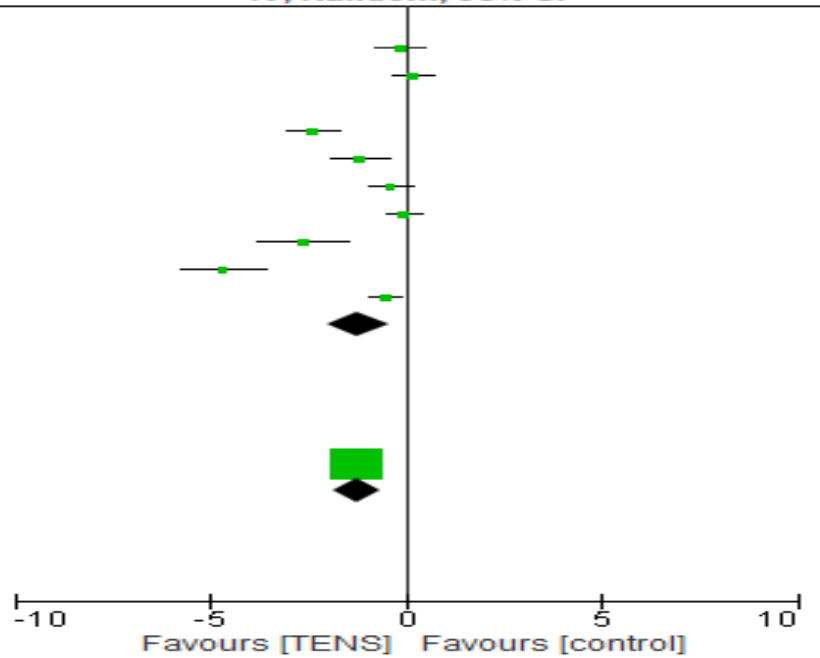
Supplementary figure 1

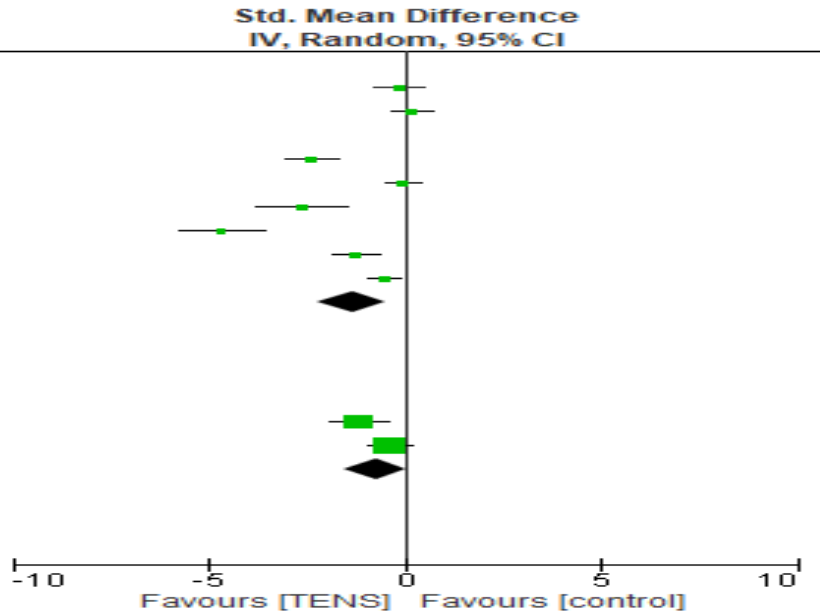
A

Study or Subgroup	TENS Mean	TENS SD	TENS Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
1.1.1 Anterior approach								
Gilbert 1986	3.26	0.7	20	3.37	0.69	20	11.4%	-0.16 [-0.78, 0.47]
Smedley 1988	5.5	2.3	34	5.1	1.7	28	11.7%	0.19 [-0.31, 0.69]
DeSantana 2008	0	0	20	3.4	2.2	20		Not estimable
Ahmed 2010	4.93	0.7	30	6.61	0.69	30	11.2%	-2.39 [-3.06, -1.71]
Dias 2010	2.26	0.7	16	3.1	0.69	17	11.0%	-1.18 [-1.93, -0.43]
Dalamagka 2015	0.63	0.9898	36	1.1	1.48	18	11.5%	-0.39 [-0.97, 0.18]
Eidy 2016	3.51	1.5	33	3.57	1.5	33	11.7%	-0.04 [-0.52, 0.44]
Gorganchian 2016	0.62	0.7	12	5.1	2.22	12	9.7%	-2.63 [-3.77, -1.49]
Yılmaz 2018	1	0.5	26	4	0.74	26	9.9%	-4.68 [-5.76, -3.60]
Parseliunas 2021	0.75	0.84	40	1.2	0.84	40	11.8%	-0.53 [-0.98, -0.08]
Subtotal (95% CI)			**267**			**244**	**100.0%**	**-1.23 [-2.01, -0.45]**
