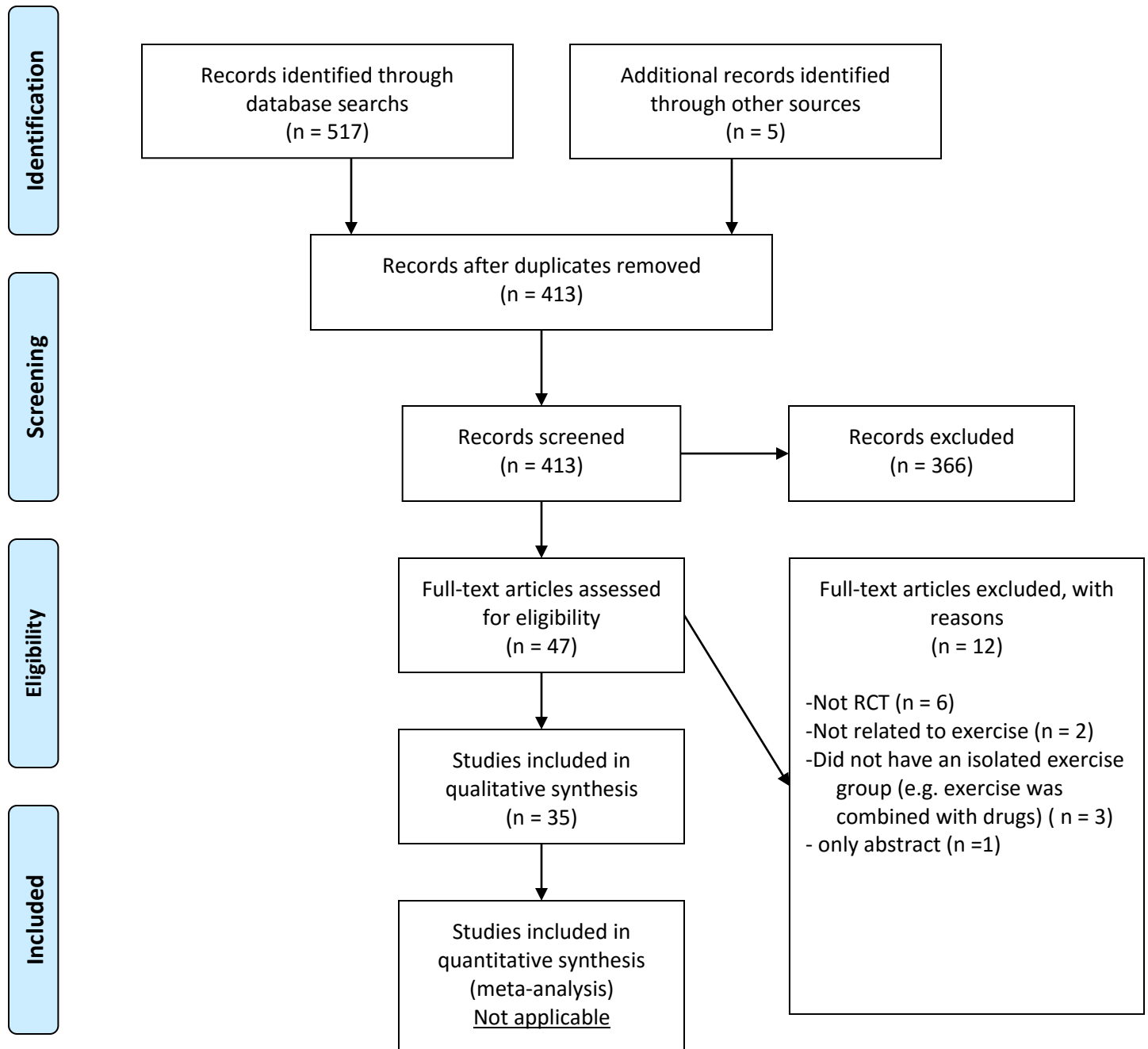




PRISMA 2009 Flow Diagram



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit www.prisma-statement.org.

