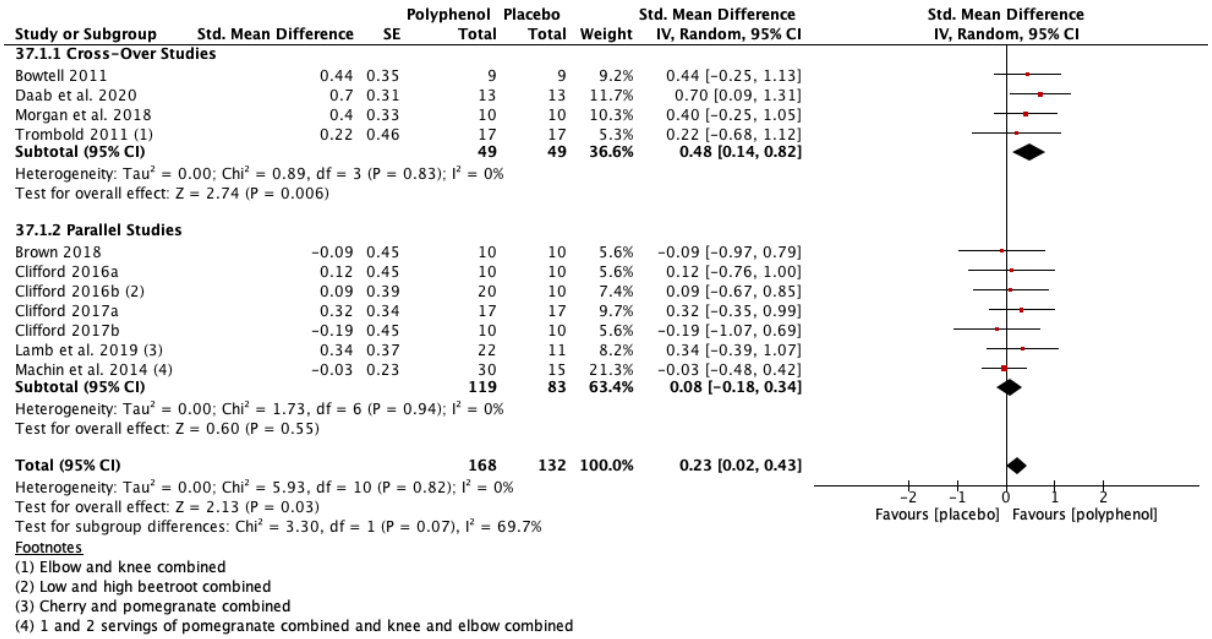
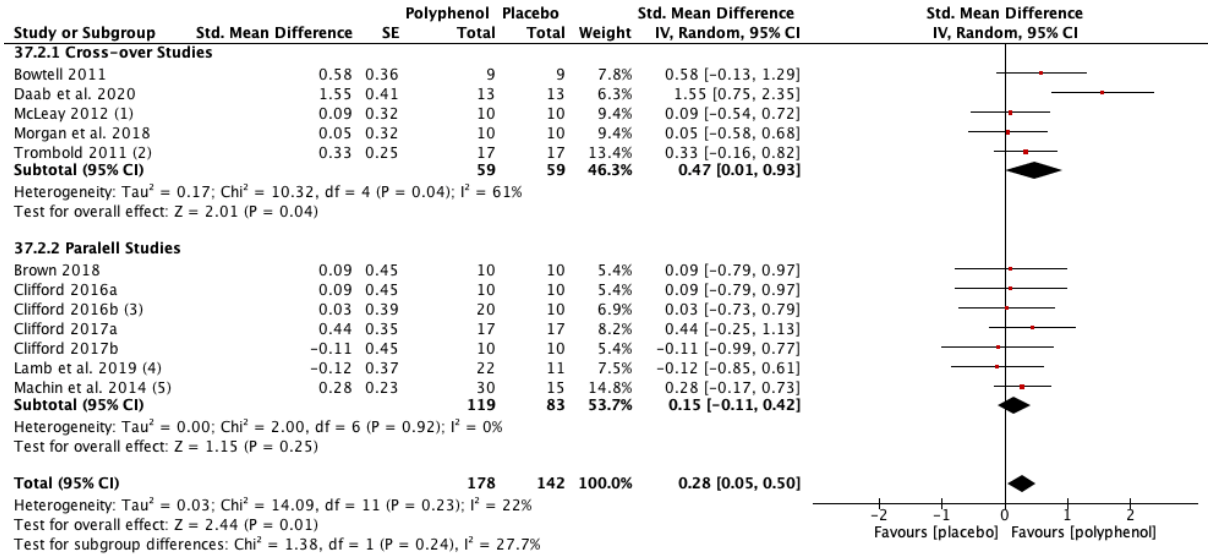
(A)