Heterogeneity: Tau² = 1.29; Chi² = 112.69, df = 8 (P < 0.00001); I² = 93%								
Test for overall effect: Z = 3.08 (P = 0.002)								
1.1.2 Laparoscopy								
Szmit 2021	1.3	1	24	2.9	1.5	24	100.0%	-1.23 [-1.86, -0.61]
Subtotal (95% CI)			**24**			**24**	**100.0%**	**-1.23 [-1.86, -0.61]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 3.89 (P < 0.0001)								
Test for subgroup differences: Chi² = 0.00, df = 1 (P = 0.99), I² = 0%								



B

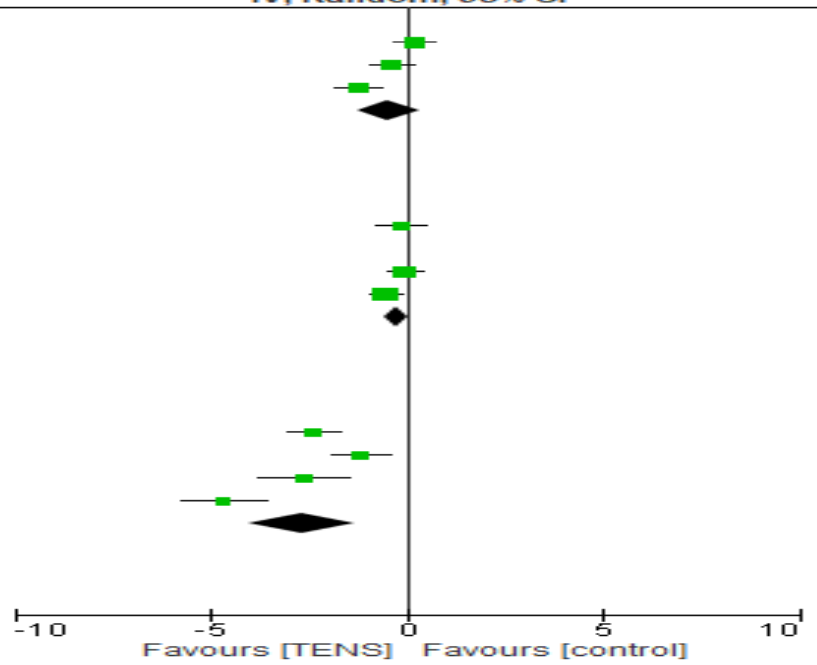
Study or Subgroup	TENS Mean	TENS SD	TENS Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
1.2.1 Conventional TENS								
Gilbert 1986	3.26	0.7	20	3.37	0.69	20	12.8%	-0.16 [-0.78, 0.47]
Smedley 1988	5.5	2.3	34	5.1	1.7	28	13.1%	0.19 [-0.31, 0.69]
DeSantana 2008	0	0	20	3.4	2.2	20		Not estimable
Ahmed 2010	4.93	0.7	30	6.61	0.69	30	12.6%	-2.39 [-3.06, -1.71]
Eidy 2016	3.51	1.5	33	3.57	1.5	33	13.1%	-0.04 [-0.52, 0.44]
