Table S1. Previous associations of single nucleotide polymorphisms with muscle-related phenotypes/performance

Single nucleotide polymorphism	Phenotype	Main results	References
ACTN3 rs1815739	Muscle size	XX genotype had lower mid-thigh area than RX/RR	(Zempo et al., 2010)
	Knee extension torque	XX genotype had lower knee torque than RR/RX	(Walsh et al., 2008)
	Sarcopenia	XX genotype at higher risk of sarcopenia	(Cho et al., 2017)
	Elite sprint athlete status	RR genotype overrepresented in elite sprinter group versus controls	(Chen et al., 2020)
ACE rs4341 (I/D)	Lean mass	D allele favourable for higher lean mass	(Charbonneau et al., 2008)
	Muscle strength and performance	II genotype associated with higher handgrip strength and jump performance among adolescents	(Moran et al., 2006)
CNTF rs1800169	Knee extension and elbow flexion	GA heterozygotes had stronger than GG homozygotes	(Roth et al., 2001)
	Knee flexion	A-allele carriers weaker than GG homozygotes in middle aged women	(De Mars et al., 2007)
	Knee extension	G allele favourable for knee strength among elderly	(He et al., 2020)
	Handgrip strength	AA homozygotes had 3.8 kg weaker handgrip strength than G-allele carriers	(Arking et al., 2006)
CNTFR rs2070802	Knee extension and flexion	T-allele carriers could produce greater torque	(De Mars et al., 2007)
ESR1 rs4870044	Sarcopenia	T-allele carriers had higher risk of sarcopenia	(Khanal et al., 2020)
FTO rs9939609	Body mass and obesity related phenotypes	A allele favoured higher BMI, obesity indices and muscle mass	(Jacobsson et al., 2012, Al-Serri et al., 2018)
	Sarcopenia	AA homozygotes at higher risk of sarcopenia than T-allele carriers	(Khanal et al., 2020)
HIF1A rs11549465	Oxygen consumption capacity	TT associated with higher $V0_{2max}$ among elderly	(Prior et al., 2003)
	Strength/power athlete status	Overrepresentation of TT genotype in athletes compared to controls	(Ahmetov et al., 2008, Drozdovska et al., 2013)
ID3 rs11574	Obesity-related indices	A allele associated with increment in BMI and fat mass over the time	(Svendstrup et al., 2018)
IGF1 rs35767	Body composition	CC homozygotes had greater total fat but lower lean and muscle mass	(Kostek et al., 2010)
IL6 rs1800795	Elite athlete status	Overrepresentation of G- allele among athletes	(Ruiz et al., 2010, Cenikli et al., 2016)

MTHFR rs1801131 rs1537516 rs17421511	Strength/sprint athlete status	Overrepresentation of rs1801131 C allele among athletes	(Zarebska et al., 2014)
	Maximal rate of oxygen consumption	rs1801131 C-allele carriers had greater improvement in VO_{2max} during training	(Cięszczyk et al., 2016)
PTK2 rs7843014, rs7460	Exceptional longevity	rs7843014 CC and rs7460 TT associated with longevity	(Garatachea et al., 2014)
	Specific force	AA homozygotes had greater vastus lateralis specific force in healthy population	(Erskine et al., 2012, Stebbings et al., 2017)
TRHR rs7832552	Lean body mass	T allele favoured greater lean body mass	(Liu et al., 2009, Lunardi et al., 2013)
	Sarcopenia	C-allele carriersat higher risk of sarcopenia than TT homozygotes	(Khanal et al., 2020)
TTN rs10497520	Endurance running performance	T-allele carriers had better marathon performance	(Stebbings et al., 2018)
	Knee strength	C-allele is associated with higher knee strength among elderly	(He et al., 2018)
VDR rs2228570	Muscle size	F (C) allele associated with lower fat-free-mass	(Roth et al., 2004)
	Knee strength	F/FF allele/genotype had lower knee strength compared to f-allele carriers	(Windelinckx et al., 2007, Hopkinson et al., 2008)
	Muscle mass/Sarcopenia	f-allele had higher risk of sarcopenia group and lower fat-free mass	(Roth et al., 2004, Walsh et al., 2016)
MSTN rs1805086	Muscle strength/muscle size	R153 allele associated with lower muscle strength	(Seibert et al., 2001, Corsi et al., 2002)
		R153 allele associated with lower muscle mass among elderly women	(González-Freire et al., 2010)
		R allele associated with higher elbow flexion torque peak power	(Kostek et al., 2009, Santiago et al., 2011)
		KR heterozygotes had greater increment in bicep and quadriceps thickness than KK homozygotes post training	(Li et al., 2014)
COL1A1 rs1800012	Muscle strength	A-allele associated with lower handgrip and biceps strength in elderly	(Van Pottelbergh et al., 2001)
ACVR1B rs2854464	Muscle strength	A allele associated with higher knee strength	(Windelinckx et al., 2011)
	Sprint/power athlete status	A allele overrepresented in sprint and power athletes	(Voisin et al., 2016)
	Muscle mass	A allele associated with higher SMM	(He et al., 2018)
ACVR1B rs10783485	Muscle strength	rs10783485 C allele linked to higher knee flexion	(Windelinckx et al., 2011)
NOS3 rs1799983	Power athlete status	T allele common among power athletes	(Gómez-Gallego et al., 2009, Sessa et al., 2011, Zmijewski et al., 2018, Eider et al., 2014)
	Stroke volume	Postmenopausal women with T-allele had higher stroke volume during dynamic exercise	(Hand et al., 2006)
	Sarcopenia	T allele carriers had higher skeletal muscle mass above sarcopenic threshold	(Khanal et al., 2020)

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