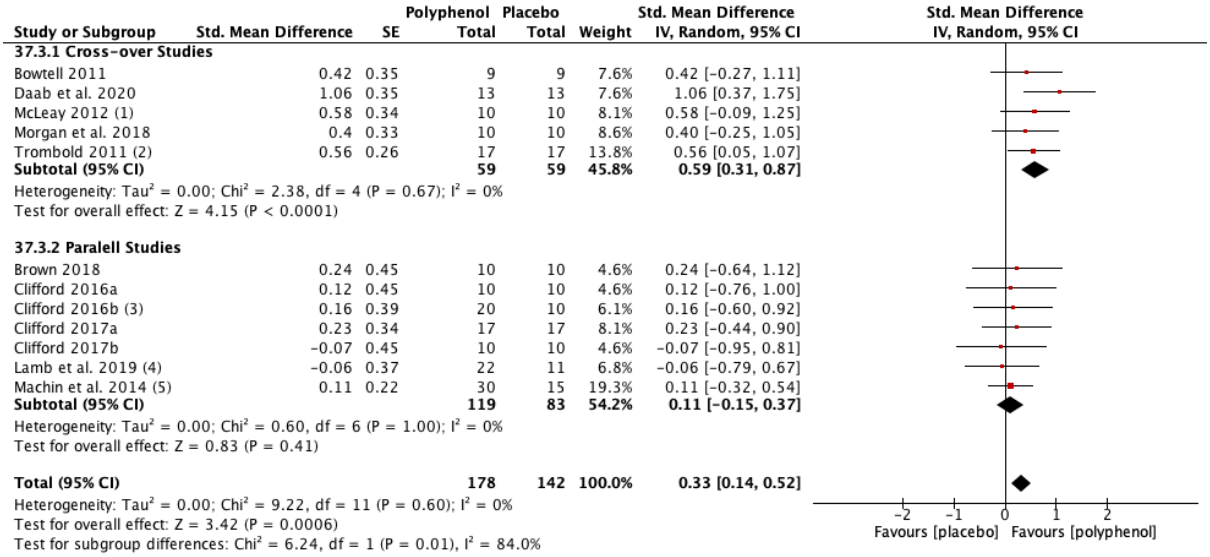
Footnotes
(1) Elbow and knee combined
(2) Low and high beetroot combined
(3) Cherry and pomegranate combined
(4) 1 and 2 servings of pomegranate combined and knee and elbow combined

(B)



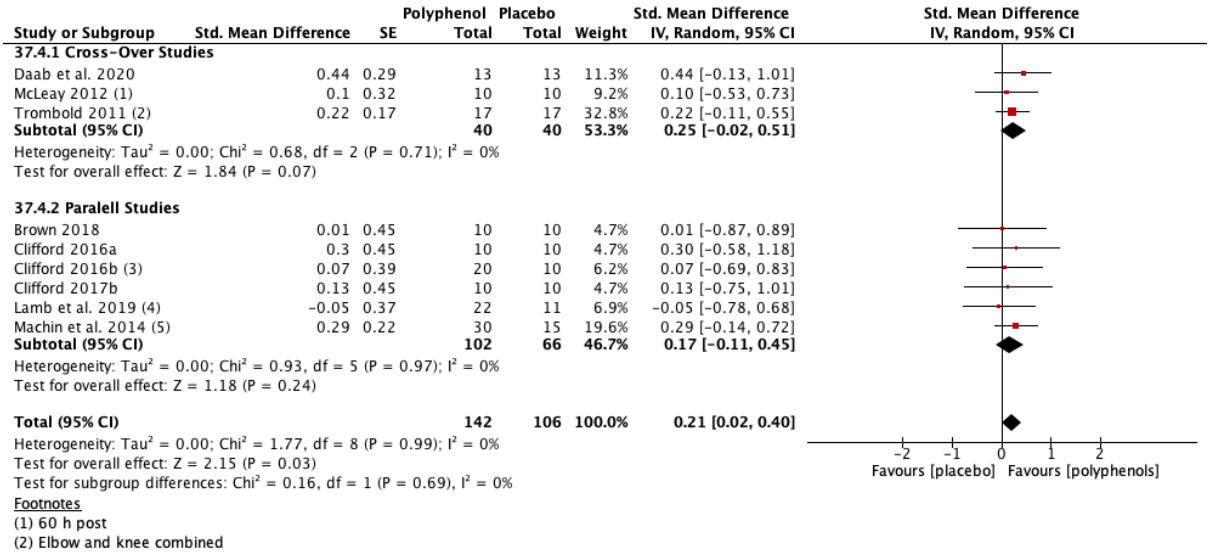
Footnotes
(1) 12 h post
(2) Elbow and knee combined
(3) Low and high beetroot combined
(4) Cherry and pomegranate combined
(5) 1 and 2 servings of pomegranate combined and knee and elbow combined

(C)