Gorganchian 2016	0.62	0.7	12	5.1	2.22	12	11.1%	-2.63 [-3.77, -1.49]
Yılmaz 2018	1	0.5	26	4	0.74	26	11.3%	-4.68 [-5.76, -3.60]
Szmit 2021	1.3	1	24	2.9	1.5	24	12.8%	-1.23 [-1.86, -0.61]
Parseliunas 2021	0.75	0.84	40	1.2	0.84	40	13.2%	-0.53 [-0.98, -0.08]
Subtotal (95% CI)			**239**			**233**	**100.0%**	**-1.35 [-2.23, -0.47]**
Heterogeneity: Tau² = 1.46; Chi² = 112.54, df = 7 (P < 0.00001); I² = 94%								
Test for overall effect: Z = 3.02 (P = 0.003)								
1.2.2 AL-TENS								
Dias 2010	2.26	0.7	16	3.1	0.69	17	45.1%	-1.18 [-1.93, -0.43]
Dalamagka 2015	0.63	0.9898	36	1.1	1.48	18	54.9%	-0.39 [-0.97, 0.18]
Subtotal (95% CI)			**52**			**35**	**100.0%**	**-0.75 [-1.51, 0.02]**
Heterogeneity: Tau² = 0.19; Chi² = 2.67, df = 1 (P = 0.10); I² = 63%								
Test for overall effect: Z = 1.92 (P = 0.06)								
Test for subgroup differences: Chi² = 1.03, df = 1 (P = 0.31), I² = 2.5%								



