Christensen and Hansen (1939), in their classical experiments, examined the participation of fat and carbohydrate in energy metabolism on the basis of the respiratory quotient during physical exercise of different intensities. In subjects on a *normal diet,* engaged in exercise of such an intensity that the metabolic processes were essentially aerobic, they found that about 50 to 60 percent of the energy was supplied by fat. In prolonged, standardized aerobic exercise of up to 3-hr duration, an increased participation of fat was observed, supplying up to 70 percent of the energy. In heavy exercise, on the other hand, where anaerobic metabolic processes were involved, their findings indicated a major participation of carbohydrates.