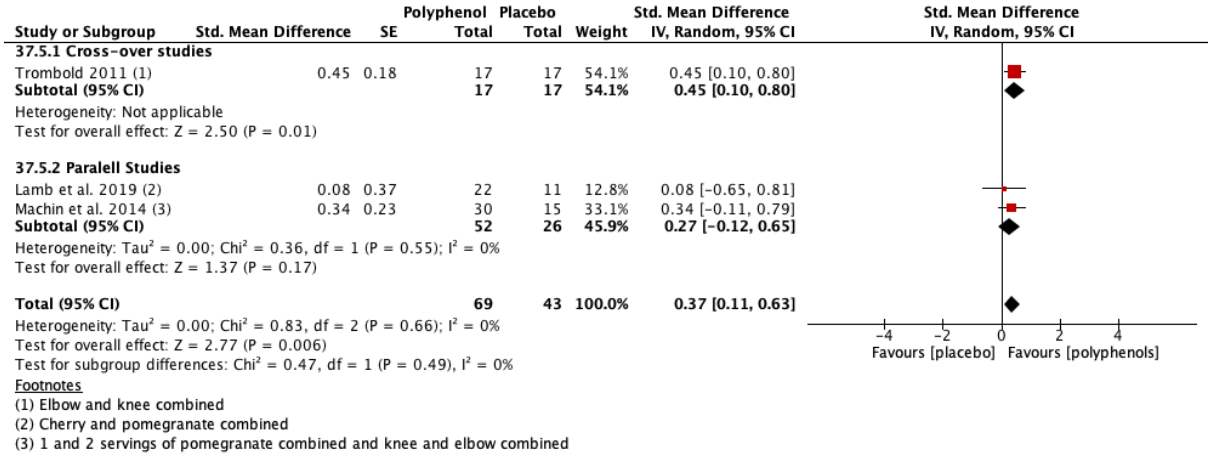
Footnotes
(1) 36 h post
(2) Elbow and knee combined
(3) Low and high beetroot combined
(4) Cherry and pomegranate combined
(5) 1 and 2 servings of pomegranate combined and knee and elbow combined

(D)



Footnotes
(1) 60 h post
(2) Elbow and knee combined
(3) Low and high beetroot combined
(4) Cherry and pomegranate combined
(5) 1 and 2 servings of pomegranate combined and knee and elbow combined

(E)

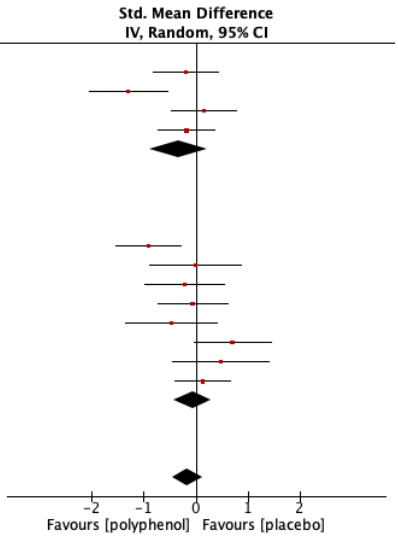


Footnotes
(1) Elbow and knee combined
(2) Cherry and pomegranate combined
(3) 1 and 2 servings of pomegranate combined and knee and elbow combined

Supplementary Figure 4a. Sensitivity analysis: Effect of polyphenol-rich foods, juices and concentrates on recovery of maximal isometric voluntary contraction (A) immediately post-exercise; (B) 24 hours; (C) 48 hours; (D) 72 hours; (E) 96 hours after excluding 10 studies classified as high risk of bias.

(A)

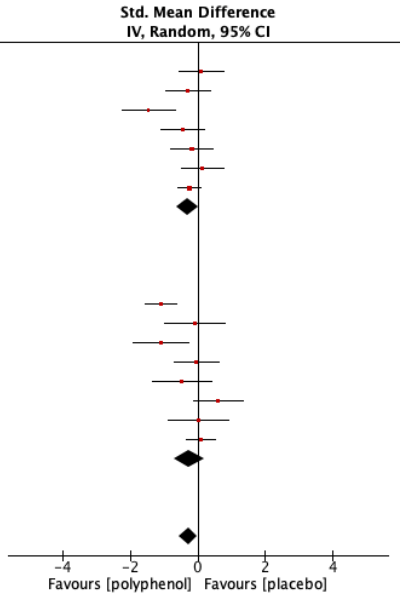
Study or Subgroup	Std. Mean Difference	SE	Polyphenol Total	Placebo Total	Weight	Std. Mean Difference IV, Random, 95% CI
38.1.1 Cross-Over Studies						
Bowtell 2011 (1)	-0.19	0.32	10	10	9.2%	-0.19 [-0.82, 0.44]
Daab et al. 2020	-1.3	0.38	13	13	7.9%	-1.30 [-2.04, -0.56]
Morgan et al. 2018	0.16	0.32	10	10	9.2%	0.16 [-0.47, 0.79]
Trombold 2011 (2)	-0.18	0.2806	17	17	10.2%	-0.18 [-0.73, 0.37]
Subtotal (95% CI)			**50**	**50**	**36.5%**	**-0.35 [-0.90, 0.21]**
Heterogeneity: $Tau^2 = 0.22$; $Chi^2 = 9.29$, df = 3 (P = 0.03); $I^2 = 68\%$						
Test for overall effect: Z = 1.22 (P = 0.22)						
38.1.2 Parallel Studies						
Brown 2018 (3)	-0.91	0.32	10	10	9.2%	-0.91 [-1.54, -0.28]
Clifford 2016a (4)	-0.01	0.45	10	10	6.6%	-0.01 [-0.89, 0.87]
Clifford 2016b (5)	-0.21	0.39	20	10	7.7%	-0.21 [-0.97, 0.55]
Clifford 2017a	-0.06	0.34	17	17	8.8%	-0.06 [-0.73, 0.61]
Clifford 2017b (6)	-0.48	0.45	10	10	6.6%	-0.48 [-1.36, 0.40]
Lamb et al. 2019 (7)	0.7	0.38	24	11	7.9%	0.70 [-0.04, 1.44]
Lynn 2018	0.47	0.47	9	10	6.3%	0.47 [-0.45, 1.39]
Machin et al. 2014 (8)	0.13	0.27	30	15	10.5%	0.13 [-0.40, 0.66]
Subtotal (95% CI)			**130**	**93**	**63.5%**	**-0.06 [-0.43, 0.30]**
Heterogeneity: $Tau^2 = 0.13$; $Chi^2 = 13.84$, df = 7 (P = 0.05); $I^2 = 49\%$						
Test for overall effect: Z = 0.34 (P = 0.74)						
Total (95% CI)			**180**	**143**	**100.0%**	**-0.16 [-0.46, 0.13]**
Heterogeneity: $Tau^2 = 0.15$; $Chi^2 = 24.30$, df = 11 (P = 0.01); $I^2 = 55\%$						
Test for overall effect: Z = 1.07 (P = 0.28)						
Test for subgroup differences: $Chi^2 = 0.70$, df = 1 (P = 0.40), $I^2 = 0\%$						



