



DASH dietary pattern and cardiometabolic health: An umbrella review of systematic reviews and meta-analyses

Supplemental Tables & Figures

Table S1: Search strategy for the identification of systematic reviews and meta-analyses assessing the relationships of the DASH dietary patternwith incident cardiometabolic diseases and on cardiometabolic risk factors3
Table S2: Characteristics of prospective cohort studies investigating the DASH dietary pattern and CVD incidence
Table S3: Analysis of confounding variables among studies of the DASH dietary pattern and CVD incidence
Table S4: Newcastle-Ottawa Scale (NOS) for Assessing the Quality of Cohort Studies for Studies of the DASH diet and CVD incidence
Table S5: GRADE assessments of systematic reviews and meta-analyses of prospective cohort studies assessing the relationship betweenconsumption of the DASH dietary pattern and cardiometabolic disease incidence11
Table S6: Characteristics of prospective cohort studies investigating the DASH dietary pattern and incidence of CHD
Table S7: Analysis of confounding variables among studies of the DASH dietary pattern and incidence of CHD
Table S8: Newcastle-Ottawa Scale (NOS) for Assessing the Quality of Cohort Studies for Studies of the DASH diet and incidence of CHD
Table S9: Characteristics of prospective cohort studies investigating the DASH dietary pattern and incidence of stroke
Table S10: Analysis of confounding variables among studies of the DASH dietary pattern and incidence of stroke
Table S11: Newcastle-Ottawa Scale (NOS) for Assessing the Quality of Cohort Studies for Studies of the DASH diet and incidence of stroke 21
Table S12: Characteristics of prospective cohort studies investigating the DASH dietary pattern and incidence of diabetes
Table S13: Analysis of confounding variables among studies of the DASH dietary pattern and incidence of diabetes
Table S14: Newcastle-Ottawa Scale (NOS) for Assessing the Quality of Cohort Studies for Studies of the DASH diet and incidence of diabetes 26
Table S15: Characteristics of controlled trials investigating the DASH dietary pattern and blood pressure
Table S16: GRADE assessment of the systematic review and meta-analysis of controlled trials assessing the effect of the DASH dietary pattern on cardiometabolic risk factors
Table S17: Characteristics of controlled trials investigating the DASH dietary pattern and Total-C and LDL-C
Table S18: Characteristics of controlled trials investigating the DASH dietary pattern and HDL-C
Table S19: Characteristics of controlled trials investigating the DASH dietary pattern and triglycerides

Table S20: Search strategy for controlled clinical trials assessing the effect of the DASH diet intervention on HbA1c	42
Table S21: Characteristics of controlled trials investigating the DASH dietary pattern and HbA1c	44
Table S22: Characteristics of controlled trials investigating the DASH dietary pattern and blood glucose	45
Table S23: Characteristics of controlled trials investigating the DASH dietary pattern and fasting insulin	47
Table S24: Characteristics of controlled trials investigating the DASH dietary pattern and HOMA-IR	50
Table S25: Characteristics of controlled trials investigating the DASH dietary pattern and body weight	52
Table S26: Characteristics of controlled trials investigating the DASH dietary pattern and CRP	55
Figure S1: Risk of Bias summary for all controlled trials included in the systematic reviews and meta-analyses of cardiovascular risk factors	58
Figure S2: Risk of Bias graph for all controlled trials included in the systematic reviews and meta-analyses of cardiovascular risk factors	59
Figure S3: Literature search for the effect of the DASH diet intervention on HbA1c in controlled clinical trials	60
Figure S4: Forest plot for controlled trials investigating the effect of the DASH dietary pattern on HbA1c.	61

Table S1: Search strategy for the identification of systematic reviews and meta-analyses assessing the relationships of the DASH dietary pattern with incident cardiometabolic diseases and on cardiometabolic risk factors

MEDLINE	Embase
1. dietary approaches to stop hypertension.mp	1. dietary approaches to stop hypertension.mp
2. DASH.mp	2. DASH.mp
3. 1 or 2	3. 1 or 2
4. meta-analysis.mp	4. meta-analysis.mp
5. 3 AND 4	5. 3 AND 4

For all databases, the original search date was October 1, 2017 and was updated on January 3, 2019.

Table S2: Characteristics of prospective cohort studies investigating the DASH dietary pattern and
CVD incidence

										Metho		
							_	Dietary		d of		
			N f		N		Durati	intake	DASH	outco	Fundin	Charles .
		Country	No. of		No. of		on of	assessmen	exposure	me	g	Study
Ctudy yr	Cohort	Countr	participa nts	Outcome	inciden	A	study,	t (at baseline)	assessmen t*	assess	Source ‡	Qualit v**
Study, yr	Conort	У	nus	Outcome	t cases	Age, yr	yr	validated	DASH score	ment	+ Agency	y.
						M:35-		semi	out of 40,		&	
				Stroke		64;		quantitativ	Tertile 1 vs	Record	∝ Industr	
Agnoli et al. 2011	EPICOR	Italy	44544	incidence	178	F:35-74	7.89	e FFQ	3.	linkage	y	High
2011	LFICON	italy	44,544	incluence	170	1.55-74	7.85	validated	DASH score	IIIKage	У	Tingit
				Sudden				semi	out of 40,			
Bertoia et al.		United		cardiac		F: 50-		quantitativ	Quintile 1	Record		
2013	WHI	States	93122	death	237	79	10.5	e FFQ	vs 5.	linkage	Agency	High
									DASH score			
								semi	out of 40,			
Fitzgerald et		United		CVD				quantitativ	Quintile 1	Record		
al. 2011	WHS	States	34827	incidence	1094	F: ≥45	14.6	e FFQ	vs 5.	linkage	Agency	High
								validated	DASH score			
								semi	out of 11,			
Folsom et al.		United		CVD		F: 55-		quantitativ	Quintile 1	Record		
2007	IWHS	States	20993	mortality	1121	69	≤16	e FFQ	vs 5	linkage	Agency	Low
								validated	DASH score			
								semi	out of 40,			
Fung et al.		United		CHD		F: 30-		quantitativ	Quintile 1	Record		
2008 (1)	NHS	States	88517	incidence	3105	55	24	e FFQ	vs 5.	linkage	Agency	High
								validated	DASH score			
								semi	out of 40,			
Fung et al.		United		Stroke		F: 30-		quantitativ	Quintile 1	Record		
2008 (2)	NHS	States	88517	incidence	2317	55	24	e FFQ	vs 5.	linkage	Agency	High

	Cohort							validated	DASH score			
	of	Swada		CHD		M: 45-		semi	out of 40,	Deserd		
Levitan et al.	Swedis	Swede	38987		807	79	0	quantitativ	Quartile 1	Record	A	Lliah
2009 (M)	h Men	n	38987	incidence	807	79	9	e FFQ	vs 4.	linkage	Agency	High
	Swedis											
	h								DACLISSON			
	Mamm							validated	DASH score			
	ograph	Currente		CUD		5.40		semi	out of 40,	Deserved		
Levitan et al.	y Calaart	Swede	26040	CHD	442	F: 48-	-	quantitativ	Quartile 1	Record		112-1-
2009 (F)	Cohort	n	36019	incidence	443	83	7	e FFQ	vs 4.	linkage	Agency	High
									DASH food			
									score &			
									DASH			
								validated	nutrient			
				c				semi	score,			
Lin et al.	CVDFA		2004	Stroke	100			quantitativ	Tertile 1 vs	Record		
2013	CTS	China	2061	incidence	123	≥20	≤12	e FFQ	3	linkage	Agency	High
	NIH-											
	AARP							validated	DASH score			
	Diet &							semi	out of 40,			
Reedy et al.	Health	United		CVD		M: 50-		quantitativ	Quintile 1	Record		
2014 (M)	Study	States	242321	mortality	15497	71	15	e FFQ	vs. 5	linkage	NR	High
	NIH-											
	AARP							validated	DASH score			
	Diet &							semi	out of 40,			
Reedy et al.	Health	United		CVD		F: 50-		quantitativ	Quintile 1	Record		
2014 (F)	Study	States	182341	mortality	8005	71	15	e FFQ	vs. 5	linkage	NR	High

* What was compared in the cohort, e.g. DASH score out of 10, Quintile 1 vs. 10

** A total score of 6 or greater was considered high-quality and a total score of 5 or smaller was considered low-quality

‡ Agency funding is that from government, university or not-for-profit health agency sources.

CVDFACTS, CardioVascular Disease risk FACtor Two-township Study; DASH, dietary approaches to stop hypertension; IWHS, Iowa Women's Health Study; EPICOR, long-tErm follow uP of antithrombotic management patterns In acute CORonary syndrome patients; F, female; M, male; Nutrients **2019**, 11, 338

NHS, Nurses' Health Study; NIH-AARP, National Institutes of Health-American Association of Retired Persons; NR, not reported; WHI, Women's Health Initiative; WHS, Women's Health Study; yr, year