Table 1 – Electronic Search Strategy Used in Medline

<i>Search #</i>	<i>Keywords and Number of Records Identified</i>
Search #1	Organ transplantation (110179)
Search #2	Transplantation conditioning (7738)
Search #3	Transplant recipients (195)
Search #4	"transplant recipient\$" (27594)
Search #5	1 or 2 or 3 or 4 (122169)
Search #6	Exercise/ or Exercise Therapy/ or exercise\$ (192344)
Search #7	Rehab\$/ or rehabilitation (151761)
Search #8	Resistance training/ or "physical education and training"/ or training (181282)
Search #9	"Physical activity" (47446)
Search #10	Physical exertion (11451)
Search #11	6 or 7 or 8 or 9 or 10 (474657)
Search #12	5 and 11 (2399)
Search #13	Heart or lung or kidney or pancreas or liver (1433618)
Search #14	12 and 13 (2200)
Search #15	Limit 14 to humans (2156)
Search #16	Limit 14 to animals (76)
Search #17	15 not 16 (2121)
Search #18	Limit 17 to randomized controlled trial (60)

Table 2 – Description of Studies

Author	Country	Year	Organ	Time-post transplant (weeks)	Treatment duration (weeks)	Randomized patients*	Exercise intervention	Comparison
Braith	USA	1996	Heart	>8	24	16	lumbar extension 1day/ week; variable resistance exercises 2 days/wk	usual care
Braith	USA	1998	Heart	>8	24	16†	lumbar extension 1 day/ week; variable resistance exercises 2 days/wk	usual care
Kobashigawa	USA	1999	Heart	>2	26	27	individualized cardiac rehabilitation (strengthening, flexibility, and moderate aerobic exercises) 1-3days/wk	usual care (unstructured therapy at home)
Painter	USA	2002	Kidney	4-8	48	167	independent home-based exercise 4 days/wk	usual care
Mitchell	USA	2003	Lung	>8	26	16	lumbar extension resistance exercise 1 day/wk and walking program	usual care (walking program)
Painter	USA	2003	Kidney	>4	48	96	independent home-based exercise 4 days/wk	usual care
Braith	USA	2005	Heart	>8	24	15	variable resistance exercises 2 days/wk	usual care
Juskowa	Poland	2006	Kidney	>0.5	4-5	69	strength exercise training 7 days/wk	usual care
Krasnoff	USA	2006	Liver	>8	40	151	cardiovascular exercise training 3 days/wk	usual care
Bernardi	Italy	2007	Heart	>24	24	26	stationary bicycle; 30min/5days/wk	usual care
Karapolat	Turkey	2007	Heart	mean 14-17	8	38	hospital-based exercise program (flexibility, stretching, aerobic, strengthening, breathing, relaxation) 3 days/wk	home-based exercise program (flexibility, stretching, aerobic, strengthening, breathing, relaxation) 3 days/wk
Braith	USA	2008	Heart	>8	12	20	aerobic treadmill exercise	usual care
Karopolat	Turkey	2008	Heart	mean 14-17	8	38‡	hospital-based exercise program (flexibility, stretching, aerobic, strengthening, breathing, relaxation) 3 days/wk	home-based exercise program (flexibility, stretching, aerobic, strengthening, breathing, relaxation) 3 days/wk
Pierce	USA	2008	Heart	>8	12	20	aerobic exercise training	usual care
Wu	Taiwan	2008	Heart	>52	8	37	resistance & aerobic training 3 days/wk	usual care
Haykowsky	Canada	2009	Heart	>26	12	23	aerobic 5 days/wk & strength training 2 days/wk	usual care
Mandel	USA	2009	Liver	6-12	12	50	targeted lower body resistance strengthening exercise 3-4 days/wk	usual care (walking program)
Hermann	Denmark	2011	Heart	>52	8	27	aerobic interval training program 3 days/wk	usual care
Ihle	Germany	2011	Lung	>52	4	60	inpatient rehabilitation (exercise training 4 days/wk & aerobic session 5 days/wk)	outpatient physiotherapy
Christensen	Denmark	2012	Heart	mean 84	8	§	high-intensity aerobic interval training 3 days/wk	usual care
Langer	Belgium	2012	Lung	1-6	12	40	aerobic & resistance training 3 days/wk	usual care

