Supplementary file S2: Characteristics of excludes studies

Study	Reason for exclusion
Bromage 2018 (1)	Wrong intervention (modelled fortification)
Calvo 2005 (2)	Wrong study design (review paper)
Cashman 2015 (3)	Wrong study design
ChiCTR-TRC-12001914 (4)	Wrong intervention (supplementation)
CTRI/2020/11/029135 (5)	Wrong study design (beta-carotene bioavailability study)
Dass 2021 (6)	Wrong intervention (micronutrient fortification, biofortification, supplementation and use of locally available nutrient-rich foods)
deJong 2022 (7)	Wrong study design (cross-sectional study)
DeOliveira 1994 (8)	Wrong study design (simple before-and-after study)
Diósady 2013 (9)	Wrong study design (review paper)
Dunnigan 1986 (10)	Wrong intervention (fortification of margarine, butter and milk)
Dutra-de-Oliveira 1998 (11)	Wrong comparator (All participants consumed fortified soybean oil. Effect of heating was investigated, i.e. outcome was compared in heated or non-heated groups)
Engle-Stone 2017 (12)	Wrong study design (repeated cross-sectional study)
Engle-Stone 2015 (13)	Wrong study design
Englestone 2015 (14)	Wrong intervention (supplementation)
Fiedler 2010 (15)	Wrong study design
Fiedler 2015 (16)	Wrong study design (cross-sectional study)
Gibbs 2015 (17)	Wrong study design (cross-sectional study)
Harika 2016 (18)	Wrong study design (simulation study)
Ianiro 2013 (19)	Wrong intervention (oil fortified with probiotics or antioxidants)
Jaaskelainen 2017 (20)	Wrong intervention (wrong vehicle: fortified fat spreads, fluid milk products and respective lactose-free milk-, soy-, and cereal-based drinks)
Jensen 2020 (21)	Wrong population (women diagnosed with infertility; The question investigated was, whether infertile women exposed to vitamin D fortified margarine have an increased chance of live birth or not)
Kozlowska-Wojciechowska 2002 (22)	Wrong intervention (butter vs. margarine consumption)
Laaksi 2006 (23)	Wrong intervention (liquid milk products, margarines and butter were fortified)
Lehtonen-Veromaa 2008 (24)	Wrong intervention (fluid milks, margarines and spreads were fortified)
Lietz 2001 (25)	Wrong intervention (No fortification)
Lopriore 2004 (26)	Wrong intervention (Spread fortified with vitamins and minerals)
Madkour 1994 (27)	Wrong intervention (vitamin A and E fortified palm oil vs. plain oil)
Mark 2019 (28)	Wrong study design
Martianto 2015 (29)	Wrong study design
Masni 2016 (30)	Wrong intervention (red palm oil emulsion)
Mason 2011 (31)	Wrong comparator (vitamin A fortification compared to vitamin A supplementation)
Mazzanti 2015 (32)	Wrong intervention (Extra virgin olive oil enriched with vitamin K1, vitamin D3 and vitamin B6, compared to extra virgin olive oil without added vitamins)
Muzhingi 2017 (33)	Wrong intervention (vehicle was kale)

Nair 1993 (34)	Wrong intervention (vitamin E-fortified fish oil)
NCT01669915 (35)	Wrong intervention (vitamin D + fish oil supplementation)
NCT03499327 (36)	Wrong intervention (UV-treated vs. untreated oil)
NCT03826654 (37)	Wrong study design (Cluster RCT with only 2 clusters; Nikooyeh 2020)
NCT04156074 (38)	Wrong intervention (supplementation)
NCT04302987 (39)	Wrong intervention (supplementation)
NCT05271045 (40)	Wrong population (adults with type 2 diabetes)
NCT05460221 (41)	Wrong intervention (Optimized extra virgin olive oil (with bioactive compounds or polyphenols)
NCT05541094 (42)	Wrong intervention (fortified vs. unfortified milk + oil)
Nikooyeh 2020 (43)	Wrong study design (Cluster RCT with only 2 clusters)
Olsen 2016 (44)	Wrong intervention (supplementation)
Parr 2018 (45)	Wrong study design (not fortification effects were investigated)
Piirainen 2007 (46)	Wrong intervention (wrong vehicle: Both milks and margarines were fortified)
Raulio 2017 (47)	Wrong intervention (liquid dairy products and fat spreads were fortified)
Rohner 2016 (48)	Wrong study design (cross-sectional study)
Salam 2021 (49)	Wrong comparator (Cooking Oil Fortification vs. Nutrition education vs. supplementation)
Sandjaja 2015 (50)	Wrong study design (simple before-after study)
Sandjaja 2015 (51)	Wrong study design
Sauvant 2003 (52)	Wrong intervention (supplementation)
Schmaelzle 2014 (53)	Wrong intervention (There were three treatment groups, which received orange maize and placebo oil, white maize and placebo oil, or white maize and a daily vitamin A supplement)
Schoener 2019 (54)	Wrong study design (vitamin D bioaccessibility was measured)
Shakur 2014 (55)	Wrong study design (the modelled effect of increased vitamin D fortification was examined)
Sichert-Hellert 2000 (56)	Wrong study design
Sivan 2002 (57)	Wrong intervention (fortification at the place of use)
Sivan 2001 (58)	Wrong intervention (red palm oil supplementation)
Smedshaug 2007 (59)	Wrong intervention (supplementation)
Soekirman 2012 (60)	Wrong study design
Solon 1996 (61)	Wrong intervention (Wrong fortificant. The intervention margarine was fortified with vitamins A + D + B1 and was compared to a non-fortified margarine (containing no vitamins A, D, or B1).
Solon 1998 (62)	Wrong study design (review paper)
Tanumihardjo 2015 (63)	Wrong study design (review paper)
Touaoro 2015 (64)	Wrong study design (cross-sectional study)
Unlu 2005 (65)	Wrong intervention
vanDam 2007 (66)	Wrong study design (cross-sectional study)
Walters 2019 (67)	Wrong study design (economic evaluation)

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