	Agnoli et al.	Bertoia et al.	Fitzger ald et	Folsom et al.	Fung et al. 2008 (1-	Fung et al. 2008 (2-	Levitan et al. 2009	Levitan et al.	Lin et	Reedy et al. 2014	Reedy et al. 2014
Study	2011	2013	al. 2011	2007	CHD)	stroke)	(M)	2009 (F)	al. 2013	(M)	(F)
Number of variables in	_	4.0						4.0			
fully adjusted model	7	12	14	11	14	14	12	13	9	11	12
Number of											
multivariable models		2	10	2	2	2	-	2			
presented	2	3	10	2	3	3	2	2	1	1	1
Timing of measurement											
of confounding	Desellers	Desellers	Desellers	Desellers	Desellers	Desellers	Desellers	Desellers	Desellers	Desellers	Desellers
variables	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
Pre-specified primary cor	nfounding v	variable*					1				
Age	х	х	х	Х	х	х	х	х	х	х	х
Pre-specified secondary of	confounding	g variables	*								
Markers of											
overweight/obesity											
(Body mass index,											
weight, waist											
circumference, waist											
to hip ratio)	х	х	х	Х	х	х	х	х	х	х	х
Family history of CVD			х		х	х	х	х			
Presence of diabetes		х					x	х		х	x
Energy Intake	x	х	х	х	х	х	x	х		х	x
Physical activity								х			
Total physical											
activity		х	х	х	x	х	x		х	х	х
Sex	x		х	х	x	х	x	x	x	x	x
Smoking status	x	х	х	х	x	х	x	х	х	x	х
Hypertension (or		х	х				x		х		

meds)											
Dyslipidemia (or											
meds)			х				х				
Other confounding variab	les										
Smoking pack-years			х	х							
Marital status							х			х	х
Living alone								х			
Alcohol consumption			х	х	х	х			х	х	х
Multivitamin use				х	х	х					
Omega-3 use					х	х					
Trans fat					х	х					
Aspirin use					х	х					
Income		x									
Urinary sodium/creatinine									x		
Pulse		x									
Biomarkers				·							
Blood pressure									х		
High cholesterol								х			
Medical history											
History of CHD		х									
History of cardiac failure		x									
History of hypertension								x			
History of infarction							х	х			
, Menopausal status			х	1	х	х					
Post-menopausal hormone use			x	x	x	x		x			x
Socio-economic factors						1		•			
Educational	х		х	х			х	х		x	х

attainment												
Ethno-cultural/geographical factors												
Country of birth/Ethnicity		х								х	x	
Participant center	x											
Others												
Randomization status			х									

*These are used in the assessment of the comparability category in the Newcastle-Ottawa Score

CHD, coronary heart disease; CVD, cardiovascular disease; DASH, dietary approaches to stop hypertension; F, female; M, male; meds, medication use

Agnoli et al. 2011 Bertoia et al. 2013 Fitzgerald et al. 2011 Folsom et al. 2007

Fung et al. 2008 (1)

Fung et al. 2008 (2)

Levitan et al. 2009 (M)

Levitan et al. 2009 (F)

Reedy et al. 2014 (M)

Reedy et al. 2014 (F)

Lin et al. 2013

Study, yr

istle-Ottawa Scale (NOS)	for Assessi	ng the Qua	lity of Cohort S	tudies fo	r Studies of
nd CVD incidence					
	Selection*	Outcome†	Comparability ‡	Total§	Study Quality**
	2	3	1	6	High
	3	3	2	8	High
	2	3	2	7	High

1

2

2

2

2

1

1

1

5

7

7 7

7

7

6

6

Low

High

High

High

High

High

High

High

2

3

3

3

3

3

3

3

Table S4: Newcastle-Ott 1.1 1.1 - 1: **-**. 1 01 111 C the DASH diet an

*Maximum 4 points awarded for cohort representativeness, selection of non-exposed cohort, exposure assessment, and demonstration outcome not present at baseline

2

2

2

2

2

3

2

2

⁺Maximum 3 points awarded for follow-up length, adequacy of follow-up, and outcome assessment

+ Maximum 2 points awarded for controlling for the pre-specified primary confounding variable (age) and 5 of the 7 secondary (markers of overweight/obesity, family history of CVD, energy intake, physical activity, sex, smoking, hypertension, dyslipidemia) confounding variables (refer to Supplemental Table S3)

§ A maximum of 9 points could be awarded

** A total score of 6 or greater was considered high-quality and a total score of 5 or smaller was considered low-quality

DASH, dietary approaches to stop hypertension; F, female; M, male; yr, year

Table S5: GRADE assessments of systematic reviews and meta-analyses of prospective cohort studies assessing the relationship between consumption of the DASH dietary pattern and cardiometabolic disease incidence

Cardiometabolic Disease Risk	No. of studies	Design	Risk of bias ¹	Inconsistency	Indirectness	Imprecision	Other considerations	Quality
CVD Incidence								
Schwingshackl et al. 2015	11	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none ²	⊕⊕OO LOW
CHD Incidence								
Salehi-Abargouei et al. 2013	3	observational studies	no serious risk of bias	no serious inconsistency	serious ³	no serious imprecision	none ⁴	⊕OOO VERY LOW
Stroke Incidence			·					
Salehi-Abargouei et al. 2013	3	observational studies	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none ⁴	⊕⊕OO LOW
Diabetes Incidence								
Jannasch et al. 2017	5	observational studies	no serious risk of bias	serious⁵	no serious indirectness ⁶	no serious imprecision	none ⁷	⊕OOO VERY LOW

¹ Newcastle Ottawa quality assessment Scale was used to assess study quality across the following domains: selection (4 points), comparability (2 points), and outcome (3 points). A total score of 6 or greater was considered high-quality and a total score of 5 or smaller was considered low-quality. If the majority of included studies were of high study quality, there is no serious risk of bias

² Slight asymmetry was detected in the funnel plot, however, results from the Egger's test showed no evidence of publication bias

³ Findings are not generalizable given that the three prospective cohort studies were conducted in middle-aged or elderly women

⁴ Asymmetry in the funnel plots from the Begg's test showed evidence of publication bias, however, there was no evidence of publication bias using Egger's test. Additionally, there were <10 studies which may have not been enough power to distinguish chance from real funnel plot asymmetry

⁵ Serious inconsistency due to high heterogeneity (I² = 62%; P=0.03), and no subgroup analyses were performed to attempt to explain heterogeneity

⁶Although 4 of the 5 cohorts were conducted in the united states, we did not downgrade for indirectness since the united states has multiethnic population and the European cohort included 8 countries.

⁷ There was no asymmetry in the funnel plot and the results from the Egger's and Begg's tests did not show evidence of publication bias, however, there were <10 studies which may have not been enough power to distinguish chance from real funnel plot

Table S6: Characteristics of prospective cohort studies investigating the DASH dietary pattern and incidence of CHD

Study, yr	Coho rt	Countr Y	No. of participan ts	Outcom e	No. of incide nt cases	Age, yr	Duratio n of study, yr	Dietary intake assessme nt (at baseline)	DASH exposure assessmen t*	Method of outcome assessme nt	Fundin g Source ‡	Study Quality**
Fitzgera Id et al. 2011	WHS	United States	34827	CHD morbidi ty & mortalit y	430	F: ≥45	14.6	semi quantitati ve FFQ	DASH score out of 38, Quintile 1 vs 5.	Record linkage	Agenc y	High
Folsom et al. 2007	IWHS	United States	20993	CHD mortalit y	620	F: 55- 69	≤16	validated semi quantitati ve FFQ	DASH score out of 11, Quintile 1 vs 5	Record linkage	Agenc y	Low
Fung et al. 2008 (1)***	NHS	United States	88517	Total CHD	3105	F: 30- 55	24	validated semi quantitati ve FFQ	DASH score out of 40, Quintile 1 vs 5.	Record linkage	Agenc y	High
Fung et al. 2008 (2)***	see abov e			CHD morbidi ty	2129							
Fung et al. 2008 (3)***	see abov e			CHD mortalit y	976							

* What was compared in the cohort, e.g. DASH score out of 10, Quintile 1 vs. 10

** A total score of 6 or greater was considered high-quality and a total score of 5 or smaller was considered low-quality

*** All 3 outcomes were combined as one (fatal and nonfatal CHD) in the analysis of Salehi-Abargouei et al. 2013

‡ Agency funding is that from government, university or not-for-profit health agency sources.

CHD, coronary heart disease; DASH, dietary approaches to stop hypertension; F, female; FFQ, food frequency questionnaire; IWHS, Iowa Women's Health Study; NHS, Nurses' Health Study; WHS, Women's Health Study; yr, year

Table S7: Analysis of confounding variables among studies of the DASH dietary pattern and in	ncidence
of CHD	

Study	Fitzgerald et al. 2011	Folsom et al. 2007	Fung et al. 2008
Number of variables in fully adjusted model	15	11	14
Number of multivariable models presented	8	2	3
Timing of measurement of confounding variables	baseline	baseline	baseline and every 2 years
Pre-specified primary confounding variable*		·	· · · · · ·
Age	х	x	x
Pre-specified secondary confounding variables*		÷	
Markers of overweight/obesity (Body mass index, weight, waist circumference, waist to hip ratio)	×		×
Family history of CVD	x	X	x
Presence of diabetes	X		
Energy Intake	x	x	x
Physical activity			
Total physical activity	x	x	x
Sex	х	x	х
Smoking status	х	x	х
Hypertension (or meds)	х		
Dyslipidemia (or meds)	х		
Other confounding variables			
Smoking pack-years	х	x	
Alcohol consumption	х	x	x
Multivitamin use		x	х
Omega-3 use			x
Trans fat			x
Aspirin use			x

Medical history										
1	Menopausal status	Х		x						
I	Post-menopausal hormone use	Х	х	x						
Socio-economic fa	actors									
l	Educational attainment	Х	х							
Others	Others									
I	Randomization status	х								

*These are used in the assessment of the comparability category in the Newcastle-Ottawa Score

CHD, coronary heart disease; CVD, cardiovascular disease; DASH, dietary approaches to stop hypertension; meds, medication use

Table S8: Newcastle-Ottawa Scale (NOS) for Assessing the Quality of Cohort Studies for Studies of the DASH diet and incidence of CHD

Study, yr	Selection*	Outcome [†]	Comparability‡	Total§
Fitzgerald et al. 2011	2	3	2	7
Folsom et al. 2007	2	2	1	5
Fung et al. 2008	2	3	2	7

*Maximum 4 points awarded for cohort representativeness, selection of non-exposed cohort, exposure assessment, and demonstration outcome not present at baseline

[†]Maximum 3 points awarded for follow-up length, adequacy of follow-up, and outcome assessment

[‡] Maximum 2 points awarded for controlling for the pre-specified primary confounding variable (age) and 5 of the 7 secondary (markers of overweight/obesity, family history of CVD, energy intake, physical activity, sex, smoking, hypertension, dyslipidemia) confounding variables (refer to Supplemental Table S7)

§ A maximum of 9 points could be awarded

** A total score of 6 or greater was considered high-quality and a total score of 5 or smaller was considered low-quality

