

Supplemental Appendix - Overview of the studies

Reference	Design	Sample size	Type of PS	Food format	Dose of PS ¹	Relative change in LDL-cholesterol	
						Effect (%)	SE
AbuMweis et al. 2006 #1 ²	x	30	sterol	margarine	1.7	-1.4	3.1
AbuMweis et al. 2006 #2	x	30	sterol	margarine	1.7	-1.4	3.2
Algorta-Pineda et al. 2005	p	32	stanol	yoghurt drink	2.0	-8.4	3.9
Alhassan et al. 2006	p	26	stanol	low-fat margarine	3.0	-20.4	6.6
Andersson et al. 1999	p	40	stanol	low-fat margarine	1.9	-7.2	2.9
Athyros et al. 2011	p	100	stanol	margarine	2.0	-13.8	1.3
Banuls et al. 2010	p	40	sterol	low-fat milk	2.0	-8.1	2.8
Banuls et al. 2011	p	75	sterol	low-fat milk	2.0	-9.9	2.8
Beer et al 2000 #1	p	47	mix	low-fat milk	0.9	-7.4	3.5
Beer et al 2000 #2	p	52	mix	low-fat milk	1.8	-8.6	3.3
Beer et al 2000 #3	p	47	mix	low-fat milk	3.6	-13.2	3.4
Blair et al. 2000	p	141	stanol	margarine	2.9	-9.0	1.8
Blomqvist et al. 1993	p	66	stanol	mayonnaise	3.4	-9.9	3.3
Cater et al. 2005 study 1 ³ #1	x	8	stanol	margarine	2.0	-12.3	3.3
Cater et al. 2005 study 1 #2	x	8	stanol	margarine	3.0	-13.0	2.6
Cater et al. 2005 study 1 #3	x	8	stanol	margarine	4.0	-13.6	2.3
Cater et al. 2005 study 2	x	13	stanol	margarine	3.0	-13.0	2.3
Cater et al. 2005 study 3	x	10	stanol	margarine	3.0	-14.9	3.3
Chen et al. 2009	x	22	sterol	dressing and margarine	3.3	-12.4	1.9
Christiansen et al. 2001 #1	p	92	sterol	margarine	1.5	-6.4	1.9
Christiansen et al. 2001 #2	p	88	sterol	margarine	3.0	-9.1	2.4
Cleghorn et al. 2003	x	50	sterol	margarine	2.1	-7.2	1.7
Clifton et al. 2004 #1	x	36	sterol	bread	1.6	-9.8	1.4
Clifton et al. 2004 #2	x	40	sterol	milk	1.6	-12.4	1.3
Clifton et al. 2004 #3	x	58	sterol	cereals	1.6	-5.6	1.3
Clifton et al. 2004 #4	x	40	sterol	yoghurt	1.6	-9.8	1.2
Clifton et al. 2008 #1	p	76	sterol	low-fat spread	1.6	-9.1	3.4
Clifton et al. 2008 #2	p	78	sterol	low-fat spread	1.6	-11.4	3.3
Clifton et al. 2008 #3	p	75	sterol	low-fat spread	1.6	-7.3	3.4
Colgan et al. 2004	x	48	sterol	low-fat margarine	1.3	-2.9	2.4
Davidson et al. 2001 #1	p	38	sterol	low-fat spread	3.0	-4.3	5.0
Davidson et al. 2001 #2	p	37	sterol	dressing	6.0	-3.9	4.5
Davidson et al. 2001 #3	p	40	sterol	low-fat spread and dressing	9.0	-12.2	4.9
de Graaf et al. 2002	p	62	mix	chocolate	1.8	-11.1	3.1
de Jong et al. 2008a #1	p	26	sterol	low-fat margarine	2.5	-8.2	5.6
de Jong et al. 2008a #2	p	26	stanol	low-fat margarine	2.5	-12.8	5.1
de Jong et al. 2008b #1	p	35	sterol	low-fat margarine	2.5	-12.4	4.3
de Jong et al. 2008b #2	p	36	stanol	low-fat margarine	2.5	-9.5	4.3
Devaraj et al. 2004	p	72	sterol	orange juice	2.0	-11.8	2.5
Devaraj et al. 2006	p	72	sterol	orange juice	2.0	2.1	3.7
Doornbos et al. 2006 #1	p	71	sterol	low-fat yoghurt drink	3.2	-9.5	2.2