Footnotes
(1) PPT
(2) Elbow and knee combined
(3) PPT and VAS combined
(4) PPT
(5) PPT low and high beetroot combined
(6) PPT
(7) Cherry and pomegranate combined
(8) 1 and 2 servings of pomegranate combined and knee and elbow combined

(B)

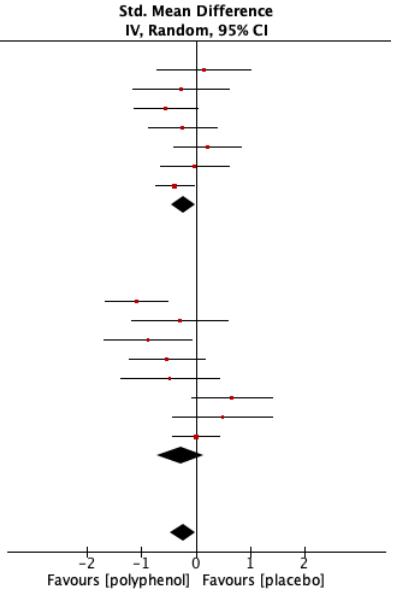
Study or Subgroup	Std. Mean Difference	SE	Polyphenol Total	Placebo Total	Weight	Std. Mean Difference IV, Random, 95% CI
38.2.1 Cross-over Studies						
Abbot et al. 2019 (1)	0.11	0.34	10	10	6.7%	0.11 [-0.56, 0.78]
Bowtell 2011 (2)	-0.28	0.34	10	10	6.7%	-0.28 [-0.95, 0.39]
Daab et al. 2020	-1.46	0.4	13	13	5.7%	-1.46 [-2.24, -0.68]
Kupusaravic et al. 2019	-0.45	0.33	10	10	6.8%	-0.45 [-1.10, 0.20]
McLeay 2012 (3)	-0.17	0.32	10	10	7.0%	-0.17 [-0.80, 0.46]
Morgan et al. 2018	0.15	0.32	10	10	7.0%	0.15 [-0.48, 0.78]
Trombold 2011 (4)	-0.25	0.18	17	17	9.5%	-0.25 [-0.60, 0.10]
Subtotal (95% CI)			**80**	**80**	**49.4%**	**-0.30 [-0.62, 0.03]**
Heterogeneity: $Tau^2 = 0.09$; $Chi^2 = 12.23$, df = 6 (P = 0.06); $I^2 = 51\%$						
Test for overall effect: Z = 1.80 (P = 0.07)						
38.2.2 Parallel studies						
Brown 2018 (5)	-1.09	0.24	10	10	8.4%	-1.09 [-1.56, -0.62]
Clifford 2016a (6)	-0.09	0.45	10	10	5.1%	-0.09 [-0.97, 0.79]
Clifford 2016b (7)	-1.08	0.42	20	10	5.5%	-1.08 [-1.90, -0.26]
Clifford 2017a	-0.04	0.34	17	17	6.7%	-0.04 [-0.71, 0.63]
Clifford 2017b (8)	-0.47	0.45	10	10	5.1%	-0.47 [-1.35, 0.41]
Lamb et al. 2019 (9)	0.61	0.37	24	11	6.2%	0.61 [-0.12, 1.34]
Lynn 2018	0.02	0.46	9	10	5.0%	0.02 [-0.88, 0.92]
Machin et al. 2014 (10)	0.09	0.22	30	15	8.8%	0.09 [-0.34, 0.52]
Subtotal (95% CI)			**130**	**93**	**50.6%**	**-0.26 [-0.72, 0.19]**
Heterogeneity: $Tau^2 = 0.29$; $Chi^2 = 24.90$, df = 7 (P = 0.0008); $I^2 = 72\%$						
Test for overall effect: Z = 1.14 (P = 0.26)						
Total (95% CI)			**210**	**173**	**100.0%**	**-0.29 [-0.55, -0.02]**
Heterogeneity: $Tau^2 = 0.16$; $Chi^2 = 37.15$, df = 14 (P = 0.0007); $I^2 = 62\%$						
Test for overall effect: Z = 2.10 (P = 0.04)						
Test for subgroup differences: $Chi^2 = 0.01$, df = 1 (P = 0.90), $I^2 = 0\%$						