CHD, coronary heart disease; DASH, dietary approaches to stop hypertension; yr, year

Table S9: Characteristics of prospective cohort studies investigating the DASH dietary pattern and
incidence of stroke

Study, yr	Cohort	Count ry	No. of participa nts	Outco me	No. of incide nt cases	Age, yr	Durati on of study, yr	Dietary intake assessm ent (at baseline)	DASH exposure assessme nt*	Method of outcome assessm ent	Fundi ng Sourc e‡	Study Quality**
						M:3			DASH			
						5-		validated	score out		Agenc	
				Stroke		64;		semi	of 40,		у,	
Agnoli et al.				inciden		F:35		quantitat	Tertile 1	Record	Indust	
2011	EPICOR	Italy	40681	ce	178	-74	7.89	ive FFQ	vs 3.	linkage	ry	High
									DASH			
								validated	score out			
		Unite		Stroke		F:		semi	of 11,			
Folsom et al.		d		mortali		55-		quantitat	Quintile 1	Record	Agenc	
2007	IWHS	States	20993	ty	236	69	≤16	ive FFQ	vs 5	linkage	у	Low
									DASH			
								validated	score out			
		Unite				F:		semi	of 40,			
Fung et al. 2008		d		Total		30-		quantitat	Quintile 1	Record	Agenc	
(1)***	NHS	States	88517	Stroke	2317	55	24	ive FFQ	vs 5.	linkage	y	High
••				Stroke								_
Fung et al. 2008	see			morbid								
(2)***	above			ity	1242							
<u>, , , , , , , , , , , , , , , , , , , </u>				, Stroke								
Fung et al. 2008	see			mortali								
(3)***	above			ty	440							

* What was compared in the cohort, e.g. DASH score out of 10, Quintile 1 vs. 10

** A total score of 6 or greater was considered high-quality and a total score of 5 or smaller was considered low-quality

*** All 3 outcomes were combined as one (fatal and nonfatal CHD) in the analysis of Salehi-Abargouei et al. 2013

[‡] Agency funding is that from government, university or not-for-profit health agency sources

Table S10: Analysis of confounding variables among studies of the DASH dietary pattern and incidence of stroke

Study	Agnoli et al. 2011	Folsom et al. 2007	Fung et al. 2008
Number of variables in fully adjusted model	7	11	14
Number of multivariable models presented	2	2	3
Timing of measurement of confounding variables	baseline	baseline	baseline and every 2 years
Pre-specified primary confounding variable*			
Age	x	х	x
Pre-specified secondary confounding variables*			
Markers of overweight/obesity (Body mass index, weight, waist circumference, waist to hip ratio)	x	x	x
Family history of CVD			x
Presence of diabetes			
Energy Intake	x	х	x
Physical activity			
Total physical activity		x	x
Sex	x	x	x
Smoking status	x	x	x
Hypertension (or meds)			
Dyslipidemia (or meds)			
Other confounding variables			
Smoking pack-years		х	
Alcohol consumption		x	х
Multivitamin use		x	х
Omega-3 use			х
Trans fat			x
Aspirin use			х

Menopausal status			x
Post-menopausal hormone use		x	x
Socio-economic factors			
Educational attainment	x	x	
Ethno-cultural/geographical factors			
Participant center	х		

*These are used in the assessment of the comparability category in the Newcastle-Ottawa Score

CVD, cardiovascular disease; DASH, dietary approaches to stop hypertension; meds, medication use

Table S11: Newcastle-Ottawa Scale (NOS) for Assessing the Quality of Cohort Studies for Studies of the DASH diet and incidence of stroke

Study, yr	Selection*	Outcome ⁺	Comparability‡	Total§	Study Quality**
Agnoli et al. 2011	3	3	1	7	High
Folsom et al. 2007	2	2	1	5	Low
Fung et al. 2008	2	3	2	7	High

*Maximum 4 points awarded for cohort representativeness, selection of non-exposed cohort, exposure assessment, and demonstration outcome not present at baseline

[†]Maximum 3 points awarded for follow-up length, adequacy of follow-up, and outcome assessment

[‡] Maximum 2 points awarded for controlling for the pre-specified primary confounding variable (age) and 5 of the 7 secondary (markers of overweight/obesity, family history of CVD, energy intake, physical activity, sex, smoking, hypertension, dyslipidemia) confounding variables (refer to Supplemental Table S10)

§ A maximum of 9 points could be awarded

** A total score of 6 or greater was considered high-quality and a total score of 5 or smaller was considered low-quality

DASH, dietary approaches to stop hypertension; yr, year

Table S12: Characteristics of prospective cohort studies investigating the DASH dietary pattern and incidence of diabetes

Study, yr	Cohort	Country	No. of participan ts	No. of incide nt cases	Age, yr	Duratio n of study, yr	Dietary intake assessme nt (at baseline)	DASH diet exposure assessmen t*	Method of outcome assessment	Fundin g Source ‡	Study Quality**
									Self-		
									reported		
									with		
								DASH score	validation		
		t to the of			40			out of 40,	by medical		
De Koning	HPFS	United	41615	2795	40- 75	≤ 20	FFQ	Quintile 1	record review	Agonov	Lliah
et al. 2011	през	States	41015	2795	75	<u> </u>	FFQ	vs 5. DASH score	review	Agency	High
de								out of 40,	Independen	Agency	
Oliveira		United			45-			Quintile 1	t t	, Industr	
Otto et al. 2015	MESA	States	5160	588	84	10	FFQ	vs 5.	Assessment	y	High
2013	MESA	514105	5100	500	04	10	110	DASH score	Self-	У	i iigii
								out of 40,	Reported &		
Jacobs et	Multiethn	United			45-	11 to		Quintile 1	Record		
al. 2015	ic Cohort	States	89195	11217	75	14	FFQ	vs 5.	Linkage	Agency	High
									Self-report,	01	
									linkage to		
									primary-		
									care		
									registers,		
EPIC		Europe							secondary-		
InterAct Consortiu		(include						DASH score	care		
m Kröger,		d 8						out of 10,	registers,		
J. et al.	EPIC-Inter	countrie			25-			Quintile 1	medication		
2014	Act	s)	21616	8883	79	7 to 16	FFQ	vs 5.	use (drug	Agency	Low

									registers), hospital admissions and mortality data		
Liese et al. 2009	IRAS	United States	822	129	40- 69	5	FFQ	DASH score out of 80, Tertile 1 vs 3	OGTT or hypoglycem ic medication use	Agency	High

* What was compared in the cohort, e.g. DASH score out of 10, Quintile 1 vs. 10

** A total score of 6 or greater was considered high-quality and a total score of 5 or smaller was considered low-quality

‡ Agency funding is that from government, university or not-for-profit health agency sources.

DASH, dietary approaches to stop hypertension; EPIC, European Prospective Investigation into Cancer and Nutrition study; FFQ, food frequency questionnaire; HPFS, Health Professionals Follow-up Study; OGTT, Oral glucose tolerance test; IRAS, Insulin Resistance Atherosclerosis Study; MESA, Multi-Ethnic Study of Atherosclerosis; No., number; yr, year

Table S13: Analysis of confounding variables among studies of the DASH dietary pattern and incidence of diabetes

Study	De Koning et al. 2011	de Oliveira Otto et al. 2015	Jacobs et al. 2015	EPIC InterAct Consortium Kröger, J. et al. 2014	Liese et al. 2009
Number of variables in fully adjusted model	6	12	8	9	13
Number of multivariable models presented	3	2	1	4	3
Timing of measurement of confounding variables	Baseline or more recently completed questionnaire	Baseline	Baseline	Baseline	Baseline
Pre-specified primary confounding variable*	·		1		
Age		x	x	х	x
Pre-specified secondary confounding variables*					
Markers of overweight/obesity (Body mass index, weight, waist circumference, waist to hip ratio)	x	x	x	x	x
Family history of diabetes	x				x
Energy Intake Physical activity	x	x	x	x	x
Total physical activity Metabolic Equivalents (METs)	x	x	x	x	x
Sex	x	x	x	х	x
Smoking	х	x	x	х	x
Other confounding variables					
Alcohol consumption		x			
Supplement use		X			

Biomarkers					
Glucose Tolerance Status					x
Insulin Sensitivity					x
Insulin Secretion					x
Socio-economic factors					
Educational attainment		x	x	х	x
Ethno-cultural/geographical factors					
Participant center		x		х	x
Ethnicity		x	x		x
Others					
Coffee intake	х				

*These are used in the assessment of the comparability category in the Newcastle-Ottawa Score

EPIC, European Prospective Investigation into Cancer and Nutrition study

Table S14: Newcastle-Ottawa Scale (NOS) for Assessing the Quality of Cohort Studies for Studies of the DASH diet and incidence of diabetes

Study, yr	Selection*	Outcome†	Comparability‡	Total§	Study Quality**
De Koning et al. 2011	2	3	1	6	High
de Oliveira Otto et al. 2015	3	2	2	7	High
Jacobs et al. 2015	2	3	2	7	High
EPIC InterAct Consortium Kröger, J. et al. 2014	0	2	2	4	Low
Liese et al. 2009	3	3	2	8	High

*Maximum 4 points awarded for cohort representativeness, selection of non-exposed cohort, exposure assessment, and demonstration outcome not present at baseline

[†]Maximum 3 points awarded for follow-up length, adequacy of follow-up, and outcome assessment

‡ Maximum 2 points awarded for controlling for the pre-specified primary confounding variable (age) and 4 of the 6 secondary (markers of overweight/obesity, family history of diabetes, energy intake, physical activity, sex, smoking) confounding variables (refer to Supplemental Table S14)

§ A maximum of 9 points could be awarded

** A total score of 6 or greater was considered high-quality and a total score of 5 or smaller was considered low-quality

