



FIGURE 15–8 Role of AMP-activated protein kinase (AMPK) in carbohydrate and fat metabolism. AMPK is activated by elevated [AMP] or decreased [ATP], by exercise, by the sympathetic nervous system (SNS), or by peptide hormones produced in adipose tissue (leptin and adiponectin, described in more detail in Chapter 23). When activated, AMPK phosphorylates target proteins and shifts

metabolism in a variety of tissues away from energy-consuming processes such as the synthesis of glycogen, fatty acids, and cholesterol; shifts metabolism in extrahepatic tissues to the use of fatty acids as a fuel; and triggers gluconeogenesis in the liver to provide glucose for the brain. In the hypothalamus, AMPK stimulates feeding behavior to provide more dietary fuel.