Footnotes
(1) 12 h post
(2) PPT
(3) 12 h post
(4) Elbow and knee combined
(5) PPT and VAS combined
(6) PPT
(7) PPT low and high beetroot combined
(8) PPT
(9) Cherry and pomegranate combined
(10) 1 and 2 servings of pomegranate combined and knee and elbow combined

(C)

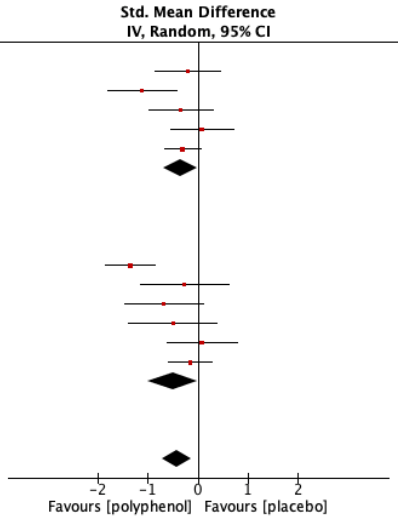
Study or Subgroup	Std. Mean Difference	SE	Polyphenol Total	Placebo Total	Weight	Std. Mean Difference IV, Random, 95% CI
38.3.1 Cross-over studies						
Abbot et al. 2019 (1)	0.15	0.44	10	10	4.9%	0.15 [-0.71, 1.01]
Bowtell 2011 (2)	-0.27	0.45	10	10	4.7%	-0.27 [-1.15, 0.61]
Daab et al. 2020	-0.55	0.3	13	13	7.7%	-0.55 [-1.14, 0.04]
Kupusaravic et al. 2019	-0.25	0.32	10	10	7.2%	-0.25 [-0.88, 0.38]
McLeay 2012 (3)	0.21	0.32	10	10	7.2%	0.21 [-0.42, 0.84]
Morgan et al. 2018	-0.03	0.32	10	10	7.2%	-0.03 [-0.66, 0.60]
Trombold 2011 (4)	-0.39	0.18	17	17	11.3%	-0.39 [-0.74, -0.04]
Subtotal (95% CI)			**80**	**80**	**50.3%**	**-0.24 [-0.46, -0.02]**
Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 4.96$, df = 6 (P = 0.55); $I^2 = 0\%$						
Test for overall effect: Z = 2.15 (P = 0.03)						
38.3.2 Paralell studies						
Brown 2018 (5)	-1.09	0.29	10	10	8.0%	-1.09 [-1.66, -0.52]
Clifford 2016a (6)	-0.29	0.45	10	10	4.7%	-0.29 [-1.17, 0.59]
Clifford 2016b (7)	-0.88	0.41	20	10	5.4%	-0.88 [-1.68, -0.08]
Clifford 2017a	-0.53	0.35	17	17	6.5%	-0.53 [-1.22, 0.16]
Clifford 2017b (8)	-0.48	0.46	10	10	4.6%	-0.48 [-1.38, 0.42]
Lamb et al. 2019 (9)	0.66	0.38	24	11	5.9%	0.66 [-0.08, 1.40]
Lynn 2018	0.49	0.47	9	10	4.5%	0.49 [-0.43, 1.41]
Machin et al. 2014 (10)	0	0.22	30	15	10.0%	0.00 [-0.43, 0.43]
Subtotal (95% CI)			**130**	**93**	**49.7%**	**-0.28 [-0.71, 0.15]**
Heterogeneity: $Tau^2 = 0.25$; $Chi^2 = 21.06$, df = 7 (P = 0.004); $I^2 = 67\%$						
Test for overall effect: Z = 1.27 (P = 0.20)						
Total (95% CI)			**210**	**173**	**100.0%**	**-0.24 [-0.47, -0.01]**
Heterogeneity: $Tau^2 = 0.09$; $Chi^2 = 26.11$, df = 14 (P = 0.03); $I^2 = 46\%$						
Test for overall effect: Z = 2.04 (P = 0.04)						
Test for subgroup differences: $Chi^2 = 0.03$, df = 1 (P = 0.86), $I^2 = 0\%$						



Footnotes
(1) 36 h post
(2) PPT
(3) 36 h post
(4) Elbow and knee combined
(5) PPT and VAS combined
(6) PPT
(7) PPT low and high beetroot combined
(8) PPT
(9) Cherry and pomegranate combined
(10) 1 and 2 servings of pomegranate combined and knee and elbow combined