Supplementary figure 1

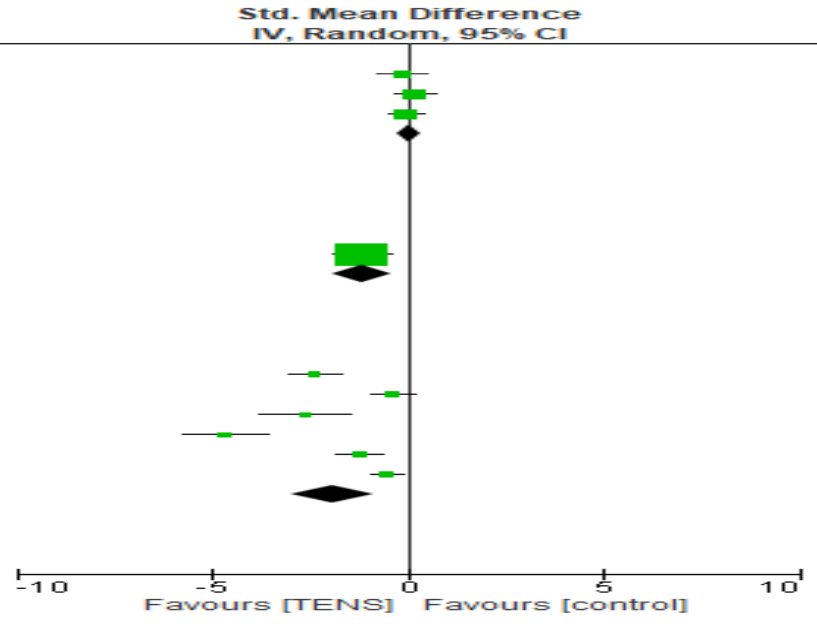
C

Study or Subgroup	TENS Mean	TENS SD	TENS Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
1.3.1 General								
Smedley 1988	5.5	2.3	34	5.1	1.7	28	34.5%	0.19 [-0.31, 0.69]
Dalamagka 2015	0.63	0.9898	36	1.1	1.48	18	33.2%	-0.39 [-0.97, 0.18]
Szmit 2021	1.3	1	24	2.9	1.5	24	32.2%	-1.23 [-1.86, -0.61]
Subtotal (95% CI)			**94**			**70**	**100.0%**	**-0.46 [-1.27, 0.34]**
Heterogeneity: Tau² = 0.42; Chi² = 12.27, df = 2 (P = 0.002); I² = 84%								
Test for overall effect: Z = 1.13 (P = 0.26)								
1.3.2 Spinal								
Gilbert 1986	3.26	0.7	20	3.37	0.69	20	23.1%	-0.16 [-0.78, 0.47]
DeSantana 2008	0	0	20	3.4	2.2	20		Not estimable
Eidy 2016	3.51	1.5	33	3.57	1.5	33	35.9%	-0.04 [-0.52, 0.44]
Parseliunas 2021	0.75	0.84	40	1.2	0.84	40	41.0%	-0.53 [-0.98, -0.08]
Subtotal (95% CI)			**113**			**113**	**100.0%**	**-0.27 [-0.58, 0.05]**
Heterogeneity: Tau² = 0.01; Chi² = 2.32, df = 2 (P = 0.31); I² = 14%								
Test for overall effect: Z = 1.67 (P = 0.09)								
1.3.3 Local								
Ahmed 2010	4.93	0.7	30	6.61	0.69	30	26.5%	-2.39 [-3.06, -1.71]
Dias 2010	2.26	0.7	16	3.1	0.69	17	26.1%	-1.18 [-1.93, -0.43]
Gorganchian 2016	0.62	0.7	12	5.1	2.22	12	23.5%	-2.63 [-3.77, -1.49]
Yilmaz 2018	1	0.5	26	4	0.74	26	23.9%	-4.68 [-5.76, -3.60]
Subtotal (95% CI)			**84**			**85**	**100.0%**	**-2.68 [-4.00, -1.35]**
Heterogeneity: Tau² = 1.61; Chi² = 27.45, df = 3 (P < 0.00001); I² = 89%								
Test for overall effect: Z = 3.96 (P < 0.0001)								
Test for subgroup differences: Chi² = 12.03, df = 2 (P = 0.002), I² = 83.4%								