EPIC, European Prospective Investigation into Cancer and Nutrition study; yr, year

pressure

Study, yr	No. of partici pants	Sex (% F)	Des ign	Coun try	F/U , wks	Rand omiz ed	Metabolic Phenotype	Mean Age, yr (SD)	Intervention	Comparator	Feedin g/Com plianc e	Overall ROB Catego ry*
							Hypertensive					
							(BP<160/80-					
							95mmHg, not on					
							antihypertensive					
							meds, no poorly					
Appel et							controlled DM /			typical American	metab	
al. 1997	305	49	Р	USA	8	Y	dyslipidemia)	44 (11)	DASH	diet	olic	Low
							Hypertensive					
							(BP<160/80-					
							95mmHg, not on					
							antihypertensive					
							meds, no poorly					
Sacks et							controlled DM /			typical American	metab	
al. 2001	412	56	Р	USA	12	Y	dyslipidemia)	48 (10)	DASH	diet	olic	Low
										behavioural		
										intervention		
										(includes goals for		
									behavioural	exercise, reducing		
Appel et							OH, Prehypertensive	50.2	intervention	sodium, alcohol,	dietary	
al. 2003	537	61	Р	USA	24	Y	+ Hypertensive	(8.9)	Plus DASH	etc.)	advice	Low
Conlin et								52		typical American	metab	
al. 2003	55	55	Р	USA	8	Y	Hypertensive	(9.5)	DASH	diet	olic	Low
									DASH			
									("DASH-CD" =			
Lopes et									DASH			
al. 2003								39	combination	low antioxidant	dietary	
- L	12	50	CO	USA	4	Y	OH, Lean	(6.9)	diet, high in	diet	advice	Unclear

									antioxidants)			
									DASH			
									("DASH-CD" =			
									DASH			
Lopes et									combination			
al. 2003								35	diet, high in	low antioxidant	dietary	
- OB	12	50	CO	USA	4	Y	OB	(6.9)	antioxidants)	diet	advice	Unclear
									DASH-type			
									diet (DASH			
									plus			
									increased			
									fish, nuts,			
Nowson									legumes,	control diet		
et al.				Austr				55.6	decreased	(typical Australian	dietary	
2004	94	40	CO	alia	4	Ν	Hypertensive	(9.9)	sodium)	diet)	advice	Unclear
									DASH-type			
									diet (DASH			
									plus			
									increased			
									fish, nuts,			
Nowson									legumes,			
et al.				Austr			Hypertensive, OW	48.0	decreased		dietary	
2005	54	0	Р	alia	12	Y	(BMI 25-35kg/m2)	(9.3)	sodium)	Low fat	advice	Unclear
Azadbak												
ht et al.												
2005 -								~41.2	weight loss		dietary	
М	22	0	Р	Iran	24	Y	Metabolic Syndrome	(12.3)	DASH	weight loss	advice	Unclear
Azadbak												
ht et al.												
2005 -								~41.2	weight loss		dietary	
W	54	100	Р	Iran	24	Y	Metabolic Syndrome	(12.3)	DASH	weight loss	advice	Unclear
Nowson				Austr				59.2	DASH-type	Healthy diet -	dietary	
et al.	95	100	Р	alia	14	Y	Hypertensive	(4.8)	(DASH+low	general guidelines	advice	Unclear

2009									sodium, with	to reduce fat,	plus	
									lean meat)	increase breads	some	
										and cereals	supple	
										(represents a low	menta	
										fat diet)	tion of	
											foods	
Al												
Solaima									DASH	usual diet - low in		
n et al.								36.7	(without low	fruit and	dietary	
2010 - L	15	80	CO	USA	3	Ν	Lean normotensive	(7.0)	fat dairy)	vegetable	advice	Unclear
Al									,,	0		
Solaima												
n et al.									DASH	usual diet - low in		
2010 -							OB, Prehypertensive	40.3	(without low	fruit and	dietary	
OB	15	80	CO	USA	3	Ν	+ Hypertensive	(6.6)	fat dairy)	vegetable	advice	Unclear
Blument	_				_		//	()				
hal et al.							OW, Hypertensive,	51.8			dietary	
2010	94	67	Р	USA	16	Y	OH	(9.4)	DASH	usual diet	advice	Low
Malloy-	•		-			-		(0.17)				
McFall												
et al.							Prehypertensive +	38.3			dietary	
2010	20	40	Р	USA	4	Y	Hypertensive	(10.5)	DASH	usual diet	advice	Low
Azadbak	20			00/1		•	Typertensive	(10:0)	Brion		autice	2011
ht et al.								55.0			dietary	
2011	31	58	со	Iran	8	Y	T2DM	(6.5)	DASH	usual diet	advice	Low
Edwards	01	50		nun		•		(0.0)	exercise +	usual alec	autice	2011
et al.								47.0	weight loss		dietary	
2011	37	51	Р	USA	12	Y	Hypertensive	(9.4)	DASH	exercise only	advice	Unclear
Lin et al.	ς,		•	00,1		4	in per censive	44.3	2,011	typical American	metab	Chican
2012	20	65	Р	USA	2	Y	Hypertensive	(7.8)	DASH	diet	olic	Low
Asemi et	20	0.5	-	03/	~			30.1	DASH	usual GDM	dietary	2000
al. 2013	34	100	Р	Iran	4	Y	GDM	(6.4)	DASH	practice	advice	Low
al. 2015	54	100	Г	II all				(0.4)				LUW

*For ROB, an assessment was performed using the Cochrane Risk of Bias tool, including the evaluation of individual domains of risk of bias (sequence generation, allocation concealment, blinding of participants/ personnel and outcome assessors, incomplete outcome data, selective

outcome reporting). Each of the 5 domains was evaluated as either low, high or unclear ROB and the overall ROB category was determined based on the most selected category.

BMI, body mass index; BP, blood pressure; CO, crossover; DASH, dietary approaches to stop hypertension; DM, diabetes; F, female; F/U, followup; GDM, gestational diabetes; L, lean; M, male; meds, medication; N, no; OB, obese; OH, overall healthy; OW, overweight; P, parallel; ROB, Risk of Bias; SD, standard deviation; T2DM, type 2 diabetes; W, women; wks, weeks; Y, yes; yr; year

Table S16: GRADE assessment of the systematic review and meta-analysis of controlled trials assessing the effect of the DASH dietary pattern on cardiometabolic risk factors

Cardiometabolic Risk Factor	No. of comparisons	Design	Risk of Bias*	Inconsistency	Indirectness	Imprecision	Other Considerations	Quality
SBP	19	randomised trials	no serious risk of bias	serious ¹	no serious indirectness	no serious imprecision	none	⊕⊕⊕O MOD
DBP	19	randomised trials	no serious risk of bias	serious ²	no serious indirectness	serious ³	none	⊕⊕OO LOW
Total-C	13	randomised trials	no serious risk of bias	serious ⁴	no serious indirectness	serious⁵	none	⊕⊕OO LOW
LDL-C	13	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	serious ⁶	none	⊕⊕⊕O MOD
HDL-C	15	randomised trials	no serious risk of bias	serious ⁷	no serious indirectness	serious ⁸	none	⊕⊕OO LOW
Triglycerides	14	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	serious ⁹	serious ¹⁰	⊕⊕OO LOW
HbA1c**	2	randomised trials	no serious risk of bias	serious ¹¹	serious ¹²	no serious imprecision	none ¹³	⊕⊕OO LOW
Blood glucose	10	randomised trials	no serious risk of bias	serious ¹⁴	no serious indirectness	serious ¹⁵	none	⊕⊕OO LOW
Fasting insulin	11	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	serious ¹⁶	none	⊕⊕⊕O MOD
HOMA-IR	8	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	serious ¹⁷	none ¹⁸	⊕⊕⊕O MOD
Body weight	11	randomised trials	no serious risk of bias	serious ¹⁹	no serious indirectness	no serious imprecision	none	⊕⊕⊕O MOD
CRP	6	randomised trials	no serious risk of bias	serious ²⁰	no serious indirectness	serious ²¹	none ²²	⊕⊕OO LOW

*manually assessed by LC, SKN and EV

**manually conducted by LC and SKN

CRP, c-reactive protein; DBP, diastolic blood pressure; HDL-C, high-density lipoprotein-cholesterol; HOMA-IR, Homeostatic Model Assessment of Insulin Resistance; LDL-C, low-density lipoprotein-cholesterol; MOD, moderate; SBP, systolic blood pressure; Total-C, total-cholesterol

¹ Serious inconsistency due to high heterogeneity ($I^2 = 76\%$; P<0.001).

² Serious inconsistency due to high heterogeneity ($I^2 = 49\%$; P=0.009).

³ The 95% CI (-3.50, -1.70mmHg) overlaps with the minimally important difference of 2 mmHg.

⁴ Serious inconsistency due to high heterogeneity ($I^2 = 52\%$; P=0.01).

⁵ The 95% CI (-12.00, -3.80mg/dL) overlaps with the minimally important difference of 3.87mg/dL.

⁶ The 95% CI (-7.70, -0.30mg/dL) overlaps with the minimally important difference of 3.87mg/dL.

⁷ Serious inconsistency due to high heterogeneity ($I^2 = 79\%$; P<0.001).

⁸ Although the 95% CI (-2.00, 2.10mg/dL) does not include the minimally important difference of 3.87mg/dL, neither the upper or lower bound of the 95% CI are lower or higher than 3.87mg/dL, respectively.

⁹ The 95% CI (-5.60, 4.70mg/dL) overlaps with the minimally important difference of 3.87mg/dL.

¹⁰ There is evidence of potential publication bias since funnel plots generated for triglycerides revealed some asymmetry, which was confirmed by a significant Egger regression test (P=0.01).

¹¹ Serious inconsistency due to high heterogeneity ($I^2 = 99\%$; P<0.001).

¹² Serious indirectness due to <5 studies available for inclusion and lack of generalizability since one study was in those with type 2 diabetes and the other in women with gestational diabetes.

¹³ Given that there were <10 studies there may have not been enough power to detect asymmetry in funnel plots.

¹⁴ Serious inconsistency due to high heterogeneity ($I^2 = 59\%$; P=0.008).

