakfast foods cooked equal lengths of time were used in two parallel series. Three subjects ate these foods in iso-caloric amounts.

The results showed that the higher dynamic action of meat did not produce less efficiency in amounts of work up to 16,000 kgm. per hour. The wheat cereal gave slightly higher dynamic effects and slightly higher net efficiency than the oats cereal, owing to more rapid digestion and absorption. Changes in carbon dioxide equilibrium and the recovery period after work were compensated.