Reference	Design	Sample size	Type of PS	Food format	Dose of PS ¹	Relative change in LDL-cholesterol	
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Doornbos et al. 2006 #2	p	71	sterol	low-fat yoghurt drink	2.8	-9.3	2.2
Eady et al. 2011	x	39	sterol	spread	1.6	-5.6	1.7
Earnest et al. 2007	p	54	sterol	capsules	1.6	-9.9	3.4
Escuriol et al. 2010	x	44	sterol	milk	2.0	-4.1	2.0
Fuentes et al. 2008 #1	x	30	sterol	low-fat margarine	2.0	-7.7	2.7
Fuentes et al. 2008 #2	x	30	sterol	low-fat margarine	2.0	-3.3	3.0
Geelen et al. 2002 study 1	x	31	sterol	low-fat margarine	3.2	-9.9	2.6
Geelen et al. 2002 study 2	x	57	sterol	low-fat margarine	3.2	-12.4	2.2
Goldberg et al. 2006	p	26	stanol	tablets	1.8	-9.1	4.5
Goncalves et al. 2007	p	34	sterol	milk	2.0	4.0	4.8
Gylling & Miettinen 1994	x	11	stanol	margarine	3.0	-9.3	2.8
Gylling & Miettinen 1996 #1	x	8	stanol	margarine	3.0	-14.4	2.1
Gylling & Miettinen 1996 #2	x	8	stanol	margarine	3.0	-9.7	3.9
Gylling & Miettinen 1999	x	21	stanol	butter	2.4	-12.0	2.0
Gylling et al. 1997	x	22	stanol	margarine	3.0	-14.5	2.9
Gylling et al. 2010	p	49	stanol	margarine and oat-based drink	8.9	-17.4	2.6
Hallikainen & Uusitupa 1999 #1	p	35	stanol	low-fat margarine	2.3	-14.0	3.0
Hallikainen & Uusitupa 1999 #2	p	37	stanol	low-fat margarine	2.2	-7.8	3.2
Hallikainen et al. 2000 #1	x	34	stanol	margarine	2.0	-12.7	2.2
Hallikainen et al. 2000 #2	x	34	sterol	margarine	2.0	-10.4	1.9
Hallikainen et al. 2008	p	19	stanol	margarine	2.2	-18.6	8.8
Hallikainen et al. 2011	p	24	stanol	margarine	3.2	-13.7	5.2
Hansel et al. 2007	p	194	sterol	low-fat fermented milk	1.6	-9.2	1.0
Hayes et al. 2004	x	7	sterol	tortilla chips	1.5	-15.3	5.9
Heggen et al. 2010 #1	x	59	sterol	low-fat margarine	2.0	-9.0	1.8
Heggen et al. 2010 #2	x	59	sterol	low-fat margarine	2.0	-8.2	1.6
Hendriks et al. 1999 #1	x	80	sterol	margarine	0.8	-6.2	1.8
Hendriks et al. 1999 #2	x	80	sterol	margarine	1.6	-9.2	1.8
Hendriks et al. 1999 #3	x	80	sterol	margarine	3.2	-9.8	1.8
Hendriks et al. 2003	p	185	sterol	low-fat spread	1.6	-4.3	2.4
Hernandez-Mijares et al. 2010	p	55	sterol	low-fat milk	2.0	-10.2	2.3
Hernandez-Mijares et al. 2011 study 1	p	24	sterol	low-fat milk	2.0	-0.5	3.8
Hernandez-Mijares et al. 2011 study 2	p	24	sterol	low-fat milk	2.0	-10.5	3.7
Hironaka et al. 2006 #1	p	101	sterol	vegetable/fruit juice	0.8	-6.7	2.1
Hironaka et al. 2006 #2	p	105	sterol	vegetable/fruit juice	1.6	-8.8	2.0
Homma et al. 2003 #1	p	67	stanol	low-fat spread	2.0	-8.9	1.9
Homma et al. 2003 #2	p	68	stanol	low-fat spread	3.0	-6.6	2.3
Houweling et al. 2009	x	82	sterol	low-fat margarine	2.0	-7.8	2.0
Hyun et al. 2005	p	51	stanol	low-fat yoghurt	2.0	-7.8	3.0
Ishizaki et al. 2003	p	55	sterol	mayonnaise	0.9	-8.2	2.4
Jakulj et al. 2005 #1	x	39	sterol	low-fat spread	2.0	-4.7	1.7
Jakulj et al. 2005 #2	x	39	sterol	low-fat spread	2.0	-3.5	2.3