¹⁵ Although the 95% CI (-7.70, -0.30mg/dL) does not include the minimally important difference of 9.1mg/dL, neither the upper or lower bound of the 95% CI are lower or higher than 9.1mg/dL, respectively.

¹⁶ Although the 95% CI (-0.22, -0.08uU/mL) does not include the minimally important difference of 0.7uU/mL, neither the upper or lower bound of the 95% CI are lower or higher than 0.7uU/mL, respectively.

¹⁷ Although the 95% CI (-0.15, 0.05) does not include the minimally important difference of 1, neither the upper or lower bound of the 95% CI are lower or higher than 1, respectively.

¹⁸ Given that there were <10 studies there may have not been enough power to detect asymmetry in funnel plots.

¹⁹ Serious inconsistency due to high heterogeneity ($I^2 = 71\%$; P<0.001).

²⁰ Serious inconsistency due to high heterogeneity ($I^2 = 97\%$; P<0.001).

²¹ The 95% CI (-0.98, 0.17mg/L) overlaps with the minimally important difference of 0.5mg/L.

²² Given that there were <10 studies there may have not been enough power to detect asymmetry in funnel plots.

Table S17: Characteristics of controlled trials investigating the DASH dietary pattern and Total-C and
LDL-C

Study, yr	No. of partici pants	Sex (% F)	Des ign	Coun try	F/U , wks	Ran do miz ed	Metabolic Phenotype	Mean Age, yr (SD)	Intervention	Comparator	Feeding/ Complia nce	Overall ROB Catego ry*
1-	P	- /	-0	. ,				(/		behavioural		- 7
							OH,			intervention (includes		
Appel							Prehypertens		behavioural	goals for exercise,		
et al.							ive +	50.2	intervention Plus	reducing sodium,	dietary	
2003	537	61	Р	USA	24	Y	Hypertensive	(8.9)	DASH	alcohol, etc.)	advice	Low
									DASH ("DASH-CD"			
Longo									= DASH			
Lopes et al.									combination diet,			
2003 -								39	high in		dietary	Unclea
L	12	50	CO	USA	4	Y	OH, Lean	(6.9)	antioxidants)	low antioxidant diet	advice	r
									DASH ("DASH-CD"			
Lopes									= DASH			
et al.									combination diet,			
2003 -								35	high in		dietary	Unclea
OB	12	50	CO	USA	4	Y	OB	(6.9)	antioxidants)	low antioxidant diet	advice	r
Harsha								48.5			metaboli	Unclea
et al. 2004	390	56	Р	USA	4	Y	Hypertensive	(10.0)	DASH	typical American diet	C	r
2004	330	50	•	03/1	•		Typercensive	(10.0)	DASH-type diet	cypical / interioun alec	C C	
									(DASH plus			
									increased fish,			
Navas									nuts, legumes,			
Nowso n et al.				Austr				55.6	decreased	control diet (typical	dietary	Unclea
2004	94	40	со	alia	4	Ν	Hypertensive	(9.9)	sodium)	Australian diet)	advice	r

Nowso n et al. 2005	54	0	Ρ	Austr alia	12	Y	Hypertensive , OW (BMI 25-35kg/m2)	48.0 (9.3)	DASH-type diet (DASH plus increased fish, nuts, legumes, decreased sodium)	Low fat	dietary advice	Unclea r
Nowso n et al. 2009	95	100	Ρ	Austr alia	14	Y	Hypertensive	59.2 (4.8)	DASH-type (DASH+low sodium, with lean meat)	Healthy diet - general guidelines to reduce fat, increase breads and cereals (represents a low fat diet)	dietary advice plus some supplem entation of foods	Unclea r
Al Solaim an et al. 2010 - L	15	80	со	USA	3	N	Lean normotensiv e	36.7 (7.0)	DASH (without low fat dairy)	usual diet - low in fruit and vegetables	dietary advice	Unclea r
Al Solaim an et al. 2010 - OB	15	80	СО	USA	3	N	OB, Prehypertens ive + Hypertensive	40.3	DASH (without low fat dairy)	usual diet - low in fruit and vegetables	dietary advice	Unclea r
Blume nthal et al. 2010	94	67	Р	USA	16	Y	OW, Hypertensive , OH	51.8 (9.4)	DASH	usual diet	dietary advice	Low
Chen et al. 2010	290	49	Ρ	USA	8	Y	Hypertensive (BP<160/80- 95mmHg, not on antihyperten sive meds, no poorly	~44 (11)	DASH	typical American diet	metaboli c	Low

							controlled DM / dyslipidemia)					
Azadb akht et al. 2011	31	58	со	Iran	8	Y	T2DM	55.0 (6.5)	DASH	usual diet	dietary advice	Low
Asemi et al. 2013	34	100	Р	Iran	4	Y	GDM	30.1 (6.4)	DASH	usual GDM practice	dietary advice	Low

*For ROB, an assessment was performed using the Cochrane Risk of Bias tool, including the evaluation of individual domains of risk of bias (sequence generation, allocation concealment, blinding of participants/ personnel and outcome assessors, incomplete outcome data, selective outcome reporting). Each of the 5 domains was evaluated as either low, high or unclear ROB and the overall ROB category was determined based on the most selected category.

BMI, body mass index; BP, blood pressure; CO, crossover; DASH, dietary approaches to stop hypertension; DM, diabetes; F/U, follow-up; GDM, gestational diabetes; L, lean; LDL-C, low-density lipoprotein cholesterol; meds, medication; N, no; OB, obese; OH, overall healthy; OW, overweight; P, parallel; ROB, Risk of Bias; SD, standard deviation; T2DM, type 2 diabetes; Total-C, total-cholesterol; W, women; wks, weeks; Y, yes; yr; year

								Mea n				Overall
Study,	No. of partici	Sex (%	Desig	Coun	F/U	Rand omiz	Metabolic Phenotyp	Age, yr			Feeding /Compli	ROB Categor
yr	pants	F)	n	try	wks	ed	е	(SD)	Intervention	Comparator	ance	y*
							OH,			behavioural		
							Prehypert			intervention (includes		
Appel							ensive +		behavioural	goals for exercise,		
et al.							Hypertens	50.2	intervention Plus	reducing sodium,	dietary	
2003	537	61	Р	USA	24	Y	ive	(8.9)	DASH	alcohol, etc.)	advice	Low
									DASH ("DASH-CD" =			
Lopes									DASH combination			
et al. 2003 -								39	diet, high in		dietary	
2003 - L	12	50	со	USA	4	Y	OH, Lean	(6.9)	antioxidants)	low antioxidant diet	advice	Unclear
									DASH ("DASH-CD" =			
Lopes et al.									DASH combination			
2003 -								35	diet, high in		dietary	
OB	12	50	со	USA	4	Y	OB	(6.9)	antioxidants)	low antioxidant diet	advice	Unclear
Harsha								48.5				
et al.							Hypertens	(10.0			metaboli	
2004	390	56	Р	USA	4	Y	ive)	DASH	typical American diet	с	Unclear
									DASH-type diet			
									(DASH plus			
Nowso									increased fish, nuts,			
n et al.				Austr			Hypertens	55.6	legumes, decreased	control diet (typical	dietary	
2004	94	40	CO	alia	4	Ν	ive	(9.9)	sodium)	Australian diet)	advice	Unclear
Azadb												
akht et												
al.								~41.2				
2005 -							Metabolic	(12.3			dietary	
Μ	22	0	Р	Iran	24	Y	Syndrome)	weight loss DASH	weight loss	advice	Unclear

Table S18: Characteristics of c	controlled trials investigating the DASH dietary p	pattern and HDL-C

Azadb akht et												
al.								~41.2				
2005 -							Metabolic	(12.3			dietary	
2005 W	54	100	Р	Iran	24	Y	Syndrome)	weight loss DASH	weight loss	advice	Unclear
-	-			-				,	DASH-type diet	- 0		
							Hypertens		(DASH plus			
Nowso							ive, OW		increased fish, nuts,			
n et al.				Austr			(BMI 25-	48.0	legumes, decreased		dietary	
2005	54	0	Р	alia	12	Y	35kg/m2)	(9.3)	sodium)	Low fat	advice	Unclear
											dietary	
										Healthy diet - general	advice	
										guidelines to reduce	plus	
										fat, increase breads	some	
Nowso									DASH-type	and cereals	supplem	
n et al.				Austr			Hypertens	59.2	(DASH+low sodium,	(represents a low fat	entation	
2009	95	100	Р	alia	14	Y	ive	(4.8)	with lean meat)	diet)	of foods	Unclear
Al												
Solaim												
an et												
al.							Lean					
2010 -							normoten	36.7	DASH (without low	usual diet - low in	dietary	
L	15	80	CO	USA	3	N	sive	(7.0)	fat dairy)	fruit and vegetables	advice	Unclear
Al												
Solaim							OB,					
an et							Prehypert					
al.							ensive +	40.2			alta ta m	
2010 -	4 5		60		2	N	Hypertens	40.3	DASH (without low	usual diet - low in	dietary	Unalaar
OB	15	80	CO	USA	3	N	ive	(6.6)	fat dairy)	fruit and vegetables	advice	Unclear
Blume							0.14					
nthal ot al							OW,	51.8			diotory	
et al. 2010	94	67	Р	USA	16	Y	Hypertens	(9.4)	DASH	usual diet	dietary advice	Low
2010	94	0/	٢	USA	10	Ϋ́	ive, OH	(9.4)	DASH	usual ület	auvice	Low

							Hypertens ive (BP<160/ 80- 95mmHg,					
							not on					
							antihypert					
							ensive					
							meds, no					
							poorly					
Char							controlled					
Chen							DM (dualiaida	0.4.4				
et al.	200	10			0		/dyslipide	~44	DAGU		metaboli	
2010	290	49	Р	USA	8	Y	mia)	(11)	DASH	typical American diet	С	Low
Azadb												
akht et												
al.								55.0			dietary	
2011	31	58	CO	Iran	8	Y	T2DM	(6.5)	DASH	usual diet	advice	Low
Asemi												
et al.								30.1			dietary	
2013	34	100	Р	Iran	4	Y	GDM	(6.4)	DASH	usual GDM practice	advice	Low