Author	Country	Year	Organ	Time-post transplant (weeks)	Treatment duration (weeks)	Randomized patients*	Exercise intervention	Comparison
Nytrøen	Norway	2012	Heart	52-416	52	52	high-intensity aerobic interval training 3 days/wk	usual care
Rustad	Norway	2012	Heart	52-416	12	52	high-intensity aerobic interval training 3 days/wk	usual care
Kawauchi	Brazil	2013	Heart	<1	to hospital discharge	22	10-phase incremental exercise program (breathing, active resistance exercises, aerobic exercises, stretching)	institution exercise routine (breathing, stretching walking) 5 days/wk
Kouidi	Greece	2013	Kidney	>52	26	24	aerobic exercise and strength training 4 days/wk	usual care
Nytrøen	Norway	2013	Heart	52-416	52	52¶	high-intensity aerobic interval training 3 days/wk	usual care
Dall	Denmark	2014	Heart	>52	12 (5month washout)	17	high-intensity aerobic interval training 3 days/wk	moderate biking exercise 3 days/wk
Monk-Hansen	Denmark	2014	Heart	>52	8	30	high intensity training 3 days/wk	usual care
Pascoalino	Brazil	2014	Heart	>52	12	42	endurance exercise training 3 days/wk	usual care
Pooranfar	Iran	2014	Kidney	104-156	10	44	aerobic & resistance training 3 days/wk	usual care
Riess	Canada	2014	Kidney	>26	12	31	endurance & strength training 2 days/wk	Usual care
Tzvetanov	USA	2014	Kidney	>4	52	17	resistance exercise training 2 days/wk (as well as behaviour & nutrition)	Usual care
Dall	Denmark	2015	Heart	>52	12 (5month washout)	17	high-intensity aerobic interval training 3 days/wk	moderate biking exercise 3 days/wk
Greenwood	England	2015	Kidney	<52	12	60	Home-based aerobic training & resistance training 3 days/week	usual care
Karelis	Canada	2015	Kidney	6-8	16	24	Resistance training 3 days/week (once a week in hospital & 2x/week at home)	usual care (no exercise)

*does not add to 1313 since some patients included in more than one study;

†same patients as Braith 1996;

‡same patients as Karolopat 2007;

§same patients as Hermann 2011;

¶same patients as Nytrøen 2012;

|| same patients as Dall 2014;

BMD=bone mineral density; HR= heart rate, BP=blood pressure; HRQOL=health-related quality-of-life; CVD=cardiovascular disease; BMI=body mass index;

METs= metabolic unit of task; HRR_e = heart rate reserve; HRR₁=heart rate recovery; CRI=chronotropic response index; CRP= C-reactive protein; IL-6=

interleukin-6; TNF-α = tumor necrosis factor-alpha; sICAM-1= intercellular adhesion molecule-1; 6MWD= 6 minute walk distance; FVC=forced vital capacity;

HRV= heart rate variability ; BRS= baroreflex sensitivity.

Table 3 – List of Outcome Measures by Study

Author	Year	Organ Group	Primary Outcome Measures	Secondary Outcome Measures
Braith	1996	Heart	Bone mineral density (body and regional: femur neck, lumbar vertebra)	Bone mineral content Total bone calcium Acute rejection episodes
Braith	1998	Heart	Body mass Fat-free mass Fat mass Muscle strength (upper and lower body)	Percent body fat Acute rejection episodes
Kobashigawa	1999	Heart	Blood pressure (peak and resting) Heart rate (peak and resting) Anaerobic threshold Exercise duration (to exhaustion) Peak ventilation Peak VO ₂ Peak workload Ventilatory equivalent for carbon dioxide & oxygen	Muscle strength (lower limb)
Painter	2002	Kidney	Body mass index Body weight Fat mass/ body fat Lean tissue mass Percent body fat Blood pressure (peak) Muscle strength (quadriceps) Peak ventilation Peak VO ₂ SF-36*	Self-reported activity level (frequency, type, length, and intensity of exercise) Blood creatinine Blood urea nitrogen levels Hematocrit Hemoglobin Bone mineral density Peak workload Rating of perceived exertion (Borg) Peak respiratory exchange ratio Immunosuppression use (type, dose)
Mitchell	2003	Lung	Bone mineral density (lumbar spine)	Acute rejection episodes Muscle strength (lumbar extensor)
Painter	2003	Kidney	Cholesterol (TC*, HDL*) Body mass index Total CVD risk (Framingham) Blood pressure Peak workload (Maximal metabolic units (METs))	Blood lipids Incidence of diabetes Smoking status
Braith	205	Heart	Muscle composition (fiber types) Muscle metabolic enzyme activity	Muscle strength (upper and lower body)