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Jauhiainen et al. 2006	p	67	stanol	low-fat cheese	2.0	-10.3	2.3
Jones et al. 1999	p	32	mix	margarine	1.7	-15.5	5.4
Jones et al. 2000 #1	x	15	sterol	low-fat margarine	1.8	-13.3	2.3
Jones et al. 2000 #2	x	15	stanol	low-fat margarine	1.8	-6.4	2.7
Jones et al. 2003	x	15	mix	non-fat beverage	1.8	-2.1	4.4
Judd et al. 2002	x	53	sterol	salad dressing	2.2	-10.1	0.7
Kassis et al. 2008	x	22	sterol	margarine	1.7	-4.5	1.3
Khandelwal et al. 2009 study 1	p	93	sterol	yoghurt drink	2.0	-3.3	2.9
Khandelwal et al. 2009 study 2	p	85	sterol	yoghurt drink	2.0	-5.0	2.8
Korpela et al. 2006 study 1	p	50	sterol	low-fat yoghurt	1.7	-7.7	3.6
Korpela et al. 2006 study 2	p	62	sterol	low-fat hard cheese	2.0	-11.2	3.4
Korpela et al. 2006 study 3	p	52	sterol	low-fat fresh cheese	2.0	-13.8	3.5
Kratz et al. 2007 #1	x	17	sterol	low-fat margarine	2.0	-4.0	4.2
Kratz et al. 2007#2	x	17	stanol	low-fat margarine	2.0	-9.1	2.7
Kurokawa et al. 2008a #1	p	35	sterol	dressing	0.5	-2.2	5.2
Kurokawa et al. 2008a #2	p	35	sterol	dressing	0.9	-6.7	5.2
Kurokawa et al. 2008a #3	p	34	sterol	dressing	1.3	-7.3	4.8
Kurokawa et al. 2008b	p	59	sterol	dressing	0.8	-5.2	1.7
Lagstrom et al. 2006	p	42	stanol	capsules	2.0	-7.0	3.2
Lau et al. 2005 study 1	x	14	sterol	margarine	1.8	-7.1	7.8
Lau et al. 2005 study 2	x	15	sterol	margarine	1.8	-8.4	3.8
Lee et al. 2003	p	81	sterol	low-fat spread	1.6	-8.1	2.4
Li et al. 2007 #1	p	201	sterol	milk tea powder	1.5	-2.5	1.6
Li et al. 2007 #2	p	199	sterol	milk tea powder	2.3	-3.4	1.6
Lin et al. 2011	x	21	sterol	beverage	2.5	-6.5	3.2
Lottenberg et al. 2003	x	60	sterol	margarine	1.7	-6.4	1.1
Madsen et al. 2007	x	46	sterol	low-fat margarine and low-fat milk	2.3	-7.7	2.2
Maki et al. 2001 #1	p	158	sterol	low-fat spread	1.1	-7.6	1.7
Maki et al. 2001 #2	p	118	sterol	low-fat spread	2.2	-8.1	1.9
Mannarino et al. 2009	p	116	sterol	low-fat fermented milk	1.6	-8.3	1.6
Matsuoka et al. 2004a	p	46	sterol	mayonnaise	0.8	0.2	3.1
Matsuoka et al. 2004b study 1 #1	p	16	sterol	mayonnaise	0.2	-5.3	4.9
Matsuoka et al. 2004b study 1 #2	p	19	sterol	mayonnaise	0.4	3.1	5.0
Matsuoka et al. 2004b study 1 #3	p	16	sterol	mayonnaise	0.6	-0.8	4.9
Matsuoka et al. 2004b study 1 #4	p	16	sterol	mayonnaise	0.8	-7.1	3.9
Matsuoka et al. 2004b study 2 #1	p	15	sterol	mayonnaise	0.8	-12.3	6.3
Matsuoka et al. 2004b study 2 #2	p	17	sterol	mayonnaise	1.6	-8.6	4.0
Matsuoka et al. 2004b study 2 #3	p	15	sterol	mayonnaise	2.4	-11.0	4.8
Matvienko et al. 2002	p	34	sterol	beef	2.7	-13.4	3.6
McPherson et al. 2005 study 1	p	25	stanol	tablets	1.3	-10.4	4.0
McPherson et al. 2005 study 2	p	27	stanol	capsules	1.0	-2.5	3.9
Mensink et al. 2002	p	60	stanol	yoghurt	3.0	-10.3	4.7