BMI, body mass index; BP, blood pressure; CO, crossover; DASH, dietary approaches to stop hypertension; DM, diabetes; F, female; F/U, followup; GDM, gestational diabetes; HDL-C, high-density lipoprotein cholesterol; L, lean; M, male; meds, medication; N, no; OB, obese; OH, overall healthy; OW, overweight; P, parallel; ROB, Risk of Bias; SD, standard deviation; T2DM, type 2 diabetes; W, women; wks, weeks; Y, yes; yr; year

Study, yr	No. of parti cipan ts	Sex (% F)	Desig n	Coun try	F/U , wks	Rand omiz ed	Metabolic Phenotype	Mea n Age, yr (SD)	Intervention	Comparator	Feeding /Compli ance	Overall ROB Categor y*
-				-						behavioural		
										intervention		
							OH,			(includes goals for		
Appel							Prehypertens		behavioural	exercise, reducing		
et al.							ive +	50.2	intervention Plus	sodium, alcohol,	dietary	
2003	537	61	Р	USA	24	Y	hypertensive	(8.9)	DASH	etc.)	advice	Low
Lopes et al. 2003 - L	12	50	со	USA	4	Y	OH, lean	39 (6.9)	DASH ("DASH-CD" = DASH combination diet, high in antioxidants)	low antioxidant diet	dietary advice	Unclear
Lopes et al. 2003 -								35	DASH ("DASH-CD" = DASH combination diet, high in		dietary	
OB	12	50	CO	USA	4	Y	OB	(6.9)	antioxidants)	low antioxidant diet	advice	Unclear
Harsha et al.								48.5 (10.0		typical American	metaboli	
2004	390	56	Р	USA	4	Y	Hypertensive)	DASH	diet	С	Unclear
Nowso									DASH-type diet (DASH plus increased fish, nuts,			
n et al.		40	60	Austr			the sector set	55.6	legumes, decreased	control diet (typical	dietary	L la al a
2004	94	40	CO	alia	4	N	Hypertensive	(9.9)	sodium)	Australian diet)	advice	Unclear

Table S19: Characteristics of	f controlled trials investigatin	g the DASH dietary	pattern and triglycerides

Azadb akht et												
al.								~41.2				
2005 -							Metabolic	(12.3			dietary	
M	22	0	Р	Iran	24	Y	Syndrome)	weight loss DASH	weight loss	advice	Unclear
Azadb		-						,				
akht et												
al.								~41.2				
2005 -							Metabolic	(12.3			dietary	
W	54	100	Р	Iran	24	Y	Syndrome)	weight loss DASH	weight loss	advice	Unclear
	_			-				,	DASH-type diet			
									(DASH plus			
Nowso							Hypertensive		increased fish, nuts,			
n et al.				Austr			, OW (BMI	48.0	legumes, decreased		dietary	
2005	54	0	Р	alia	12	Y	25-35kg/m2)	(9.3)	sodium)	Low fat	advice	Unclear
Al	_							()				
Solaim												
an et												
al.							Lean					
2010 -							normotensiv	36.7	DASH (without low	usual diet - low in	dietary	
L	15	80	со	USA	3	Ν	е	(7.0)	fat dairy)	fruit and vegetables	advice	Unclear
Al								_ 、 /				
Solaim												
an et							OB,					
al.							Prehypertens					
2010 -							ive +	40.3	DASH (without low	usual diet - low in	dietary	
OB	15	80	CO	USA	3	Ν	Hypertensive	(6.6)	fat dairy)	fruit and vegetables	advice	Unclear
Blume												
nthal							OW,					
et al.							Hypertensive	51.8			dietary	
2010	94	67	Р	USA	16	Y	, ОН	(9.4)	DASH	usual diet	advice	Low

40 of 61

Chen et al. 2010	290	49	Ρ	USA	8	Y	Hypertensive (BP<160/80- 95mmHg, not on antihyperten sive meds, no poorly controlled DM / dyslipidemia)	~44 (11)	DASH	typical American diet	metaboli c	Low
Azadb												
akht et								55.0			diotory	
al.	21	F 0	60	luce	0	Ŷ	TODIA		DACU		dietary	1
2011	31	58	CO	Iran	8	Ý	T2DM	(6.5)	DASH	usual diet	advice	Low
Asemi												
et al.								30.1			dietary	
2013	34	100	Р	Iran	4	Y	GDM	(6.4)	DASH	usual GDM practice	advice	Low

BMI, body mass index; BP, blood pressure; CO, crossover; DASH, dietary approaches to stop hypertension; DM, diabetes; F, female; F/U, followup; GDM, gestational diabetes; L, lean; M, male; meds, medication; N, no; OB, obese; OH, overall healthy; OW, overweight; P, parallel; ROB, Risk of Bias; SD, standard deviation; T2DM, type 2 diabetes; W, women; wks, weeks; Y, yes; yr; year

Database	Search Period	Search Terms
Medline	1946 to	1 DASH.mp
	November 27,	2 dietary approaches to stop hypertension.mp
	2018	3 dietary pattern.mp
		4 1 OR 2 OR 3
		5 glyc?em*.mp
		6 exp insulin/
		7 HbA1c.mp
		8 A1c.mp
		9 hemoglobin A, glycosylated.mp
		10 fructosamine.mp
		11 exp blood glucose/
		12 gly*albumin.mp
		13 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12
		14 4 AND 13
		15 limit 14 to animals
		16 14 NOT 15
Embase	1946 to	1 DASH.mp
	November 27,	2 dietary approaches to stop hypertension.mp
	2018	3 dietary pattern.mp
		4 1 OR 2 OR 3
		5 glyc?em*.mp
		6 exp insulin/
		7 HbA1c.mp
		8 A1c.mp
		9 hemoglobin A, glycosylated.mp
		10 fructosamine.mp
		11 exp blood glucose/
		12 gly*albumin.mp
		13 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12
		14 4 AND 13
		15 limit 14 to animals
		16 14 NOT 15

Table S20: Search strategy for controlled clinical trials assessing the effect of the DASH diet intervention on HbA1c

The	1946 to	1	DASH.mp
Cochrane	November 27,	2	dietary approaches to stop hypertension.mp
Library	2018	3	dietary pattern.mp
		4	1 OR 2 OR 3
		5	glyc?em*.mp
		6	exp insulin/
		7	HbA1c.mp
		8	A1c.mp
		9	hemoglobin A, glycosylated.mp
		10	fructosamine.mp
		11	exp blood glucose/
		12	gly*albumin.mp
		13	5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12
		14	4 AND 13
		15	limit 14 Medline and EMBASE

Study, yr	No. of particip ants	Sex (% F)	Desig n	Count ry	F/ U, wk s	Randomiz ed	Metaboli c Phenoty pe	Mea n Age, yr (SD)	Interven tion	Comparator	Feeding/Complia nce	Overall ROB Categor Y [*]
Azadbakht et al. 2011	31	58	СО	Iran	8	Y	T2DM	55.0 (6.5)	DASH	usual diet	dietary advice	Unclear
Asemi et al. 2013	34	100	Р	Iran	4	Y	GDM	30.1 (6.4)	DASH	usual GDM practice	dietary advice	Low

Study, yr	No. of partici pants	Sex (% F)	Desig n	Coun try	F/U , wks	Rand omiz ed	Metabolic Phenotype	Mean Age, yr (SD)	Intervention	Comparator	Feeding /Compli ance	Overall ROB Categor V*
y.	pants	- '/		ci y	WIRS	cu	Thenotype	(30)	intervention	behavioural	unce	
										intervention		
										(includes goals		
Annol							OH,		behavioural	for exercise,		
Appel et al.							Prehypertensive	50.2	intervention	reducing sodium,	dietary	
2003	537	61	Р	USA	24	Y	+ Hypertensive	(8.9)	Plus DASH	alcohol, etc.)	advice	Low
									DASH ("DASH-			
Lopes									CD" = DASH			
et al.									combination			
2003 -								39	diet, high in	low antioxidant	dietary	
L	12	50	CO	USA	4	Y	OH, Lean	(6.9)	antioxidants)	diet	advice	Unclear
									DASH ("DASH-			
Lopes									CD" = DASH			
et al.									combination			
2003 -								35	diet, high in	low antioxidant	dietary	
OB	12	50	CO	USA	4	Y	OB	(6.9)	antioxidants)	diet	advice	Unclear
Azadb												
akht et												
al.												
2005 -			_				Metabolic	~41.2	weight loss		dietary	
M	22	0	Р	Iran	24	Y	Syndrome	(12.3)	DASH	weight loss	advice	Unclear
Azadb												
akht et												
al.												
2005 -	_	100		lucu	24	V	Metabolic	~41.2	weight loss		dietary	L la sla
W	54	100	Р	Iran	24	Y	Syndrome	(12.3)	DASH	weight loss	advice	Unclear

Table S22: Characteristics of controlled trials investigating the DASH dietary pattern and blood glucose

Blume nthal et al.							OW, Hypertensive,	51.8			dietary	
2010	94	67	Р	USA	16	Y	OH	(9.4)	DASH	usual diet	advice	Low
Al Solaim an et												
al.							1	26.7	DACH (with sut	usual diet - low		
2010 -	45		60		2		Lean	36.7	DASH (without	in fruit and	dietary	
L	15	80	CO	USA	3	Ν	normotensive	(7.0)	low fat dairy)	vegetables	advice	Unclear
Al Solaim												
an et												
al.							OB,			usual diet - low		
2010 -							Prehypertensive	40.3	DASH (without	in fruit and	dietary	
OB	15	80	CO	USA	3	Ν	+ Hypertensive	(6.6)	low fat dairy)	vegetables	advice	Unclear
Azadb akht et												
al.								55.0			dietary	
2011	31	58	CO	Iran	8	Y	T2DM	(6.5)	DASH	usual diet	advice	Low
Asemi												
et al.								30.1		usual GDM	dietary	
2013	34	100	Р	Iran	4	Y	GDM	(6.4)	DASH	practice	advice	Low