Author	Year	Organ Group	Primary Outcome Measures	Secondary Outcome Measures
Juskowa	2006	Kidney	Blood lipids Cholesterol (TC*, HDL*, LDL*) Body mass index	Blood calcium level Blood creatinine Blood electrolytes Blood glucose Blood phosphorus Blood protein levels (albumin, fibrinogen, total protein level) Enzyme levels (alanine transferase, alkaline phosphatase, aspartate aminotransferase) Folate concentrations Hemoglobin Interleukin-18 Total-homocysteine Vitamin B12 Blood pressure Muscle strength (upper limbs) Peak expiratory flow
Krasnoff	2006	Liver	Body mass index Body weight Bone mineral content Bone mineral density Fat mass/ body fat Lean tissue mass Percent body fat Muscle strength (quadriceps) Peak VO ₂ SF-36* Peak respiratory exchange ratio Nutritional intake (Block-95 - calories/day; protein, carb and fat calories)	Rating of perceived exertion (Borg)
Bernardi	2007	Heart	Baroreceptor control of blood pressure Baroreceptor control of heart rate	Blood pressure; Heart rate Neck pressure RR* interval Anaerobic threshold CO ₂ production Exercise duration (to exhaustion) Peak ventilation Peak VO ₂ ; Peak workload Ventilatory equivalent for CO ₂ & oxygen

Author	Year	Organ Group	Primary Outcome Measures	Secondary Outcome Measures
Karapolat	2007	Heart	Peak VO ₂ Beck Depression Inventory SF-36* State-Trait Anxiety Inventory	
Braith	2008	Heart	Endothelial function (flow-mediated dilation)	Blood glucose Blood lipids Cholesterol (TC*, HDL*, LDL*) Oxidative stress-induced lipid peroxidation Plasma norepinephrine Serum metabolic and hematologic indicators Body mass Acute rejection episodes Blood pressure (resting and peak) Brachial artery diameter Exercise duration (to exhaustion) Peak VO ₂
Karapolat	2008	Heart	Chronotropic response index Heart rate recovery Heart rate reserve Peak VO ₂	Duke Treadmill Score
Pierce	2008	Heart	C-reactive protein Interleukin-6 Serum metabolic profile Soluble cell adhesion molecules (sICAM-1) Tumour necrosis factor-alpha Muscle vasodilation (forearm and calf)	Blood glucose Cholesterol (TC*, HDL*, LDL*) Cytomegalovirus IgG status White blood cell levels Acute rejection episodes Blood pressure (resting) Heart rate (peak and resting) Exercise duration (to exhaustion) Rating of perceived exertion (Borg) Peak respiratory exchange ratio
Wu	2008	Heart	Muscle endurance (quadriceps) Muscle strength (quadriceps) Peak VO ₂ World Health Organization Questionnaire on Quality of Life – BREF*	Daily physical activity Blood pressure Heart rate (resting and peak) Nutritional intake (caloric intake questionnaire) Peak ventilation Peak workload Rating of perceived exertion (Borg)