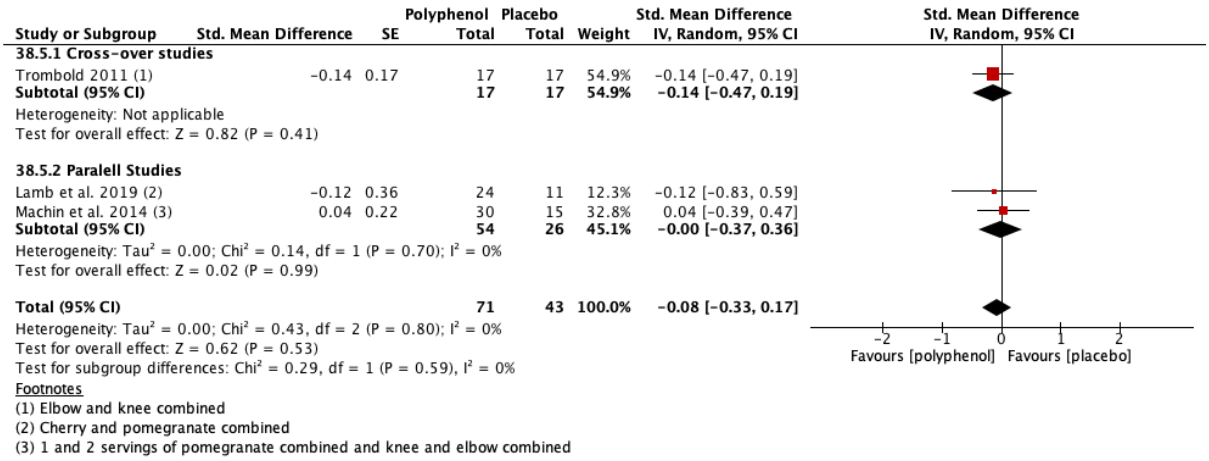
(D)

Study or Subgroup	Std. Mean Difference	SE	Polyphenol Total	Placebo Total	Weight	Std. Mean Difference IV, Random, 95% CI
38.4.1 Cross-over Studies						
Abbot et al. 2019 (1)	-0.2	0.33	10	10	8.9%	-0.20 [-0.85, 0.45]
Daab et al. 2020	-1.11	0.35	13	13	8.5%	-1.11 [-1.80, -0.42]
Kupusaravic et al. 2019	-0.34	0.33	10	10	8.9%	-0.34 [-0.99, 0.31]
McLeay 2012 (2)	0.08	0.32	10	10	9.2%	0.08 [-0.55, 0.71]
Trombold 2011 (3)	-0.3	0.18	17	17	13.0%	-0.30 [-0.65, 0.05]
Subtotal (95% CI)			**60**	**60**	**48.5%**	**-0.35 [-0.68, -0.02]**
Heterogeneity: $Tau^2 = 0.06$; $Chi^2 = 6.79$, df = 4 (P = 0.15); $I^2 = 41\%$						
Test for overall effect: Z = 2.07 (P = 0.04)						
38.4.2 Parallel Studies						
Brown 2018 (4)	-1.35	0.25	10	10	11.0%	-1.35 [-1.84, -0.86]
Clifford 2016a (5)	-0.27	0.45	10	10	6.5%	-0.27 [-1.15, 0.61]
Clifford 2016b (6)	-0.68	0.4	20	10	7.4%	-0.68 [-1.46, 0.10]
Clifford 2017b (7)	-0.5	0.45	10	10	6.5%	-0.50 [-1.38, 0.38]
Lamb et al. 2019 (8)	0.08	0.36	24	11	8.2%	0.08 [-0.63, 0.79]
Machin et al. 2014 (9)	-0.15	0.22	30	15	11.9%	-0.15 [-0.58, 0.28]
Subtotal (95% CI)			**104**	**66**	**51.5%**	**-0.50 [-0.99, -0.00]**
Heterogeneity: $Tau^2 = 0.26$; $Chi^2 = 17.09$, df = 5 (P = 0.004); $I^2 = 71\%$						
Test for overall effect: Z = 1.97 (P = 0.05)						
Total (95% CI)			**164**	**126**	**100.0%**	**-0.43 [-0.72, -0.14]**
Heterogeneity: $Tau^2 = 0.14$; $Chi^2 = 25.11$, df = 10 (P = 0.005); $I^2 = 60\%$						
Test for overall effect: Z = 2.93 (P = 0.003)						
Test for subgroup differences: $Chi^2 = 0.23$, df = 1 (P = 0.63), $I^2 = 0\%$						



Footnotes
(1) 60 h post
(2) 60 h post
(3) Elbow and knee combined
(4) PPT and VAS combined
(5) PPT
(6) PPT low and high beetroot combined
(7) PPT
(8) Cherry and pomegranate combined
(9) 1 and 2 servings of pomegranate combined and knee and elbow combined

(E)

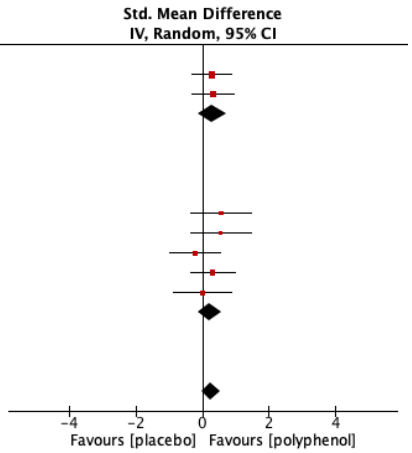


Footnotes
(1) Elbow and knee combined
(2) Cherry and pomegranate combined
(3) 1 and 2 servings of pomegranate combined and knee and elbow combined

