Researchers reveal why fat increases after dieting and how protein might help
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Refeeding after various types of dietary restriction induces quick fat mass accumulation. a, Experimental design of SDR in mice feeding with 1-d food in 3 d or 4-d food in 6 d. AL, ad libitum; SDR(33.3% × 3), 33.3% food daily provided from day 1 to 3; SDR(66.7% × 6), 66.7% food daily provided from day 1 to 6. b–e, Refeeding after feeding with 1-d food in 3 d (b–d) or 4-d food in 6 d (e) markedly increased body fat mass, n = 9 biologically independent mice for AL, SDR(10–25–65%) and SDR(66.7% × 6), n = 7 for SDR(65–25–10%), and n = 8 for SDR(33.3% × 3). f, Representative images of isolated iWAT from the SDR(10–25–65%) group. The size for each square is 0.5 cm × 0.5 cm. D4D, day 4 at dark phase. g, The weight of iWAT in f (n = 12 biologically independent mice per group). h, Representative images of H&E-stained sections of iWAT in f. Scale bar, 50 μm. i–k, Refeeding after feeding with 2-d food in 3 d (i,j) or 1-d food in 2 d (k) significantly increased body fat mass; n = 8 biologically independent mice for AL, n = 9 for other groups. l,m, Refeeding after feeding with 66.7% food daily for 12 d (l) or 24 d (m) markedly increased body fat mass (n = 9 biologically independent mice per group). n, Refeeding after alternate-day fasting for 15 cycles markedly increased body fat mass (n = 9 biologically independent mice per group). The data shown in b–e, i–k or l–n were performed simultaneously with a single control experiment. Data are presented as mean ± s.d. Statistical significance was determined by two-tailed Student’s t-test. a, P