D

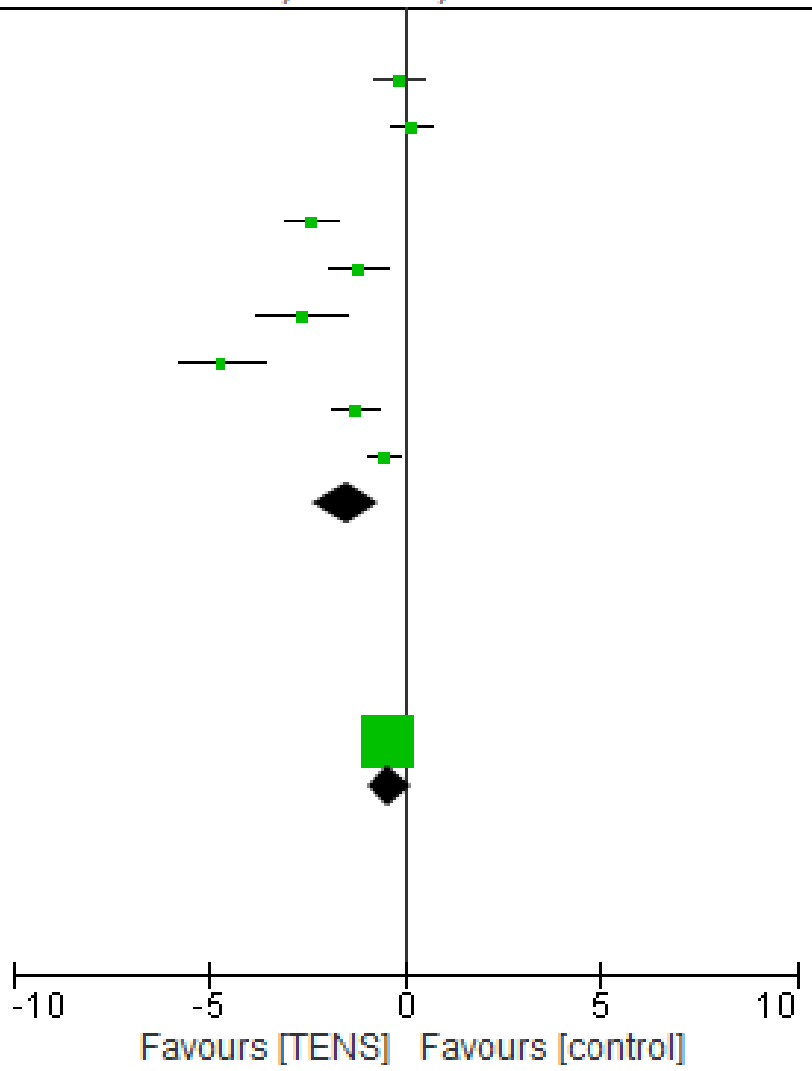
Study or Subgroup	TENS Mean	TENS SD	TENS Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
1.4.1 Single								
Gilbert 1986	3.26	0.7	20	3.37	0.69	20	23.9%	-0.16 [-0.78, 0.47]
Smedley 1988	5.5	2.3	34	5.1	1.7	28	36.6%	0.19 [-0.31, 0.69]
Eidy 2016	3.51	1.5	33	3.57	1.5	33	39.5%	-0.04 [-0.52, 0.44]
Subtotal (95% CI)			**87**			**81**	**100.0%**	**0.02 [-0.29, 0.32]**
Heterogeneity: Tau² = 0.00; Chi² = 0.82, df = 2 (P = 0.66); I² = 0%								
Test for overall effect: Z = 0.12 (P = 0.91)								
1.4.2 Twice								
DeSantana 2008	0	0	20	3.4	2.2	20		Not estimable
Dias 2010	2.26	0.7	16	3.1	0.69	17	100.0%	-1.18 [-1.93, -0.43]
Subtotal (95% CI)			**36**			**37**	**100.0%**	**-1.18 [-1.93, -0.43]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 3.09 (P = 0.002)								
1.4.3 Repetitive								
Ahmed 2010	4.93	0.7	30	6.61	0.69	30	17.1%	-2.39 [-3.06, -1.71]
Dalamagka 2015	0.63	0.9898	36	1.1	1.48	18	17.4%	-0.39 [-0.97, 0.18]
Gorganchian 2016	0.62	0.7	12	5.1	2.22	12	15.1%	-2.63 [-3.77, -1.49]
Yilmaz 2018	1	0.5	26	4	0.74	26	15.4%	-4.68 [-5.76, -3.60]
Szmit 2021	1.3	1	24	2.9	1.5	24	17.2%	-1.23 [-1.86, -0.61]
Parseliunas 2021	0.75	0.84	40	1.2	0.84	40	17.8%	-0.53 [-0.98, -0.08]
Subtotal (95% CI)			**168**			**150**	**100.0%**	**-1.90 [-2.96, -0.84]**
Heterogeneity: Tau² = 1.59; Chi² = 73.76, df = 5 (P < 0.00001); I² = 93%								
Test for overall effect: Z = 3.52 (P = 0.0004)								
Test for subgroup differences: Chi² = 18.26, df = 2 (P = 0.0001), I² = 89.0%								