Supplementary Figure 4b. Sensitivity analysis: Effect of polyphenol-rich foods, juices and concentrates on recovery of delayed onset muscle soreness (A) immediately post-exercise; (B) 24 hours; (C) 48 hours; (D) 72 hours; (E) 96 hours after excluding 10 studies classified as high risk of bias.
PPT: Pain pressure threshold
VAS: Visual analogue scale

(A)

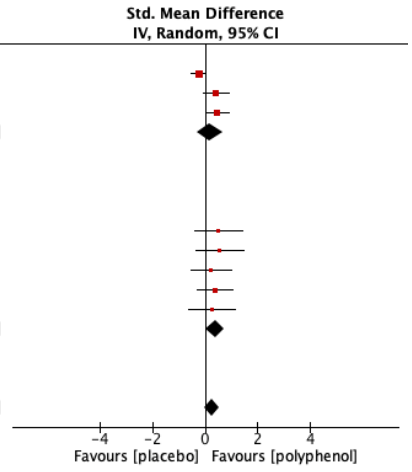
Study or Subgroup	Std. Mean Difference	SE	Polyphenol Total	Placebo Total	Weight	Std. Mean Difference IV, Random, 95% CI
39.1.1 Cross-Over Studies						
Daab et al. 2020	0.28	0.3	13	13	22.0%	0.28 [-0.31, 0.87]
Morgan et al. 2018	0.31	0.32	10	10	19.3%	0.31 [-0.32, 0.94]
Subtotal (95% CI)			**23**	**23**	**41.3%**	**0.29 [-0.13, 0.72]**
Heterogeneity: Tau² = 0.00; Chi² = 0.00, df = 1 (P = 0.95); I² = 0%						
Test for overall effect: Z = 1.34 (P = 0.18)						
39.1.2 Parallel Studies						
Brown 2018	0.56	0.46	10	10	9.4%	0.56 [-0.34, 1.46]
Clifford 2016a	0.55	0.46	10	10	9.4%	0.55 [-0.35, 1.45]
Clifford 2016b (1)	-0.22	0.39	20	10	13.0%	-0.22 [-0.98, 0.54]
Clifford 2017a	0.31	0.34	17	17	17.1%	0.31 [-0.36, 0.98]
Clifford 2017b	0	0.45	10	10	9.8%	0.00 [-0.88, 0.88]
Subtotal (95% CI)			**67**	**57**	**58.7%**	**0.22 [-0.14, 0.58]**
Heterogeneity: Tau² = 0.00; Chi² = 2.64, df = 4 (P = 0.62); I² = 0%						
Test for overall effect: Z = 1.19 (P = 0.23)						
Total (95% CI)			**90**	**80**	**100.0%**	**0.25 [-0.03, 0.53]**
Heterogeneity: Tau² = 0.00; Chi² = 2.72, df = 6 (P = 0.84); I² = 0%						
Test for overall effect: Z = 1.78 (P = 0.08)						
Test for subgroup differences: Chi² = 0.07, df = 1 (P = 0.79), I² = 0%						



Footnotes
(1) Low and high beetroot combined

(B)

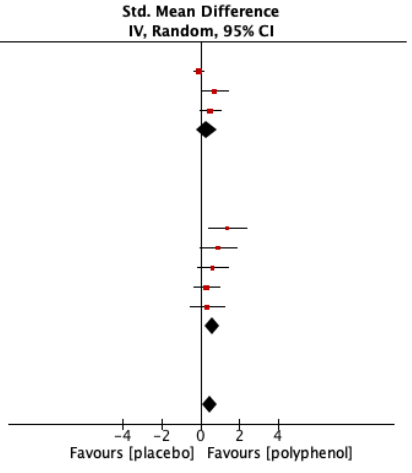
Study or Subgroup	Std. Mean Difference	SE	Polyphenol Total	Placebo Total	Weight	Std. Mean Difference IV, Random, 95% CI
39.2.1 Cross-over Studies						
Abbot et al. 2019 (1)	-0.24	0.14	10	10	23.9%	-0.24 [-0.51, 0.03]
Daab et al. 2020	0.41	0.25	13	13	15.9%	0.41 [-0.08, 0.90]
Morgan et al. 2018	0.47	0.23	10	10	17.2%	0.47 [0.02, 0.92]
Subtotal (95% CI)			**33**	**33**	**57.1%**	**0.18 [-0.32, 0.69]**
Heterogeneity: Tau² = 0.16; Chi² = 9.69, df = 2 (P = 0.008); I² = 79%						
Test for overall effect: Z = 0.71 (P = 0.48)						
39.2.2 Parallel studies						
Brown 2018	0.51	0.46	10	10	7.4%	0.51 [-0.39, 1.41]
Clifford 2016a	0.56	0.46	10	10	7.4%	0.56 [-0.34, 1.46]
Clifford 2016b (2)	0.22	0.39	20	10	9.4%	0.22 [-0.54, 0.98]
Clifford 2017a	0.38	0.34	17	17	11.3%	0.38 [-0.29, 1.05]
Clifford 2017b	0.26	0.45	10	10	7.6%	0.26 [-0.62, 1.14]
Subtotal (95% CI)			**67**	**57**	**42.9%**	**0.37 [0.01, 0.73]**
Heterogeneity: Tau² = 0.00; Chi² = 0.47, df = 4 (P = 0.98); I² = 0%						
Test for overall effect: Z = 2.03 (P = 0.04)						
Total (95% CI)			**100**	**90**	**100.0%**	**0.25 [-0.03, 0.53]**
Heterogeneity: Tau² = 0.07; Chi² = 12.65, df = 7 (P = 0.08); I² = 45%						
Test for overall effect: Z = 1.75 (P = 0.08)						
Test for subgroup differences: Chi² = 0.36, df = 1 (P = 0.55), I² = 0%						



