Additional Table 1 Effects of physical exercise on the expression of growth factors and hormones

Exerkine	Reference	Research subject	Tissue	Exercise paradigm	Regulatory effect
BDNF	Gómez-Pinilla et al., 2001	Sprague-Dawley rats	Muscle/spinal cord	Treadmill training	↑
	Berchtold et al., 2010	C57BL/6 mice	Hippocampus	Voluntary running	↑
	Erickson et al., 2011	Older adults	Serum	Aerobic exercise	↑
	Voss et al., 2013	Older adults	Serum	Aerobic walking	↑
	Wrann et al., 2013	C57BL/6 mice	Hippocampus	Endurance exercise	↑
	Hoffman et al., 2015	Post-traumatic stress disorder model rats	Hippocampus	Treadmill exercise	↑
	Saucedo Marquez et al., 2015	Healthy humans	Serum	Continuous exercise/high intensity interval training	↑ (High intensity interval training > continuous exercise)
	Müller et al., 2017	Older adults	Plasma	Dancing	↑
	Yu et al., 2017	Sprague-Dawley rats	Serum/soleus muscle	Downhill running	↑
	Wang et al., 2018	Myocardial infarction rats	Serum/heart	Treadmill training	↑
	Kujach et al., 2019	Young males	Serum	Sprint interval exercise	↑
	Rosa et al., 2019	Aβ1-40 induced depression model mice	Serum/hippocampus	Treadmill exercise	↑
	Lang et al., 2020	Type 2 diabetes mellitus mice	Hippocampus	Treadmill exercise	↑
	Tai et al., 2020	Sleep deprived mice	Hippocampus	Treadmill exercise	↑
NGF	Chae and Kim, 2009	D-galactose-induced aging Sprague-Dawley rats	Hippocampus	Treadmill exercise	↑
	O'Callaghan et al., 2009	Aged Wistar rats	Hippocampus	Treadmill exercise	↑
	Um et al., 2011	AD model mice (Tg-NSE/hPS2m)	Hippocampus	Treadmill exercise	↑
	Bonini et al., 2013	Athletes	Serum	Intense and prolonged exercise	↑
	Woo et al., 2013	Obesity-high fat diet model rats	Hippocampus	Treadmill exercise	↑
	Ando et al., 2016	Dogs	Serum	Exercise loads	↑
	Patel et al., 2016	Autoimmune encephalomyelitis rats	Soleus muscle	Forced exercise	↑
	Franzoni et al., 2017	Wistar rats	Hippocampus	Treadmill exercise	↑
	Okudan and Belviranlı, 2017	Social isolation model rats	Hippocampus	Voluntary running	↑
	Peake et al., 2017	Active men	Muscle	Unilateral lower-body resistance exercise	↑
	Roh et al., 2017	Male college students	Serum	Low/medium/high intensity treadmill running	↑ (Medium and high intensity treadmill running > intensity treadmill running)
	Hall et al., 2018	Sprague-Dawley rats	Hippocampus	Voluntary running	↑

	Paddock et al., 2018	Rats	DRG neurons	Treadmill/voluntary running	↑
VEGF	Leick et al., 2009	C57BL/6 mice	Skeletal muscle	Treadmill exercise	↑
	Tang et al., 2010	VEGF luciferase reporter gene mice	Brain/lung/skeletal muscle	Treadmill exercise	↑
	Aksu et al., 2012	Pregnant rats	Prefrontal cortex	Treadmill exercise	↑ in the offspring rats' prefrontal cortex
	Tsai et al., 2013	C57BL/6 mice	Serum	Aerobic interval/continuous exercise	↑
	Voss et al., 2013	Older adults	Serum	Aerobic walking	↑
	Ross et al., 2014	Trained young men	Serum	Endurance exercise	↑
	Uysal et al., 2015	Adolescent Wistar rats	Hippocampus	Treadmill exercise	↑
	Eldomiaty et al., 2017	Depression model rats	Hippocampus	Voluntary running	↑
	Morland et al., 2017	Wild-type mice	Hippocampus	High intensity interval exercise	↑
	Muñoz et al., 2018	Elderly Sprague-Dawley rats	Substantia nigra	Treadmill exercise	↑
	Fiorenza et al., 2019	Subjects with essential hypertension	Skeletal muscle	High intensity interval training	↑
	Kujach et al., 2019	Young males	Serum	Sprint interval exercise	↑
	Boyne et al., 2020	Chronic stroke patients	Serum	High intensity interval training/medium intensity continuous treadmill	↑ (High intensity interval training > medium intensity continuous treadmill)
	Hoier et al., 2020	Healthy young subjects	Skeletal muscle	Endurance training	↑
	Roh et al., 2020	Obese elderly women	Serum	Resistance exercise	↑
	Wu et al., 2020	Young males	Skeletal muscle	Aerobic exercise	↑
IGF-1	Bayod et al., 2011	Sprague-Dawley rats	Cortex/hippocampus	Long-term treadmill exercise	↑
	Cassilhas et al., 2012a	Wistar rats	Hippocampus/serum	Resistance exercise	↑
	Cassilhas et al., 2012b	Wistar rats	Hippocampus	Aerobic training	↑
	Kohman et al., 2012	Aged BALB/c mice	Hippocampus	Voluntary running	↑ IGF-1 positive microglia
	Luo et al., 2013	Aged Sprague-Dawley rats	Gastrocnemius muscle	Resistance exercise training	↑
	Park and Höke, 2014	Mice with median nerve transection	Serum/nerve/muscle	Treadmill exercise	↑
	Annibalini et al., 2017	Patients with advanced type 2 diabetes mellitus	Serum/leukocyte	Aerobic and resistance training	↑
	Chen et al., 2017	Elder with sarcopenic obesity	Serum	Resistance training	↑
	de Almeida et al., 2017	Chronic epileptic model rats	Hippocampus	Resistance exercise	↑
	Vanzella et al., 2017	Aged Wistar rats	Hippocampus	Treadmill exercise	↑
	Martins et al., 2018	Sciatic nerve crush-subjected mice	Sciatic nerve	Regular eccentric training	↑
	Fragoso et al., 2020	Pregnant rats	Cerebellum	Voluntary running	↑
	Niu et al., 2020	BALB/c mice	Hippocampus/serum	Voluntary running	↑
	Tai et al., 2020	Sleep-deprived mice	Hippocampus	Treadmill exercise	↑