CO, crossover; DASH, dietary approaches to stop hypertension; F, female; F/U, follow-up; GDM, gestational diabetes; L, lean; M, male; N, no; OB, obese; OH, overall healthy; OW, overweight; P, parallel; ROB, Risk of Bias; SD, standard deviation; T2DM, type 2 diabetes; W, women; wks, weeks; Y, yes; yr; year

Table S23: Characteristics of controlled trials investigating the DASH dietary pattern and fasting	
insulin	

						_		Mea n				Overall
Study,	No. of partici	Sex (%	Des	Coun	F/U	Rand omiz	Metabolic Phenotyp	Age, yr			Feeding /Compli	ROB Categor
yr	pants	(78 F)	ign	try	, wks	ed	e	(SD)	Intervention	Comparator	ance	v*
Lopes et al. 2003 -		50		USA	4	v		39 (6.9)	DASH ("DASH-CD" = DASH combination diet, high in	low antioxidant diet	dietary	Uncloar
L Ard et al. 2004	12 36	67	CO	USA	4	Y	OH, Lean OH, Prehypert ensive + Hypertens ive	51.8	antioxidants) behavioural intervention Plus DASH	advice only	advice dietary advice	Unclear
Lien et al. 2007 - OH	265	66	P	USA	24	Y	OH, Prehypert ensive + Hypertens ive	~49.8 (9.1)	behavioural intervention Plus DASH	advice only	dietary advice	Low
Al Solaim an et al. 2009 - salt sensiti ve	9	78	со	USA	3	N	ОН	44.1 (1.4)	DASH (without low fat dairy)	usual diet - low in fruit and vegetables	dietary advice	Unclear
Al Solaim an et al.	9	78	со	USA	3	N	OW, Hypertens ive, OH	34.3 (2.5)	DASH (without low fat dairy)	usual diet - low in fruit and vegetables	dietary advice	Unclear

47 of 61

2009 - salt resista nt												
											dietary	
											advice,	
											DASH	
											group	
											supplem	
											ented	
											with no	
											salt sunflow	
											er	
Hodso											spread	
n et al.									DASH intermediate		and	
2010	27	41	Р	UK	4	Ν	OH, OW	~45.5	sodium	habitual diet/lifestyle	olive oil	Unclear
Blume							,					
nthal							OW,					
et al.							Hypertens	51.8			dietary	
2010	94	67	Р	USA	16	Y	ive, OH	(9.4)	DASH	usual diet	advice	Low
Al												
Solaim												
an et												
al.							Lean					
2010 -							normoten	36.7	DASH (without low	usual diet - low in	dietary	
L	15	80	CO	USA	3	N	sive	(7.0)	fat dairy)	fruit and vegetables	advice	Unclear
Lopes									DASH ("DASH-CD" =			
et al.								a-	DASH combination			
2003 -	10	50	~~~				0.5	35	diet, high in		dietary	
OB	12	50	CO	USA	4	Y	OB	(6.9)	antioxidants)	low antioxidant diet	advice	Unclear
Lien et							OH, Drobyport	~10.0	behavioural		diatany	
al.	266	58	р		24	Y	Prehypert	~49.8	intervention Plus	advice only	dietary	Low
2007 -	266	δC	Р	USA	24	Ý	ensive +	(9.1)	DASH	advice only	advice	Low

MetS/							Hypertens					
DysL							ive					
Al												
Solaim							OB,					
an et							Prehypert					
al.							ensive +					
2010 -							Hypertens	40.3	DASH (without low	usual diet - low in	dietary	
OB	15	80	CO	USA	3	Ν	ive	(6.6)	fat dairy)	fruit and vegetables	advice	Unclear

CO, crossover; DASH, dietary approaches to stop hypertension; DysL, dyslipidemia; F, female; F/U, follow-up; L, lean; MetS, metabolic syndrome; N, no; OB, obese; OH, overall healthy; OW, overweight; P, parallel; ROB, Risk of Bias; SD, standard deviation; wks, weeks; Y, yes; yr; year

												Overall
	No. of	Sex			F/U	Rand	Metabolic	Mean			Feeding	ROB
Study,	partici	(%	Desig	Coun	,	omiz	Phenotyp	Age, yr			/Compli	Categor
yr	pants	F)	n	try	wks	ed	е	(SD)	Intervention	Comparator	ance	у*
Lopes									DASH ("DASH-CD" =			
et al.									DASH combination			
2003 -								39	diet, high in	low antioxidant	dietary	
L	12	50	CO	USA	4	Y	OH, Lean	(6.9)	antioxidants)	diet	advice	Unclear
Lopes									DASH ("DASH-CD" = DASH combination			
et al.								25		low antioxidant	dictory	
2003 -	12	50	<u> </u>	USA	4	Y		35	diet, high in		dietary	Uncloar
OB	12	50	CO	USA	4	Y	OB OH,	(6.9)	antioxidants)	diet	advice	Unclear
							Prehypert					
Lien et							ensive +					
al.							Hypertens	~49.8	behavioural		dietary	
2007 - OH	265	66	Р	USA	24	Y	ive	(9.1)	intervention Plus DASH	advice only	advice	Low
Lien et	205	00		USA	27		OH,	(3.1)		davice only	uuviee	2011
al.							Prehypert					
2007 -							ensive +					
MetS/							Hypertens	~49.8	behavioural		dietary	
DysL	266	58	Р	USA	24	Y	ive	(9.1)	intervention Plus DASH	advice only	advice	Low
Al			-			-		(0)				
Solaim												
an et												
al.												
2009 -												
salt										usual diet - low		
sensiti								44.1	DASH (without low fat	in fruit and	dietary	
ve	9	78	со	USA	3	Ν	ОН	(1.4)	dairy)	vegetables	advice	Unclear

Table S24: Characteristics of controlled trials investigating the DASH dietary pattern and HOMA-IR

Al												
Solaim												
an et												
al.												
2009 -												
salt							OW,			usual diet - low		
resista							Hypertens	34.3	DASH (without low fat	in fruit and	dietary	
nt	9	78	CO	USA	3	Ν	ive, OH	(2.5)	dairy)	vegetables	advice	Unclear
Al												
Solaim												
an et												
al.							Lean			usual diet - low		
2010 -							normoten	36.7	DASH (without low fat	in fruit and	dietary	
L	15	80	CO	USA	3	Ν	sive	(7.0)	dairy)	vegetables	advice	Unclear
Al												
Solaim							OB,					
an et							Prehypert					
al.							ensive +			usual diet - low		
2010 -							Hypertens	40.3	DASH (without low fat	in fruit and	dietary	
OB	15	80	CO	USA	3	Ν	ive	(6.6)	dairy)	vegetables	advice	Unclear

CO, crossover; DASH, dietary approaches to stop hypertension; DysL, dyslipidemia; F, female; F/U, follow-up; HOMA-IR, Homeostatic Model Assessment of Insulin Resistance; L, lean; MetS, metabolic syndrome; N, no; OB, obese; OH, overall healthy; OW, overweight; P, parallel; ROB, Risk of Bias; SD, standard deviation; wks, weeks; Y, yes; yr; year

Study, yr	No. of partici pants	Sex (% F)	Desig n	Coun try	F/U , wks	Rand omiz ed	Metabolic Phenotyp e	Mean Age, yr (SD)	Intervention	Comparator	Feeding /Compli ance	Overall ROB Categor y*
							Hypertens					
							ive					
							(BP<160/					
							80-					
							95mmHg,					
							not on					
							antihypert					
							ensive					
							meds, no					
							poorly					
							controlled DM					
Ard et							/dyslipide	~49.02			dietary	
al. 2004	53	71	Р	USA	52	Y	mia)	(10.73)	DASH	typical American diet	advice	Unclear
2004	55	/1	F	034	52		iniaj	(10.75)	DASH-type diet		auvice	Unclear
									(DASH plus			
							Hypertens		increased fish,			
							ive, OW		nuts, legumes,			
Nowso n et al.				Austr			(BMI 25-	48.0	decreased		dietary	
2005	54	0	Р	alia	12	Y	35kg/m2)	(9.3)	sodium)	Low fat	advice	Unclear
	_						OH,	(/	,	behavioural		
							Prehypert			intervention (includes		
Elmer							ensive +		behavioural	goals for exercise,		
et al.		~61					Hypertens	~50.2	intervention	reducing sodium,	dietary	
2006	476	.1	Р	USA	24	Y	ive	(8.9)	Plus DASH	alcohol, etc.)	advice	Low
									DASH-type	Healthy diet - general	dietary	
Nowso									(DASH+low	guidelines to reduce	advice	
n et al.				Austr			Hypertens	59.2	sodium, with	fat, increase breads and	plus	
2009	95	100	Р	alia	14	Y	ive	(4.8)	lean meat)	cereals (represents a	some	Unclear

Table S25: Characteristics of	f controlled trials investi	gating the DASH dieta	y pattern and body weight

										low fat diet)	supplem entation of foods	
Blume nthal et al. 2010	95	66	Р	USA	16	Y	OW, Hypertens ive, OH	51.8 (9.4)	DASH	usual diet	dietary advice	Low
Lima et al. 2013	206	78	Ρ	Brazil	24	Y	Hypertens ive	NR	DASH-Na + LGI	low sodium standard HTN advice	dietary advice	Low
Rifai et al. 2015	48	40	Р	USA	12	Y	Heart Failure patients	62.0 (11.6)	DASH	general HF recommendations	dietary advice	Unclear
Azadb akht et al. 2005 -							Metabolic	~41.2	weight loss		dietary	
M Azadb akht et al.	22	0	P	Iran	24	Y	Syndrome	(12.3)	DASH	weight loss	advice	Unclear
2005 - W	54	100	Р	Iran	24	Y	Metabolic Syndrome	~41.2 (12.3)	weight loss DASH weight loss DASH (F/V, LF	weight loss	dietary advice	Unclear
Asemi et al. 2014 Razavi	48	100	Р	Iran	8	Y	OW/OB, PCOS	30.1 (6.4)	dairy, red Na, SF, chol, refined grains/sweets) weight loss	weight loss traditional Iranian diet	dietary advice	Low
Zade et al.	60	50	Р	Iran	8	Y	OW/OB, NAFLD	41.3 (9.2)	DASH (F/V, LF dairy, red Na, SF,	weight loss traditional Iranian diet	dietary advice	Low