Author	Year	Organ Group	Primary Outcome Measures	Secondary Outcome Measures
Haykowsky	2009	Heart	Peak VO ₂	Lean tissue mass (total and leg) Blood pressure (peak) Endothelial function (endothelial-dependent vasodilation, endothelial-independent vasodilation, reactive hyperemia index) Heart rate (peak) Left ventricular systolic function Muscle strength (upper and lower body) Peak power output Peak respiratory exchange ratio
Mandel	2009	Liver	6MWD* Muscle strength (lower body) Chronic liver disease questionnaire (CLDQ) SF-36* (physical function/ limitations)	
Hermann	2011	Heart	Peak VO ₂	Blood creatinine Blood glucose; Blood lipids Blood protein levels (adiponectin, MR-proANP, NT-proBNP, provasopressin/copeptin) Cholesterol Hemoglobin High sensitive C-reactive protein Interleukin-6 Serum insulin Tumour necrosis factor-alpha Body mass index; Body weight Hip-waist ratio Blood pressure (resting) Brachial artery diameter Endothelial function (flow-mediated vasodilation, nitroglycerin-induced vasodilation) Heart rate (resting) Peak power output
Ihle	2011	Lung	6MWD* Peak VO ₂ SF-36* St. George's Respiratory Questionnaire	Heart rate (peak and resting) Anaerobic threshold Oxygen uptake at anaerobic threshold Peak workload Peak respiratory exchange ratio Ventilatory reserve and capacity

Author	Year	Organ Group	Primary Outcome Measures	Secondary Outcome Measures
Christensen	2012	Heart	Hospital Anxiety and Depression Scale SF-36*	Peak VO ₂
Langer	2012	Lung	Daily walking time (time spend in different postures: sedentary, standing, walking)	Daily steps Movement intensity Time spent in moderate intense activities Blood lipids Body weight Bone mineral density Blood pressure 6MWD* Muscle strength (quadriceps and handgrip) Peak workload Mood status SF-36* Forced expiratory volume Respiratory muscle force Incidence of morbidity (diabetes, hyperlipidemia, hypertension, osteoporosis)
Nytrøen	2012	Heart	Peak VO ₂	Blood lipids Blood protein levels (NT-proBNP) C-reactive protein Interleukin-6, 8 & 10 levels Body mass index; Body weight; % body fat Chronotropic response index Glycemic control parameters Blood pressure (peak and resting) Heart rate (peak and resting) Heart rate recovery & reserve Stroke volume (O ₂ pulse; resting & peak) Anaerobic threshold Exercise duration (to exhaustion) Muscle strength (quadriceps and hamstrings) Peak ventilation Rating of perceived exertion (Borg) SF-36* Visual Analog Scale (subjective difference in HRQoL*) Peak respiratory exchange ratio

Author	Year	Organ Group	Primary Outcome Measures	Secondary Outcome Measures
Rustad	2012	Heart	Echocardiographic parameters (rest and during exercise; systolic and diastolic parameters) Peak VO ₂	Biochemical parameters Blood pressure Cardiac allograft vasculopathy (coronary angiography) Cardiac output Heart rate (resting and peak) Stroke volume Peak workload Peak respiratory exchange ratio
Kawauchi	2013	Heart	6MWD* Forced vital capacity Respiratory muscle force/ strength	Muscle strength (upper and lower limbs) Maximum expiratory/ inspiratory pressure
Kouidi	2013	Kidney	Baroreflex sensitivity Heart rate variability parameters (SDNN*, rMSSD*, pNN50*, LF*, HF*, LF*/HF*)	Baroreflex effectiveness index Blood pressure (peak and resting) Heart rate (peak and resting) Exercise duration (to exhaustion) Peak ventilation Peak VO ₂
Nytrøen	2013	Heart	Cardiac allograft vasculopathy (intravascular ultrasound and virtual histology)	Blood creatinine Blood glucose Blood lipids C-reactive protein Cholesterol (TC*, HDL*, LDL*) Hemoglobin Interleukin-6, 8 & 10 levels Body mass index Body water (total) Body weight Bone mass Lean tissue mass Percent body fat Visceral fat scale Basal metabolic rate Glycemic control parameters Metabolic age Muscle strength (quadriceps and hamstrings) Peak VO ₂