	Taş Dürmüş et al., 2020	Inpatients with opioid use disorder	Serum	High intensity interval training	↑
FNDC5/irisin	Huh et al., 2012	Young healthy adults	Serum	Acute exercise	↑
	Lecker et al., 2012	Patients with heart failure	Skeletal muscle	Cardiopulmonary exercise test	↑
	Wrann et al., 2013	C57BL/6 mice	Hippocampus	Endurance exercise	↑
	Brenmoehl et al., 2014	High treadmill performance mice	Skeletal muscle/serum	Acute exercise	↑
	Samy et al., 2015	Rats with thyroid dysfunction	Serum	Swimming	↑
	Tsuchiya et al., 2015	Healthy males	Plasma	Resistance/endurance exercise	↑ (Resistance > endurance)
	Rocha-Rodrigues et al., 2016	High fat diet rats	Skeletal muscle	Voluntary running	↑
	Zhang et al., 2017	C57BL/6J mice	Bone tissue/serum	Voluntary running	Bone ↑; Serum ↓
	Azimi et al., 2018	Aβ1-42-induced AD model mice	Hippocampus	Moderate treadmill exercise	↑
	Eaton et al., 2018	Healthy males	Skeletal muscle	High intensity interval exercise	↑
	Schaalan et al., 2018	High fat diet rats	Serum	Swimming	↑
	Lourenco et al., 2019	Aβ oligomers induced AD model mice	Hippocampus	Swimming	↑
	Shirvani et al., 2019	Sprague-Dawley rats	Serum	Eccentric resistance training	↑
	He et al., 2020	Aged C57BL/6 mice	Skeletal muscle	Treadmill exercise	↑
	Lang et al., 2020	Type 2 diabetes mellitus mice	Hippocampus	Treadmill exercise	↑
	Siteneski et al., 2020	Swiss mice	Hippocampus	Treadmill exercise	↑ FNDC5 positive cells
\ADN	Fukao et al., 2010	High fat diet ApoE$^{-/-}$ mice	Serum	Voluntary running	↑
	Qi et al., 2011	Type 2 diabetes mellitus rats (Goto-Kakizaki)	Serum	Treadmill exercise	↑
	Teixeira de Lemos et al., 2011	Type 2 diabetes mellitus rats	Serum	Swimming/acute extenuating exercise	↑
	Oh et al., 2013	Obese adult men	Serum	Aerobic training	↑
	Markofski et al., 2014	Elderly health participant	Serum	Endurance and resistance training	↑
	Yau et al., 2014	C57BL/6J mice	Hippocampus	Voluntary running	↑
	Wasinski et al., 2015	Pregnant C57BL/6 mice	Skeletal muscle	Swimming training	↑ in offspring mice
	Chan et al., 2017	Women with chronic fatigue syndrome-like illness	Serum	Baduanjin Qigong exercise	↑
	Inoue et al., 2017	SAMP10 mice	Plasma	Treadmill exercise	↑
	Mazur-Bialy et al., 2017	Ulcerative colitis mice with high fat diet	Plasma	Voluntary running	↑
	de Castro et al., 2018	Type 2 diabetes mellitus rats	Serum	Resistance/aerobic/combined training	↑
	Supriya et al., 2018	Patients with hypertension and	Serum	Yoga training	↑

	metabolic syndrome			
Kim et al., 2020	ApoE$^{-/-}$ mice on a Western diet	Plasma	Treadmill exercise	↑
Li et al., 2019	Aged Sprague-Dawley rats	Gastrocnemius muscle	Long-term high intensity interval training/medium intensity continuous treadmill	↑
Zelikovich et al., 2019	Mdx mice	Serum	Treadmill exercise	↑
Wang et al., 2020	Corticosterone injection induces depression model mice	Hippocampus/serum	Voluntary running	↑

AD: Alzheimer's disease; ADN: adiponectin; ApoE: apolipoprotein E; Aβ: beta-amyloid peptide; BDNF: brain-derived neurotrophic factor; FNDC5: fibronectin type III domain containing 5; IGF-1: insulin-like growth factor 1; NGF: nerve growth factor; SAMP10: senescence-accelerated mice prone 10; VEGF: vascular endothelial growth factor.

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