

Table 3

Summary of the nutrition-related studies. EG=experimental group; CG=control group; ADF=alternate day fasting; CR=calorie restriction; LDL=low-density lipoprotein cholesterol; HDL=high-density lipoprotein cholesterol; BMI=body mass index; hsCRP=high sensitive C-reactive protein; TPO-Ab=antithyroid peroxidase.

REFERENCE	SUBJECTS		INTERVENTION	MEASURED PARAMETERS	OUTCOMES	ANNOTATION
Akasheh et al. (2019) (2)	Alternate day fasting (ADF)	n=11, age: 18-65, no indication of sex, untreated sHT	ADF: consumed 25 % of energy needs on fast day and 125 % of energy needs on feast day	Body fat	↓	-
				Insuline resistance	↓	
				LDL	↓	
	Calorie restriction (CR)	n=15, age: 18-65, no indication of sex, untreated sHT	CR: consumed 75 % of energy needs	HDL	↔	
				TG	↔	
				Blood pressure	↔	
CG	n=17, age: 18-65, no indication of sex, untreated sHT	Duration: 6 months	fT4	↔		
			TSH	↔		
van der Gaag et al. (2020) (42)	EG	n=29, age: 7.7±3.1, 15 male and 15 female, untreated sHT	Diet interventions consisting of green vegetables, beef, whole milk and butter; Pediatric Quality of Life questionnaire was used	PedQL total domain	↑	foods were chosen that are associated with a healthy thyroid function: rich in iron, selenium, vitamin A, and (to a lesser extent) iodine
				PedQL general domain	↑	
				PedQL sleep domain	↑	
				PedQL cognitive domain	↑	
				TSH	↔	
	CG	n=29, age: 8.1±3.3, 16 male and 16 female, untreated sHT	Duration: 6 months	TPO AB	↔	
				Total Cholesterol	↔	
				HDL	↔	
				TG	↔	
				LDL	↔	
Sathyapalan et al. (2011) (38)	EG + CG (within design)	n=60, age: 57.2±13.8, 8 male and 52 female, untreated sHT	Supplementation of 30 g soy protein with 16 mg phytoestrogens (EG) or 2 mg phytoestrogens (CG)	TSH	↔	TSH raised not significant; 6 subjects (10 %) progressed into overt hypothyroidism
				fT3	↔	
				fT4	↔	
				Blood pressure	↓	
				Insuline resistance	↔	
			Duration: 8 weeks	Total Cholesterol	↔	
				LDL	↔	
				HDL	↔	
				TG	↔	
				hsCRP	↔	
Pirola et al. (2016) (33)	EG	n=96, age: 32.2±7.0, 36 male and 60 female, untreated sHT	Supplementation of 83 mcg selenomethionine / day	TSH	↓	31.3% of the EG and 3.1% of the CG (= responders) restored euthyroidism; no change of TSH in non-responders
				fT4	↔	
	CG	n=96, age: 33.1±6.4, 33 male and 63 female, untreated sHT	Duration: 4 months	TPO-Ab	↔	

Table 4 – Part 1

Summary of the exercise-related studies. EG=experimental group; CG=control group; TC=total cholesterol; TG=triglycerides; LDL=low-density lipoprotein cholesterol; HDL=high-density lipoprotein cholesterol; CRP=C-reactive protein; TPO-Ab=antithyroid peroxidase; Tg-Ab=antithyroglobulin; FMD=flow-mediated endothelium-dependent arterial dilation; WHR=waist-hip ratio; BP=blood pressure; IMT=carotid artery intima-media thickness; DHEA-s=dehydroepiandrosterone-sulfate; HOMA-IR=HOMA insulin resistance.