Author	Year	Organ Group	Primary Outcome Measures	Secondary Outcome Measures
Dall	2014	Heart	Peak VO ₂	Body weight Blood pressure Heart rate (peak and resting) Heart rate recovery Heart rate reserve CO ₂ production Peak ventilation Peak workload Peak respiratory exchange ratio
Monk-Hansen	2014	Heart	Echocardiography parameters (systolic and diastolic function)	Body mass index Blood pressure Heart rate (peak and resting) Peak VO ₂ Peak workload
Pascoalino	2014	Heart	Arterial stiffness (carotid-femoral pulse wave velocity) Blood pressure (ambulatory; peak and resting)	Plasma norepinephrine Heart rate (peak and resting) Anaerobic threshold CO ₂ production Exercise duration (to exhaustion) Peak VO ₂ Peak respiratory exchange ratio Respiratory compensation point
Pooranfar	2014	Kidney	Blood lipids Cholesterol (TC*, HDL*, LDL*) Sleep quality and quantity questionnaire (self-report; Pittsburgh Sleep Quality Index)	
Riess	2014	Kidney	Peak VO ₂	Cholesterol (TC*, HDL*) Lean tissue mass Total CVD* risk (Framingham) Arterial pressure (mean) Arterial stiffness (pulse wave velocity) Arteriovenous oxygen difference (a-vO ₂) Blood pressure (ambulatory; peak & resting) Cardiac output Heart rate (peak); Stroke volume Systemic vascular endurance Muscle strength (lower body) Peak workload SF-36* Peak respiratory exchange ratio

Author	Year	Organ Group	Primary Outcome Measures	Secondary Outcome Measures
Tzvetanov	2014	Kidney	Glomerular filtration rate SF-36* Adherence to training and follow-up Employment status	Blood creatinine Blood glucose Blood lipids Cholesterol (TC*, HDL*, LDL*) Hemoglobin Body mass index Body weight Bone mineral content Lean tissue mass Percent body fat Arterial stiffness (carotid-femoral pulse wave velocity) Blood pressure Carotid intima-media thickness Muscle strength
Dall	2015	Heart	Blood glucose Blood protein levels (adiponectin, orosomucoid, YLK 40) Interleukin-6 Serum insulin Tumour necrosis factor-alpha Arterial stiffness (augmentation index) Endothelial function (reactive hyperemia index) Hospital Anxiety and Depression Scale SF-36*	Body weight Homeostasis model assessment Heart rate (peak) Peak VO ₂ Peak respiratory exchange ratio
Greenwood	2015	Kidney	Muscle strength (quadriceps)	Arterial stiffness (pulse wave velocity) Blood pressure (peak and resting) Heart rate (peak and resting) STS-60* Peak VO ₂ Body mass index; Body weight Waist girth Glomerular filtration rate high-sensitivity C-reactive protein interleukin-6 Fetuin A Tumor necrosis factor-alpha tumor necrosis factor receptors 1 & 2 SF-36* Duke Activity Status Index

Author	Year	Organ Group	Primary Outcome Measures	Secondary Outcome Measures
Karelis	2015	Kidney	World Health Organization-5 Well-Being Index Muscle strength index Adherence to training and follow-up (feasibility)	Body weight Body height Body mass index Waist girth Hip girth Fat mass/ body fat Lean tissue mass Cholesterol (TC*, HDL*, LDL*) Blood glucose Blood pressure Peak VO ₂

*Abbreviations: SF-36=short-form 36; TC=total cholesterol; HDL= high-density lipoprotein fraction of cholesterol; LDL= low-density lipoprotein fraction of cholesterol; RR-interval= inter-beat interval (heart rate); BREF=a shorter version of the original; rMSSD=root-mean-square of successive NN interval differences; pNN50=percentage value of NN50 count; LF= low-frequency components; HF= high-frequency components; CVD=cardio-vascular disease; STS-60= sit-to-stand 60;

