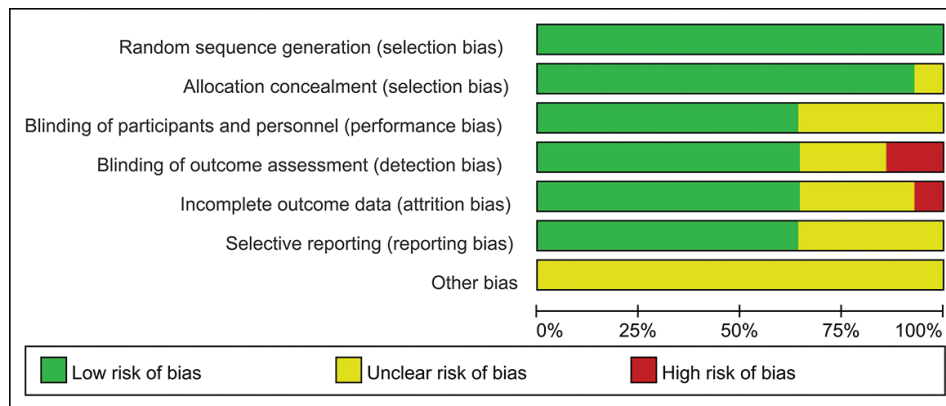




Supplementary Figure 1. Risk of bias graph for quality assessment of the included RCTs

RCTs: randomized controlled trials

	Random sequence generation (selection bias)	Allocation concealment (selection bias)	Blinding of participants and personnel (performance bias)	Blinding of outcome assessment (detection bias)	Incomplete outcome data (attrition bias)	Selective reporting (reporting bias)	Other bias
Arslanian2022	+	+	+	+	?	+	?
Danne2017	+	+	?	?	+	?	?
Diene2022	+	+	?	+	+	?	?
Fox2022	+	+	+	+	+	+	?
Kelly2012	+	+	+	?	+	+	?
Kelly2013	+	+	+	+	+	?	?
Kelly2020	+	+	+	-	?	+	?
Kelly2023	+	+	?	+	+	+	?
Klein2014	+	+	?	+	+	+	?
Mastrandrea2019	+	?	?	-	?	?	?
Tamborlane2019	+	+	+	?	-	?	?
Tamborlane2022	+	+	+	+	+	+	?
Weghuber2020	+	+	+	+	?	+	?
Weghuber2022	+	+	+	+	+	+	?

Supplementary Figure 2. Risk of bias summary for quality assessment of the included RCTs

RCTs: randomized controlled trials

Supplementary Table 1. Characteristics of all the studies included in the meta-analysis

Author	Year	Trial registration number	Country	Recruitment time	Age (year)	Mean BMI (kg/m ²)	Concurrent non-drug intervention
Weghuber et al. (17)	2022	NCT04102189	Multi-center	2019-2022	12-18	37	Lifestyle interventions
Arslanian et al. (29)	2022	NCT02963766	Multi-center	2016-2020	10-18	34.1	Diet and exercise interventions
Tamborlane et al. (18)	2022	NCT01554618	Multi-center	2016-2020	10-18	36.36	NA
Diene et al. (27)	2022	NCT02527200	Multi-center	2015-2020	12-17	37.8	Diet and exercise interventions
Fox et al. (22)	2022	NCT02496611	United States	2015-2019	12-18	36.9	Diet and exercise interventions
Kelly et al. (25)	2023	NCT04102189	Multi-center	2019-2022	12-18	37.1	Diet and exercise interventions
Mastrandrea	2019	NCT02696148	United States	2016-2017	7-11	≥30	NA
Kelly et al. (23)	2012	NCT00886626	United States	2009-2010	9-16	36.7	Lifestyle interventions
Klein et al. (21)	2014	NCT00943501	Multi-center	2009-2011	10-17	Liraglutide: 40 Placebo: 39.9	NA
Tamborlane et al. (19)	2019	NCT01541215	Multi-center	2012-2018	10-17	33.9	Diet and exercise interventions
Danne et al. (28)	2017	NCT01789086	Germany	2013-2014	12-17	≥30	NA
Kelly et al. (24)	2020	NCT02918279	Multi-center	2016-2019	12-18	Liraglutide: 35.3 Placebo: 35.8	Lifestyle interventions
Weghuber et al. (16)	2020	NA	Multi-center	2015-2016	10-18	> 30	Lifestyle interventions
Kelly et al. (22)	2013	NCT01237197	United States	2011-2012	12-19	42.5	Lifestyle interventions

BMI: body mass index, NA: not available