Footnotes
(1) 12 h post
(2) Low and high beetroot combined

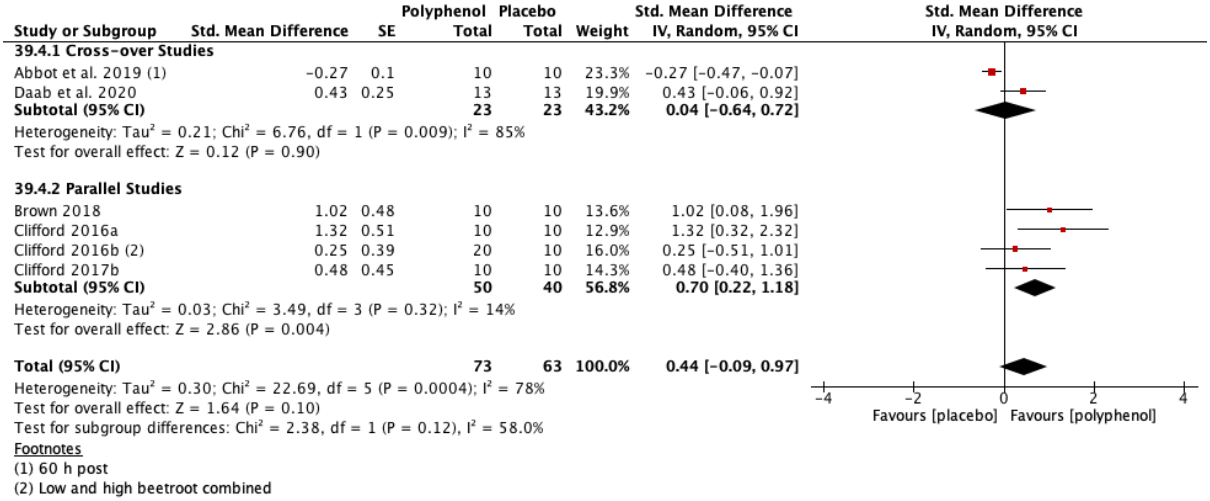
(C)

Study or Subgroup	Std. Mean Difference	SE	Polyphenol Total	Placebo Total	Weight	Std. Mean Difference IV, Random, 95% CI
39.3.1 Cross-over studies						
Abbot et al. 2019 (1)	-0.1	0.12	10	10	20.7%	-0.10 [-0.34, 0.14]
Daab et al. 2020	0.73	0.36	13	13	12.4%	0.73 [0.02, 1.44]
Morgan et al. 2018	0.5	0.28	10	10	15.1%	0.50 [-0.05, 1.05]
Subtotal (95% CI)			**33**	**33**	**48.1%**	**0.31 [-0.24, 0.85]**
Heterogeneity: Tau² = 0.17; Chi² = 7.71, df = 2 (P = 0.02); I² = 74%						
Test for overall effect: Z = 1.09 (P = 0.27)						
39.3.2 Parallel studies						
Brown 2018	1.39	0.51	10	10	8.5%	1.39 [0.39, 2.39]
Clifford 2016a	0.91	0.47	10	10	9.4%	0.91 [-0.01, 1.83]
Clifford 2016b (2)	0.62	0.4	20	10	11.2%	0.62 [-0.16, 1.40]
Clifford 2017a	0.3	0.34	17	17	13.0%	0.30 [-0.37, 0.97]
Clifford 2017b	0.32	0.45	10	10	9.8%	0.32 [-0.56, 1.20]
Subtotal (95% CI)			**67**	**57**	**51.9%**	**0.62 [0.25, 0.99]**
Heterogeneity: Tau² = 0.00; Chi² = 3.99, df = 4 (P = 0.41); I² = 0%						
Test for overall effect: Z = 3.30 (P = 0.0010)						
Total (95% CI)			**100**	**90**	**100.0%**	**0.49 [0.12, 0.86]**
Heterogeneity: Tau² = 0.16; Chi² = 18.54, df = 7 (P = 0.010); I² = 62%						
Test for overall effect: Z = 2.60 (P = 0.009)						
Test for subgroup differences: Chi² = 0.88, df = 1 (P = 0.35), I² = 0%						



Footnotes
(1) 36 h post
(2) Low and high beetroot combined

(D)



Footnotes
(1) 60 h post
(2) Low and high beetroot combined

Supplementary Figure 4c. Sensitivity analysis: Effect of polyphenol-rich foods, juices and concentrates on recovery of countermovement jump (A) immediately post-exercise; (B) 24 hours; (C) 48 hours; (D) 72 hours after excluding 10 studies classified as high risk of bias.