Table 4 – ICF Outcome Classifications

ICF Component	Domain	Category	Outcome Measures	Count Primary*	Organ Group
Body Function	Global mental functions	b134	Sleep quality and quantity	1	Kidney
		b152	Mood status	0	Lung
	Functions of the cardiovascular system (heart functions)	b410	Cardiac output	0	Heart, kidney
		b410	Carotid intima-media thickness	0	Kidney
		b410	Echocardiographic parameters	2	Heart
		b410	Endothelial function	2	Heart
		b410	Left ventricular systolic function	0	Heart
		b410	RR interval†	0	Heart
		b410	Stroke volume	0	Heart, kidney
		b410	Systemic vascular endurance	0	Kidney
	Functions of the cardiovascular system (heart rate)	b4100	Heart rate	1	Heart, kidney, lung
		b4100	Heart rate recovery	1	Heart
		b4100	Heart rate reserve	1	Heart
		b4100	Heart rate variability	1	Kidney
	Functions of the cardiovascular system	b410-429	Baroreceptor control of blood pressure	1	Heart
		b410-429	Baroreceptor control of heart rate	1	Heart
		b410-429	Baroflex effectiveness index	0	Kidney
		b410-429	Baroflex sensitivity	1	Kidney
		b410-429	Chronotropic response index	1	Heart
		b410-429	Total CVD† risk	1	Kidney
		b410-429	Cardiac allograft vasculopathy	1	Heart
	Functions of the cardiovascular system (blood vessel functions)	b415	Arterial stiffness	3	Heart, kidney
		b415	Brachial artery diameter	0	Heart
	Functions of the cardiovascular system (blood pressure functions)	b420	Arterial pressure	0	Kidney
		b420	Blood pressure	4	Heart, kidney, lung
		b420	Neck pressure	0	Heart
	Functions of the cardiovascular system (oxygen-carrying functions of the blood)	b4301	Arteriovenous oxygen difference	0	Kidney
	Functions of the hematological and immunological systems	b430-439	Biochemical parameters	0	Heart
		b430-439	Blood calcium level	0	Kidney
		b430-439	Blood creatinine	0	Heart, kidney

ICF Component	Domain	Category	Outcome Measures	Count Primary*	Organ Group
		b430-439	Blood electrolytes	0	Kidney
		b430-439	Blood glucose	1	Heart, kidney
		b430-439	Blood lipids	2	Heart, kidney, lung
		b430-439	Blood phosphorus	0	Kidney
		b430-439	Blood protein levels	1	Heart, kidney
		b430-439	Blood urea nitrogen levels	0	Kidney
		b430-439	C-reactive protein	1	Heart
		b430-439	Cholesterol	3	Heart, kidney
		b430-439	Folate concentrations	0	Kidney
		b430-439	Hematocrit	0	Kidney
		b430-439	Hemoglobin	0	Heart, kidney
		b430-439	High sensitive C-reactive protein	0	Heart
		b430-439	Interleukin levels	2	Heart, kidney
		b430-439	Plasma norepinephrine	0	Heart
		b430-439	Soluble cell adhesion molecules	1	Heart
		b430-439	Total-homocysteine	0	Kidney
		b430-439	Tumour necrosis factor-alpha	2	Heart
		B430-439	Tumor necrosis factor receptor	0	Kidney
		b435	Cytomegalovirus IgG status	0	Heart
		b435	White blood cell levels	0	Heart
		b435	Acute rejection episodes	0	Heart, lung
	Functions of the respiratory system (respiration functions)	b440	Forced expiratory volume	0	Lung
		b440	Forced vital capacity	1	Heart
		b440	Maximum expiratory/ inspiratory pressure	0	Heart
		b440	Peak expiratory flow	0	Kidney
		b440	Peak respiratory exchange ratio	1	Heart, kidney, liver, lung
		b440	Respiratory compensation point	0	Heart
		b440	Ventilatory reserve and capacity	0	Lung
	Functions of the respiratory system (respiration rate)	b4400	CO ₂ production	0	Heart
		b4400	Oxygen uptake at anaerobic threshold	0	Lung
		b4400	Peak ventilation	2	Heart, kidney

