Summary of Adiposity Signals Pathways

1. Leptin and insulin circulate in the blood in concentrations proportional to body fat content and energy balance.

2. Leptin and insulin act on central effector pathways in the hypothalamus, reprogramming brain anabolic neural circuits that stimulate eating and inhibit energy expenditure, while simultaneously activating catabolic circuits that inhibit food intake and increase energy expenditure.

3. Low leptin and insulin levels in the brain during weight loss increase activity of anabolic neural pathways that stimulate eating and suppress energy expenditure, and decrease activity of catabolic pathways that cause anorexia and weight loss.

4. Ingestion of food generates neural and hormonal signals to the hindbrain. Leptin/insulin-sensitive central effector pathways interact with hindbrain satiety circuits to regulate the meal size, thereby modulating food intake and energy balance.