

Similar adaptations to exercise with fed vs fasted training

Vieira AF, Blanco-Rambo E, Bandeira-Guimarães M, Silva RT, Fergutz A, Paz IA, Munhoz SV, Colombelli R, Vaz MA, Macedo RCO, Cadore EL. [Impact of Overnight Fasted State Versus Fed State on Adaptations to Resistance Training: A Randomized Clinical Trial](#). Int J Sport Nutr Exerc Metab. 2025 May 7:1-12.

Gillen JB, Percival ME, Ludzki A, Tarnopolsky MA, Gibala MJ. [Interval training in the fed or fasted state improves body composition and muscle oxidative capacity in overweight women](#). Obesity (Silver Spring). 2013 Nov;21(11):2249-55.

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Pre- or post-workout nutrition does not affect changes in body composition

Pihoker AA, Peterjohn AM, Trexler ET, Hirsch KR, Blue MNM, Anderson KC, Ryan ED, Smith-Ryan AE. [The effects of nutrient timing on training adaptations in resistance-trained females](#). J Sci Med Sport. 2019 Apr;22(4):472-477.

Protein metabolism is similar in men and women

West DW, Burd NA, Churchward-Venne TA, Camera DM, Mitchell CJ, Baker SK, Hawley JA, Coffey VG, Phillips SM. [Sex-based comparisons of myofibrillar protein synthesis after resistance exercise in the fed state](#). J Appl Physiol (1985). 2012 Jun;112(11):1805-13.

Menstrual cycle phase does not affect protein metabolism

Colenso-Semple LM, McKendry J, Lim C, Atherton PJ, Wilkinson DJ, Smith K, Phillips SM. [Menstrual cycle phase does not influence muscle protein synthesis or whole-body myofibrillar proteolysis in response to resistance exercise](#). J Physiol. 2025 Mar;603(5):1109-1121

In this article, Stacy discusses why women should avoid fasted training
<https://www.womenshealthmag.com/uk/fitness/a41499257/fed-state-exercise/> citing two rodent studies:

‘If women train fasted, they’re more likely to tap into lean muscle as an energy source as the body is trying to conserve all fat and carbohydrate stores for critical reproductive functions,’ Dr Sims tells *WH*. Sure enough, a [study](#) on the livers of mice after intermittent fasting showed that the livers of male mice stopped producing energy storage molecules, whereas the livers of the females made use of all of their available resources, including muscle, in an effort to ‘stock’ the energy necessary to maintain their reproductive capacities.

‘It plays a significant role in maintaining healthy glucose levels, appetite regulation and body composition. Women have two areas of this in their hypothalamus – their brain – whereas men

have one, so women have a greater sensitivity to changes in their energy balance. This energy balance is disrupted through fasted cardio, as your brain perceives a deficiency in nutrients.’ Indeed, one [study](#) found that fasting decreases the production of kisspeptin, thereby disrupting the release of estrogen and progesterone – the two key female reproductive hormones