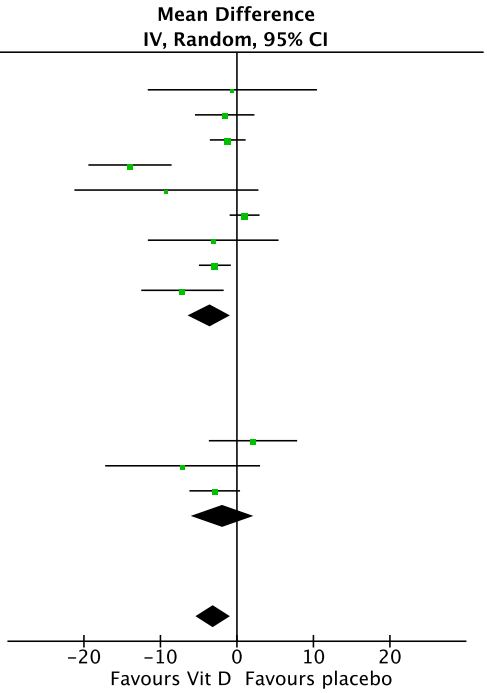Study or Subgroup	Vitamin D Mean	Vitamin D SD	Vitamin D Total	Control Mean	Control SD	Control Total	Weight	Mean Difference IV, Random, 95% CI	Year
2.8.1 Vit D deficient <30 ng/ml									
Amrein 2011	13.4	11.7	12	14	16.3	13	3.2%	−0.60 [−11.66, 10.46]	2011
Amrein 2014	15.7	20.9	237	17.3	22.3	238	10.4%	−1.60 [−5.49, 2.29]	2014
Ding 2017	5.48	4.08	29	6.68	4.87	28	13.0%	−1.20 [−3.54, 1.14]	2017
Hasanloei 2019	35.35	16.86	48	49.33	6.55	24	8.0%	−13.98 [−19.42, −8.54]	2019
Miri 2019	19.5	12.2	22	28.72	23.58	18	2.8%	−9.22 [−21.25, 2.81]	2019
Karsy 2020	6.4	9.8	138	5.4	6.4	136	13.6%	1.00 [−0.96, 2.96]	2020
Ingels 2020	21.7	10.5	11	24.8	10.8	13	4.7%	−3.10 [−11.64, 5.44]	2020
Sharma 2020	6.19	2.29	20	9.07	2.95	10	13.4%	−2.88 [−4.97, −0.79]	2020
Sistanizad 2021	18.31	8.43	16	25.43	6.6	14	8.1%	−7.12 [−12.51, −1.73]	2021
Subtotal (95% CI)			**533**			**494**	**77.4%**	**−3.58 [−6.30, −0.86]**	
Heterogeneity: Tau^2 = 10.39; Chi^2 = 33.73, df = 8 (P < 0.0001); I^2 = 76%									
Test for overall effect: Z = 2.58 (P = 0.010)									
2.8.2 Mixed baseline Vit D level									
Leaf 2014	13.3	14.7	36	11.2	9.1	31	7.5%	2.10 [−3.67, 7.87]	2014
Han 2016	15.9	11.9	20	23	14	10	3.7%	−7.10 [−17.22, 3.02]	2016
Bhattacharyya 2021	9.78	6.23	63	12.68	11.86	63	11.4%	−2.90 [−6.21, 0.41]	2021
Subtotal (95% CI)			**119**			**104**	**22.6%**	**−1.90 [−6.00, 2.21]**	
Heterogeneity: Tau^2 = 5.19; Chi^2 = 3.19, df = 2 (P = 0.20); I^2 = 37%									
Test for overall effect: Z = 0.90 (P = 0.37)									
Total (95% CI)			**652**			**598**	**100.0%**	**−3.13 [−5.36, −0.89]**	
Heterogeneity: Tau^2 = 8.53; Chi^2 = 36.95, df = 11 (P = 0.0001); I^2 = 70%									
Test for overall effect: Z = 2.74 (P = 0.006)									
Test for subgroup differences: Chi^2 = 0.45, df = 1 (P = 0.50), I^2 = 0%