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Mensink et al. 2010 #1	p	46	stanol	margarine	2.8	-7.4	2.9
Mensink et al. 2010 #2	p	44	stanol	soy-based yoghurt	5.8	-11.9	3.2
Mensink et al. 2010 #3	p	47	stanol	margarine and soy-based yoghurt	8.7	-17.1	3.1
Miettinen and Vanhanen 1994 #1	p	17	sterol	mayonnaise	1.0	-6.2	3.8
Miettinen and Vanhanen 1994 #2	p	15	mix	mayonnaise	1.0	-2.6	4.1
Miettinen and Vanhanen 1994 #3	p	15	mix	mayonnaise	1.2	-7.7	3.7
Miettinen et al. 1995 #1	p	102	stanol	margarine	2.6	-11.1	2.1
Miettinen et al. 1995 #2	p	102	stanol	margarine	2.6	-12.5	2.2
Mussner et al. 2002	x	62	sterol	margarine	1.8	-6.5	1.4
Naumann et al. 2003 #1	x	42	mix	low-fat margarine	2.0	-6.0	3.1
Naumann et al. 2003 #2	x	42	mix	low-fat margarine	2.0	-6.7	3.0
Neil et al. 2001	p	62	sterol	spread	2.5	-14.2	3.3
Nestel et al. 2001	x	15	sterol	dairy spread	2.4	-7.9	2.5
Nigon et al. 2001	x	53	sterol	low-fat spread	1.6	-5.3	1.6
Niittynen et al. 2007 study 1	x	15	sterol	low-fat yoghurt drink	1.0	-4.2	3.3
Niittynen et al. 2007 study 2	p	26	sterol	low-fat yoghurt drink	2.0	-6.0	4.3
Noakes et al. 2002 study 1 #1	x	46	sterol	low-fat spread	2.3	-7.7	1.2
Noakes et al. 2002 study 1 #2	x	46	stanol	low-fat spread	2.5	-9.5	1.2
Noakes et al. 2002 study 2	x	35	sterol	spread	2.0	-9.6	1.5
Noakes et al. 2005 study 1 #1	x	39	sterol	margarine	2.0	-10.1	1.6
Noakes et al. 2005 study 1 #2	x	39	sterol	low-fat milk	2.0	-7.9	1.6
Noakes et al. 2005 study 1 #3	x	39	sterol	low-fat milk and margarine	4.0	-11.4	1.5
Noakes et al. 2005 study 2 #1	x	40	sterol	low-fat yoghurt	1.8	-6.1	1.6
Noakes et al. 2005 study 2 #2	x	40	stanol	low-fat yoghurt	1.7	-5.2	1.7
Ntanios et al. 2002	x	53	sterol	margarine	1.8	-9.1	1.6
Ooi et al. 2007	x	9	sterol	cereal and margarine	2.0	-6.4	7.8
Pelletier et al. 1995	x	12	sterol	butter	0.7	-15.2	3.1
Plana et al. 2008	p	83	sterol	low-fat fermented milk	1.6	-12.2	3.1
Plat and Mensink 2000 #1	p	78	stanol	margarine and shortening	3.8	-12.6	3.3
Plat and Mensink 2000 #2	p	76	stanol	margarine and shortening	4.0	-11.6	3.7
Plat et al. 2000 #1	x	39	stanol	margarine	2.5	-9.4	1.5
Plat et al. 2000 #2	x	39	stanol	margarine and cake/cookie	2.5	-10.4	1.9
Quilez et al. 2003	p	57	sterol	muffin and croissant	3.2	-14.7	4.5
Racette et al. 2010 #1	x	18	sterol	beverage	0.4	-5.0	2.1
Racette et al. 2010 #2	x	18	sterol	beverage	2.0	-8.9	2.3
Raitakari et al. 2008	p	190	stanol	low-fat margarine	2.0	-9.3	3.1
Rudkowska et al. 2008 #1	x	26	sterol	low-fat yoghurt	1.6	-2.3	1.8
Rudkowska et al. 2008 #2	x	26	sterol	low-fat yoghurt	1.6	-5.1	1.8
Ruiu et al. 2009	x	15	sterol	yoghurt drink	1.0	-4.6	2.2
Saito et al. 2006 #1	p	33	sterol	DAG-containing mayonnaise	0.3	-7.1	2.7
Saito et al. 2006 #2	p	33	sterol	DAG-containing mayonnaise	0.4	-5.9	3.2
Saito et al. 2006 #3	p	34	sterol	DAG-containing mayonnaise	0.5	-9.3	2.7

