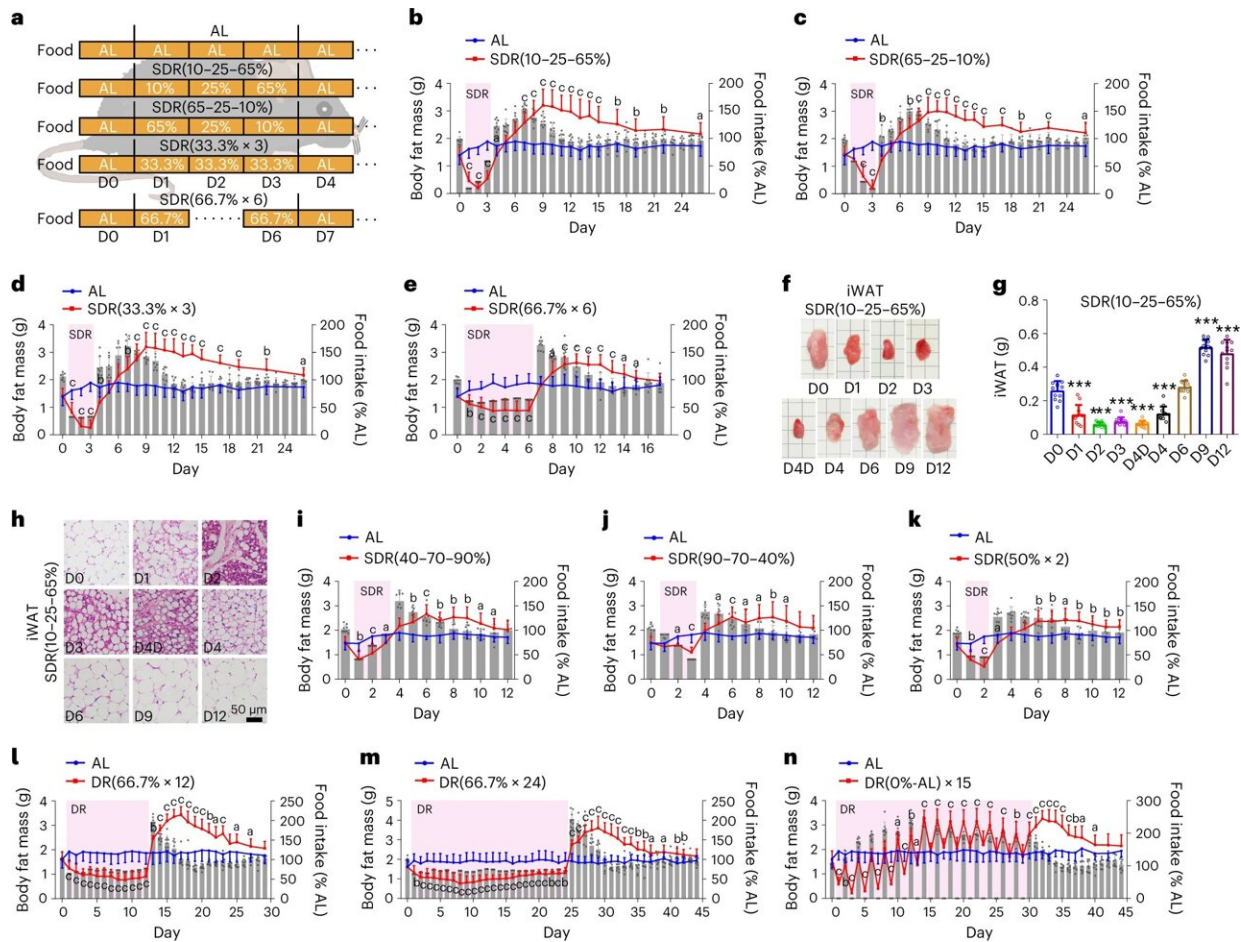


Researchers reveal why fat increases after dieting and how protein might help

December 5 2022



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 \pm s.d. Statistical significance was determined by two-tailed Student's *t*-test. a, *P*

Citation: Researchers reveal why fat increases after dieting and how protein might help (2022, December 5) retrieved 19 December 2023 from <https://medicalxpress.com/news/2022-12-reveal-fat-dieting-protein.html>

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