2015					chol, refined		
					grains/sweets)		

BMI, body mass index; BP, blood pressure; chol, cholesterol; DASH, dietary approaches to stop hypertension; DM, diabetes; F, female; F/U, follow-up; F/V, fruit and vegetable; HF, heart failure; HTN, hypertension; LF, low fat; LGI, low glycemic index; M, male; meds, medication; Na, sodium; NAFLD, non-alcoholic fatty liver disease; NR, not reported; OB, obese; OH, overall healthy; OW, overweight; P, parallel; PCOS, polycystic ovarian syndrome; red, reduced; ROB, Risk of Bias; SD, standard deviation; SF, saturated fat; W, women; wks, weeks; Y, yes; yr; year

Study, yr	No. of partici pants	Sex (% F)	Des ign	Coun try	F/U , wks	Rand omiz ed	Metabolic Phenotyp e	Mean Age, yr (SD)	Intervention	Comparator	Feeding /Compli ance	Overall ROB Categor y*
	-			-			Lean					
							normoten					
							sive and			usual diet supplemented		
King et							OB			with 30g/d psyllium,		
al.							hypertens	38.3	DASH high	potassium and magnesium	dietary	
2007	35	80	CO	USA	3	Y	ive	(1.2)	fibre	to match DASH	advice	Unclear
Rouss							OH,			healthy American diet		
ell et							Hyperlipid	50.0		(higher in fat, lower in	metaboli	
al. 2012	36	58	со	USA	5	Y	emia	(8.4)	DASH	fibre)	С	Unclear
	50	50		03/1		•	enna	(0.1)	DASH-type	Portfolio diet (plant-based)	č	oncical
Jenkin				Cana			Hyperlipid		lacto-ovo	with soy protein, viscous	dietary	
s et al. 2015	241	61	Р	da	24	Y	emic	20-85	vegetarian	fibers and nuts	advice	Low
Azadb			-				00		10801011011			
akht et												
al.								55.0			dietary	
2011	31	58	со	Iran	8	Y	T2DM	(6.5)	DASH	usual diet	advice	Low
-	_			_				()	weight loss			_
									DASH (F/V, LF			
									dairy, red Na,			
Asemi									SF, chol,			
et al.							OW/OB,	30.1	refined	weight loss traditional	dietary	
2014	48	100	Р	Iran	8	Y	PCOS	(6.4)	grains/sweets)	Iranian diet	advice	Low

Table S26: Characteristics of controlled trials investigating the DASH dietary pattern and CRP

									weight loss DASH (F/V, LF			
Razavi									dairy, red Na,			
Zade									SF, chol,			
et al.							OW/OB,	41.3	refined	weight loss traditional	dietary	
2015	60	50	Р	Iran	8	Y	NAFLD	(9.2)	grains/sweets)	Iranian diet	advice	Low

chol, cholesterol; CO, crossover; CRP, c-reactive protein; DASH, dietary approaches to stop hypertension; F, female; F/U, follow-up; F/V, fruit and vegetable; HF, heart failure; HTN, hypertension; LF, low fat; Na, sodium; NAFLD, non-alcoholic fatty liver disease; OB, obese; OH, overall healthy; OW, overweight; P, parallel; PCOS, polycystic ovarian syndrome; red, reduced; ROB, Risk of Bias; SD, standard deviation; SF, saturated fat; wks, weeks; Y, yes; yr; year

Nutrients **2019**, 11, 338

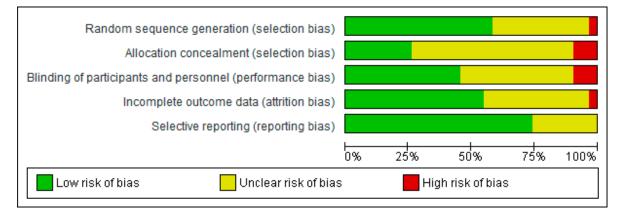
Blinding of Participants, Personnel Blinding of Participants, Personne Random Sequence Generation Random Sequence Generation and Outcome Assessment ncomplete Outcome Data and Outcome Assessment Incomplete Outcome Data Allocation Concealment Allocation Concealment Selective Reporting Selective Reporting Hodson et al. 2010 Al Solaiman et al. 2009 ? ? ? Jenkins et al. 2015 Al Solamain et al. 2010 Đ Đ ? ? ? Ŧ Ŧ Appel et al. 1997 ? ? King et al. 2007 ? ? ? ? ? Ŧ Ŧ Appel et al. 2003 Lien et al. 2007 Đ ? Đ Ŧ ? Lima et al. 2013 Đ ? ? Ard et al. 2004 - Diabetes Care ? ? Đ Ŧ Ŧ Lin et al. 2012 ? Ard et al. 2004 - Am J Hypertens Ŧ Ŧ Ŧ Ŧ Ŧ ? Lopes et al. 2003 ? ? Asemi et al. 2013 ? Đ Ŧ ? ? ? Asemi et al. 2014* Malloy-McFall et al. 2010 ? Ŧ ? Ŧ Đ ? ? Ŧ Ŧ Ŧ Azadbakht et al. 2005 ? ? ? Nowson et al. 2004 Ŧ ? Ŧ ? Ŧ Azadbakht et al. 2011 Ŧ ? ? Đ Nowson et al. 2005 Ŧ e ? • ? Ŧ Blumenthal et al. 2010 ? ? Nowson et al. 2009 ? ? ? Ŧ Chen et al. 2010 ? ? ? Razavi Zade et al. 2015 Ŧ Đ Đ Rifai et al. 2015 ? Conlin et al. 2003 ? ? ? Ŧ (Ŧ e Edwards et al. 2011 Roussell et al. 2012 ? ? ? ? Ŧ ? ? Elmer et al. 2006 Sacks et al. 2001 ? ? Ŧ G ? ? Harsha et al. 2004 ? ? ?

Figure S1: Risk of Bias summary for all controlled trials included in the systematic reviews and meta-analyses of cardiovascular risk factors

*the reference of this study as reported in Soltani et al. 2016 was incorrectly recorded as published in 2015

Green dots indicate low risk of bias, red dots indicate high risk of bias and yellow dots indicate unclear risk of bias.

Figure S2: Risk of Bias graph for all controlled trials included in the systematic reviews and meta-analyses of cardiovascular risk factors



Colored bars represent the proportion of studies assessed as low (green), unclear (yellow) or high (red) risk of bias for the 5 domains of bias above according to criteria set by the Cochrane Risk of Bias tool in the 31 included unique trials.

Figure S3: Literature search for the effect of the DASH diet intervention on HbA1c in controlled clinical trials

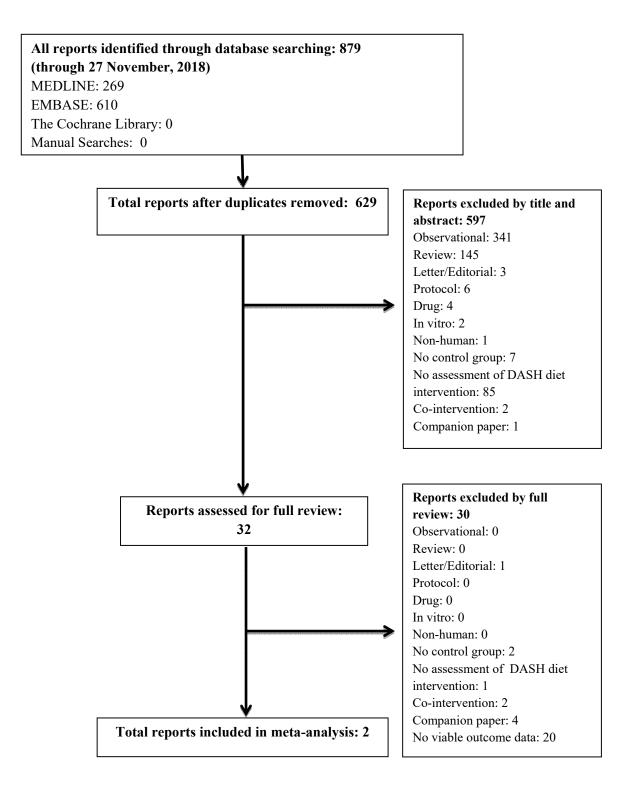


Figure S4: Forest plot for controlled trials investigating the effect of the DASH dietary pattern on HbA1c.

Study	N DASH					ference (95% Cl) HbA1c (%)				
Asemi et al. 2013	17	17	70.9	-0.25 [-0.136, -0.14]			- 1			
Azadbakht et al. 2011	31	31	29.1	-1.20 [-1.38, -1.02]	-		-			
Total				-0.53 [-0.62, -0.43]		٠				
Heterogeneity: Chi² = 77.15, df = 1 (P < 0.00001); I² = 99%					-1	-0.5	 0	0.5	1	
Test for overall effect: Z = 10.71 (P < 0.00001)					-⊥ Favors		0		⊥ ors Control	

Forest plot for controlled trials investigating the effect of the DASH dietary patterns on HbA1c. The overall effect estimate is represented by the diamond. Data are expressed as weighted mean differences with 95% confidence intervals (Cls), using the generic inverse-variance method with the fixed effects model. Paired analyses were applied to all crossover studies. Inter-study heterogeneity was tested by the Cochran Q-statistic at a significance level of p < 0.10 and quantified by 12, level of ≥ 50 % represented substantial heterogeneity.

DASH, dietary approaches to stop hypertension; HbA1c, hemoglobin A1c.