ICF Component	Domain	Category	Outcome Measures	Count Primary*	Organ Group
		b4400	Peak VO ₂	13	Heart, kidney, liver, lung
		b4400	Ventilatory equivalent for carbon dioxide	1	Heart
	Functions of the respiratory system (respiratory muscle functions)	b445	Respiratory muscle force/ strength	1	Heart, lung
	Functions of the cardiovascular system (general physical endurance)	b4550	Rating of perceived exertion	0	Heart, kidney, liver
	Functions related to the digestive, metabolism and the endocrine system	b530	Body mass index	4	Heart, kidney, liver
		b530	Body weight/ mass	3	Heart, kidney, liver,
		b530	Fat mass/ body fat	3	Heart, kidney, liver
		b530	Fat-free mass	1	Heart
		b530	Hip girth	0	Kidney
		b530	Hip-waist ratio	0	Heart
		b530	Lean tissue mass	2	Heart, kidney, liver
		b530	Percent body fat	2	Heart, kidney, liver
		b530	Visceral fat scale	0	Heart
		b530	Waist girth	0	Kidney
	General metabolic functions, unspecified	b5400	Basal metabolic rate	0	Heart
		b5400	Metabolic age	0	Heart
	General metabolic functions, other, specified	B5408	Maximal metabolic units	1	Kidney
	Functions related to metabolism and the endocrine system	b540-559	Enzyme levels	0	Kidney
		b540-559	Fetuin A	0	Kidney
		b540-559	Oxidative stress-induced lipid	0	Heart
		b540-559	Serum insulin	1	Heart
		b540-559	Serum metabolic and/ or hematologic	1	Heart
		b540-559	Vitamin B12	0	Kidney
		b540-559	Glycemic control parameters	0	Heart, kidney
		b540-559	Muscle metabolic enzyme activity	1	Heart
		b545	Body water	0	Heart
		b545	Homeostasis model assessment	0	Heart
	Functions of the genitourinary and reproductive functions (urinary functions)	b610-639	Glomerular filtration rate	1	Kidney
	Neuromusculoskeletal and movement-related	b730	Peak workload/ power output	1	Heart, kidney, lung

ICF Component	Domain	Category	Outcome Measures	Count Primary*	Organ Group
		b730	Muscle strength	7	Heart, kidney, liver, lung
		b730- b740	Muscle vasodilation Muscle endurance	1 1	Heart Heart
Body Structure	Structures related to movement - additional	s7700 s7700 s7700 s7700 s7702	Bone mass Bone mineral content Bone mineral density Total bone calcium Muscle composition (fibre types)	0 1 3 0 1	Heart Heart, kidney, liver Heart, kidney, liver, lung Heart Heart
Activities and Participation	Mobility - walking and moving	d410	STS-60†	0	Kidney
	Mobility - walking and moving (walking)	d450	Daily steps	0	Lung
		d450	Daily walking time	1	Lung
		d450	6 Minute Walk Distance	3	Heart, liver, lung
		d450	Anaerobic threshold	1	Heart, lung
	Mobility - walking and moving	d450-469	Daily physical activity	0	Heart
		d450-469	Movement intensity	0	Lung
		d450-469	Self-reported activity level	0	Kidney
		d450-469	Time spent in moderate intense activities	0	Lung
		d450-469	Duke Treadmill Score	0	Heart
		d450-469	Exercise duration	1	Heart, kidney
	Managing diet and fitness	d5701	Caloric intake	0	Heart
		d5701	Nutritional intake	1	Liver
	Major life areas (work and employment)	d840-859	Employment status	1	Kidney
Environmental factors	Products or substances for personal consumption, other specified	e1108	Smoking status	0	Kidney
	Drugs	e1101	Immunosuppression use	0	Kidney
Questionnaires			Duke Activity Status Index (DASI)	0	Kidney
			Quality of Life Profile for Chronic Diseases SF-36†	1 8	Lung Heart, kidney, liver,
			St. George's Respiratory Questionnaire	1	Lung
			State-Trait Anxiety Inventory	1	Heart
			Beck Depression Inventory	1	Heart

ICF Component	Domain	Category	Outcome Measures	Count Primary*	Organ Group
			Hospital Anxiety and Depression Scale	2	Heart
			Visual Analog Scale (change in HRQoL†)	0	Heart
			WHOQOL-BREF†	2	Heart, Kidney
			Chronic Liver Disease Questionnaire	1	Liver
Not covered by ICF			Incidence of morbidity	0	Kidney, lung
			Adherence to training and follow-up	2	Kidney

*Count Primary= count of studies that used this measure as a primary measure

†Abbreviations: RR-interval= inter-beat interval (heart rate); CVD=cardio-vascular disease; STS-60= sit-to-stand 60; SF-36=short-form 36; HRQoL= health-related quality of life; WHOQOL-BREF= a shorter version of the original World Health Organization Quality of Life Questionnaire.