

Table II - Exercise protocol description and myokine results

	Exercise protocol				Myokine results	
	Type	Duration	Frequency	Intensity	Main findings	Other outcomes
Kettinen et al., 2023	Golf, Nordic Walking, and Regular Walking	1 weeks	3 times per week	Not specified	No changes in BDNF or CTSB	Improved cognitive and executive functions, independent of myokines
Rodziewicz-Flis et al., 2023	Nordic walking with BungyPump resistance poles	12 weeks	3 times per week	60–70% max HR	Reduction in BDNF and slight reduction in irisin	Exercise improved cognitive function and physical performance
Zhang et al., 2023	Core muscle training, crossing obstacle training, standing on ankle joint correcting board, and cycle ergometer	12 weeks	2 times per week	Not specified	Irisin levels increased post-exercise	Irisin increases associated with balance function improvement
De Poli et al., 2021	High-intensity intermittent aerobic exercise	49 days	4 sessions (2 follicular phase, 2 luteal phase)	85% max HR	Exercise increased BDNF levels, independent of menstrual phase	HIIE increased peripheral BDNF and reduced tension, depression, and anger
Gaitán et al., 2021	Treadmill training	26 weeks	3 times per week	50–60% HRR (weeks 1–2), 60–70% HRR (weeks 3–6), 70–80% HRR (weeks 7–26)	BDNF levels decreased, Klotho levels remained unchanged, CTSB increased	CTSB correlated with cognitive performance
Tsai et al., 2021	Moderate-intensity continuous exercise and High-intensity interval training (stationary bicycle)	3 weeks	1 session per week	Moderate (50-55% HRR) and high (70-75% HRR)	Increased serum BDNF after both exercise types, Irisin levels increased only following high intensity intervention	Improved neurocognitive performance, unrelated to myokine changes
Hirsch et al., 2020	Resistance training (8 exercises: upper and lower limbs)	1 day	1 session	% 1 RM (12-rep max)	No significant changes	No relationship found
Nicolini et al., 2020	High-intensity Interval Exercise (HIIE)	1 day (17.5 min)	1 session	10-30% vs 85–125% VO2 peak	Increased serum BDNF; no effect on IGF-1, CTSB, pro-CTSB, or irisin	Exercise increased corticospinal excitability and non-carboxylated osteocalcin

Reycraft et al., 2020	Running	4 weeks	1 session per week + 1 day of no exercise	65% VO2 max, 85% VO2 max and maximum effort	Plasma BDNF levels increased with intensity	
Gmiat et al., 2018	Nordic Walking	12 weeks	3 times per week	60–70% max HR	Increased Irisin and BDNF levels	Exercise improved cognition, associated with increased myokines
Tsai et al., 2017	Bicycle ergometer, bodybuilding machines and free weights	1 day	1 session	65-75% HRR, 75% 1 RM	No change in FGF-2; increased BDNF and IGF-1 with aerobic exercise	Improved cognitive performance (Flanker test), associated with BDNF, IGF-1, VEGF

BDNF = Brain-derived neurotrophic factor; CRP = C-reactive protein; CTSB = Cathepsin B; FGF-21 = Fibroblast growth factor-21; HF = Heart rate; HRR = Heart rate reserve; IL-6 = Interleukine-6; IGF-1 = Insulin-like growth factor 1; RM = Repetition maximum; VEGF = Vascular endothelial growth factor