

Appendix 1: Search strategy.

"beta Alanine" [Mesh] OR "3-Aminopropionic Acid" OR "3 Aminopropionic Acid" OR "beta-Alanine, Monosodium Salt" OR "beta Alanine, Monosodium Salt" OR "beta-Alanine, Monopotassium Salt" OR "beta Alanine, Monopotassium Salt" OR "beta Alanine Hydrochloride" OR "Hydrochloride, beta-Alanine" OR "beta Alanine Hydrochloride" OR "beta-Alanine, Calcium Salt (2:1)" OR carnosine, "(D-His)-Isomer" OR "Carnosine Hydrochloride" OR "Hydrochloride, Carnosine"

AND "Oxidative Stresses" [Mesh] OR "Stresses, Oxidative" OR "Stress, Oxidative" OR "Antioxidant Effect" OR "Effect, Antioxidant" OR "Anti-Oxidant Effect" OR "Anti Oxidant Effect" OR "Effect, Anti-Oxidant" OR "Anti-Oxidant Effects" OR "Anti Oxidant Effects" OR "Effects, Anti-Oxidant" OR "Antioxidant Effects" OR "Effects, Antioxidant" OR "Antioxidant Response Element" OR "Element, Antioxidant Response" OR "Elements, Antioxidant Response" OR "Response Element, Antioxidant" OR "Response Elements, Antioxidant" OR "Anti-Oxidant Response Elements" OR "Anti Oxidant Response Elements" OR "Anti-Oxidant Response Element" OR "Element, Anti-Oxidant Response" OR "Elements, Anti-Oxidant Response" OR "Response Element, Anti-Oxidant" OR "Response Elements, Anti-Oxidant" OR "Electrophile Response Elements" OR "Electrophile Response Element" OR "Element, Electrophile Response" OR "Elements, Electrophile Response" OR "Response Element, Electrophile" OR "Response Elements, Electrophile"

AND Exercise [Mesh] OR Exercises OR "Physical Activity" OR "Activities, Physical" OR "Activity, Physical" OR "Physical Activities" OR "Exercise, Physical" OR "Exercises, Physical" OR "Physical Exercise" OR "Physical Exercises" OR "Acute Exercise" OR "Acute Exercises" OR "Exercise, Acute" OR "Exercises, Acute" OR "Exercise, Isometric" OR "Exercises, Isometric" OR "Isometric Exercises" OR "Isometric Exercise" OR "Exercise, Aerobic" OR "Aerobic Exercise" OR "Aerobic Exercises" OR "Exercises, Aerobic" OR "Exercise Training" OR "Exercise Trainings" OR "Training, Exercise" OR "Trainings, Exercise",

((("beta Alanine"[Mesh] OR "3-Aminopropionic Acid" OR "3 Aminopropionic Acid" OR "beta-Alanine, Monosodium Salt" OR "beta Alanine, Monosodium Salt" OR "beta-Alanine, Monopotassium Salt" OR "beta Alanine, Monopotassium Salt" OR "beta Alanine Hydrochloride" OR "Hydrochloride, beta-Alanine" OR "beta Alanine Hydrochloride" OR "beta-Alanine, Calcium Salt (2:1)")) OR (l-carnosine OR "L Carnosine" OR **beta alanyl histidine** OR "beta Alanylhistidine" OR carnosine, "(D-His)-Isomer" OR "Carnosine Hydrochloride" OR "Hydrochloride, Carnosine")) AND ("Oxidative Stresses"[Mesh] OR "Stresses, Oxidative" OR "Stress, Oxidative" OR "Antioxidant Effect" OR "Effect, Antioxidant" OR "Anti-Oxidant Effect" OR "Anti Oxidant Effect" OR "Effect, Anti-Oxidant" OR "Anti-Oxidant Effects" OR "Anti Oxidant Effects" OR "Effects, Anti-Oxidant" OR "Antioxidant Effects" OR "Effects, Antioxidant" OR "Antioxidant Response Element" OR "Element, Antioxidant Response" OR "Elements, Antioxidant Response" OR "Response Element, Antioxidant" OR "Response Elements, Antioxidant" OR "Anti-Oxidant Response Elements" OR "Anti Oxidant Response Elements" OR "Anti-Oxidant Response Element" OR "Element, Anti-Oxidant Response" OR "Elements, Anti-Oxidant Response" OR "Response Element, Anti-Oxidant" OR "Response Elements, Anti-Oxidant" OR "Electrophile Response Elements" OR "Electrophile Response Element" OR "Element, Electrophile Response" OR "Elements, Electrophile Response" OR "Response Element, Electrophile" OR "Response Elements, Electrophile")) AND (exercise OR exercises OR "Physical Activity" OR "Activities, Physical" OR "Activity, Physical" OR "Physical Activities" OR "Exercise, Physical" OR "Exercises, Physical" OR "Physical Exercise" OR "Physical Exercises" OR "Acute Exercise" OR "Acute Exercises" OR "Exercise, Acute" OR "Exercises, Acute" OR "Exercise, Isometric" OR "Exercises, Isometric" OR "Isometric Exercises" OR "Isometric Exercise" OR "Exercise, Aerobic" OR "Aerobic Exercise" OR "Aerobic Exercises" OR "Exercises, Aerobic" OR "Exercise Training" OR "Exercise Trainings" OR "Training, Exercise" OR "Trainings, Exercise")

Appendix 2. Risk of bias assessment.

	Allocation concealment	Blinding of participants and personnel	Blinding of outcome assessment	Incomplete Outcome Data	Selective reporting	Other bias
Belviranli et al. (2016)	Low	Unclear	Low	Low	Low	Low
Smith-Ryan et al. (2013)	Low	High	Low	Low	Low	High
Smith-Ryan et al. (2012)	Low	High	Low	Low	Low	High
Slowinska-Lisowska et al. (2014)	Low	Low	Low	Low	Low	Low