

**Additional Table 3 Effects of physical exercise on the levels of antioxidative enzymes or coenzymes**

Exerkine	Study	Research subject	Tissue	Exercise paradigm	Regulatory effect	
SOD	Devi and Kiran, 2004	Wistar rats	Hippocampus/cerebral cortex	Swimming training	↑	
	Parise et al., 2005	Elderly males	Skeletal muscle	Unilateral resistance exercise training	Cu/Zn SOD ↑	
	Qiao et al., 2006	Kunming mice	Muscle/heart	Intermittent anaerobic exercise	↑	
	Lekhi et al., 2007	Cyclists	Serum	Long-distance cycling	↑	
	Leite et al., 2012	Wistar rats	Cerebral cortex	Swimming training	↑	
	Tuon et al., 2012	Parkinson's disease model rats	Striatum	Treadmill exercise	↑	
	de Meirelles et al., 2014	Patients with heart failure	Plasma and platelets	Exercise training	↑	
	Mendoza-Núñez et al., 2014	Sedentary volunteers with periodontal disease	Saliva	Tai Chi	↑	
	Rahman et al., 2017	Type 2 diabetes mellitus rats	Serum	Swimming	↑	
	Roh et al., 2017	Obese/non-obese males	Serum	Aerobic exercise	↑	
	Nogueira et al., 2018	Wistar rats	Plasma	Treadmill exercise	↑	
	Vilela et al., 2018	Aged Wistar rats	Skeletal muscle	Aerobic and strength training	↑	
	Son et al., 2019	C57BL mice	Tibialis anterior muscle	Voluntary running	SOD1/2/3 ↑	
	Wadley et al., 2019	Active males	Plasma and serum	High intensity interval exercise	SOD3 ↑	
	de Souza et al., 2020	Wistar rats	Cerebellum	Treadmill exercise	↑	
	Teixeira et al., 2020	Patients with hypertension	Plasma	Regular exercise participation	SOD3 ↑	
	GSH	Rodrigues et al., 2010	AD model rats (streptozotocin injected into the ventricle)	Hippocampus	Treadmill training	↑
		Santin et al., 2011	Wistar rats	Hippocampus	Moderate exercise training	↑
Nyberg et al., 2014		Young sedentary/older sedentary/older active subjects	Plasma	Endurance training	↑	
Tung et al., 2014		Aged C57BL/6J mice	Liver	Treadmill training	Maintain GSH levels in old mice	
Pittaluga et al., 2015		Sedentary type 2 diabetes mellitus and healthy male subjects	Plasma	Moderate training	↑	
Özbeyli et al., 2017		AD model rats	Cerebral cortex	Aerobic/resistance/comprehensive exercise	↑	
Lee et al., 2018		Overweight dysglycemic/normal weight normoglycemic men	Plasma	Bicycle exercise	↑	
Szabó et al., 2018		Wistar rats (ovariectomized/control)	Heart	Voluntary running	↑	
Alzoubi et al., 2019		Waterpipe tobacco smoking rats	Hippocampus	Forced swimming	GSH/GSSG ↑	
Ristic et al., 2020		Wistar rats	Serum	Medium intensity training	↑	

AD: Alzheimer's disease; GSH: glutathione; GSSG: glutathione disulfide; SOD: superoxide dismutase.

**References**

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