REFERENCE	SUBJECTS	INTERVENTION	MEASURED PARAMETERS	OUTCOMES	ANNOTATION		
Xiang et al. (2009) (46)	EG	All subjects underwent a walking/jogging training; Initially they walked 25-30 min/day, 2-4 days/week at 60 % of their maximal heart rate and then they increased intensity and duration up to 40-45 min/day, 4-6 days/week at 70-75 % of maximal heart rate	TC	↓	In baseline TC, TG, LDL, CRP, TPO-Ab and TG-Ab were sig. higher and FMD was sig. lower in EG than in CG;		
			LDL	↓			
			TG	↓			
			CRP	↓			
	CG		n=27, age: 52±9, female, untrained, healthy	Duration: 6 months		FMD	↑
				ft3		↔	
				ft4		↔	
				TSH		↔	
				TPO-Ab		↔	
				TPO-Ab		↔	
VO ₂ max	↑						
Ahn et al. (2019) (1)	EG	4 days / week resistance and aerobic exercise training in both groups; each training session consists of 10 min. warm-up, 5 min. stretching, 11 resistance band strength exercises (3 sets at 60-65% of 15 RM) and 30 (40-60% of VO ₂ max) min. aerobic training on bicycle or treadmill	Body fat	↓	-		
			WHR	↔			
			Systolic BP	↓			
			LDL	↓			
			IMT	↓			
			TC	↔			
			TG	↔			
	CG		n=20, age: 47.40±9.40, female, untrained, healthy	Duration: 3 months		T3	↔
				T4		↔	
				ft4		↔	
				TSH		↔	
				DHEA's		↔	
				Insuline		↔	
				Glucose		↔	
Aspartat transaminase	↔						
HOMA IR	↔						

Table 4 – Part 2

Summary of the exercise-related studies. EG=experimental group; CG=control group; TC=total cholesterol; TG=triglycerides; LDL=low-density lipoprotein cholesterol; HDL=high-density lipoprotein cholesterol; CRP=C-reactive protein; TPO-Ab=antithyroid peroxidase; Tg-Ab=antithyroglobulin; FMD=flow-mediated endothelium-dependent arterial dilation; WHR=waist-hip ratio; BP=blood pressure; IMT=carotid artery intima-media thickness; DHEA-s=dehydroepiandrosterone-sulfate; HOMA-IR=HOMA insulin resistance.

REFERENCE	SUBJECTS	INTERVENTION	MEASURED PARAMETERS	OUTCOMES	ANNOTATION
Werneck et al. (2018) (44)	EG Phase 1 n=22, age: 39.40±10.6, female, untrained, untreated sHT	Cross sectional study comparing patients with sHT and euthyroid women concerned to signs and symptoms of hypothyroidism and quality of life; SF-36 and modified Billewicz scale was used	Physical activity	↓	sHT patients showed consistently (not sig.) lower scores, except in "social aspects"
			Signals and symptoms	↑	
			Functional capacity domain	↓	
			Physical aspects domain	↔	
			Pain domain	↔	
	CG Phase 1 n=33, age: 38.80±8.70, female, untrained, healthy	Duration: -	General health domain	↔	
			Vitality domain	↔	
			Social aspects domain	↔	
			Emotional aspects domain	↔	
			Mental health domain	↔	
EG Phase 2 n=10, female, untrained, sHT; intervention	Aerobic exercise training (65 % - 75 % HRmax), three times a week; each training session consists of 5 min warm-up, 25 min ergometric bicycle, 25 min treadmill, 5 min resting; SF-36 was used before and after intervention	Physical component domain	↔	No change in the other domains	
		Mental component domain	↔		
		Functional capacity domain	↑		
		General health domain	↑		
CG Phase 2 n=10, female, untrained, sHT; no intervention	Duration: 4 months	Emotional aspects domain	↑		
		Physical component domain	↑		
		Mental component domain	↑		
Garces-Arteaga et al. (2013) (15)	EG n=17, age: 43.1±9.7, 36; female, untreated sHT	medium-impact Exercise Program (aerobic circuit training): on week 1-6 the participants trained at 40-55 % of their VO2max on 3 days / week; On week 7-12 participants trained at 55 – 80 % of their VO2max on 3 days / week; Every training session consists of a circuit training with 10 exercises á 3 sets, a 10 min. warm-up and a 10 min. cool-down; The exercises were performed with dumbbells and resistance bands; Before and after intervention the SF-12 was used and the VO2max was assessed	Physical component domain	↔	not sig. improvements in vitality domain, social functional domain, mental health domain and mental component summary
			Physical function domain	↔	
			Role-physical domain	↔	
			Bodily pain domain	↔	
			General health domain	↑	
	No CG -	Duration: 3 months	Mental component domain	↔	
			Vitality domain	↔	
			Social functioning domain	↔	
			Role-emotional domain	↔	
			Mental health domain	↔	
VO ₂ max	↑				