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Seki et al. 2003a	p	60	sterol	vegetable oil in bread	0.5	-2.3	2.4
Seki et al. 2003b	p	22	sterol	vegetable oil in bread	1.3	-12.6	3.9
Seki et al. 2003c #1	p	45	sterol	vegetable oil in bread	0.3	0.8	1.8
Seki et al. 2003c #2	p	44	sterol	vegetable oil in bread	0.5	-7.7	1.9
Seppo et al. 2007 study 1	p	60	stanol	low-fat yoghurt	2.0	-2.9	3.2
Seppo et al. 2007 study 2	p	61	stanol	low-fat yoghurt drink	2.0	-3.2	3.0
Seppo et al. 2007 study 3	p	19	stanol	low-fat yoghurt drink	2.0	-11.8	7.0
Seppo et al. 2007 study 4	p	59	stanol	low-fat milk	2.0	-6.2	2.4
Sialvera et al. 2011	p	108	sterol	yoghurt drink	4.0	-19.7	1.7
Sierksma et al. 1999	x	75	sterol	margarine	0.8	-6.1	0.6
Simons 2002 study 1	p	77	sterol	margarine	2.0	-10.2	2.8
Simons 2002 study 2	p	75	sterol	margarine	2.0	-6.1	3.6
Soderholm et al. 2011	p	63	sterol	rye bread	2.0	-8.1	3.5
Spilburg et al. 2003	p	24	stanol	lemonade	1.9	-14.3	4.5
Takehita et al. 2008	p	29	sterol	DAG-containing cooking oil	0.5	-6.0	4.4
Temme et al. 2002	x	42	sterol	low-fat margarine	2.1	-9.6	1.4
Theuwissen & Mensink 2007	x	40	stanol	cereal	1.5	-4.4	2.1
Theuwissen et al. 2009	p	28	stanol	margarine	2.5	-9.5	4.6
Thomsen et al. 2004 #1	x	69	sterol	low-fat milk	1.2	-7.1	1.5
Thomsen et al. 2004 #2	x	69	sterol	low-fat milk	1.6	-9.6	1.5
Vanhanen 1994	p	14	stanol	mayonnaise	1.5	-2.0	7.6
Vanhanen et al. 1994	p	15	stanol	mayonnaise	0.8	-7.7	3.8
Vanstone et al. 2002 #1	x	15	sterol	butter	1.8	-10.2	2.8
Vanstone et al. 2002 #2	x	15	stanol	butter	1.8	-10.5	2.8
Vanstone et al. 2002 #3	x	15	mix	butter	1.8	-11.5	2.7
Varady et al. 2004 study 1	p	38	sterol	low-fat margarine	1.8	-11.3	2.4
Varady et al. 2004 study 2	p	36	sterol	low-fat margarine	1.8	-12.8	3.8
Volpe et al. 2001	x	30	sterol	low-fat yoghurt drink	1.1	-7.6	1.9
Weidner et al. 2008	p	50	sterol	soy drink	1.6	-5.2	2.8
Weststrate & Meijer 1998 #1	x	76	sterol	margarine	3.2	-13.1	0.6
Weststrate & Meijer 1998 #2	x	77	stanol	margarine	2.7	-11.9	0.6
Woodgate et al. 2006	p	29	stanol	softgel capsules	1.6	-7.2	3.7
Yoshida et al. 2006 study 1	x	16	mix	cereal bar	1.8	-6.1	2.5
Yoshida et al. 2006 study 2	x	13	mix	cereal bar	1.8	-2.8	3.7

¹Dose given as free equivalents in g/d, rounded off at 1 decimal.

² Multiple study arms in 1 study corrected for the same single control group/period: indicated with # 1, # 2, # 3, etc. For some crossover studies, different active treatments were compared with a separate corresponding placebo treatment; however, as the same subjects were included in those periods, these are indicated with #1, #2, #3 etc.

³ Multiple study arms in 1 study, each corrected for a respective control group (i.e. different set of subjects): indicated with study 1, study 2, study 3, etc.

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