Supplementary figure 1

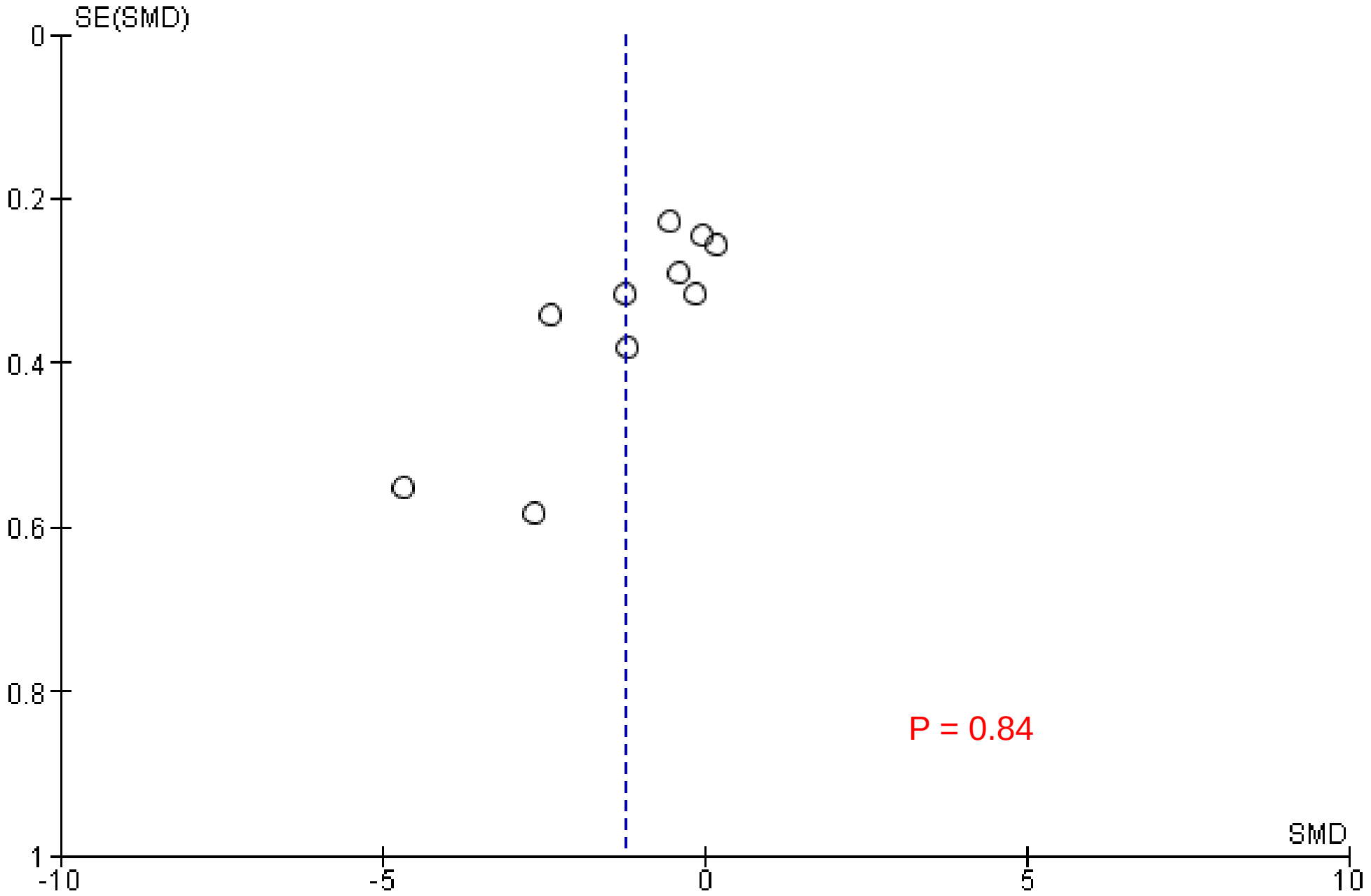
E

Study or Subgroup	TENS Mean	TENS SD	TENS Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI	Year
1.5.1 High frequency									
Gilbert 1986	3.26	0.7	20	3.37	0.69	20	12.9%	-0.16 [-0.78, 0.47]	1986
Smedley 1988	5.5	2.3	34	5.1	1.7	28	13.2%	0.19 [-0.31, 0.69]	1988
DeSantana 2008	0	0	20	3.4	2.2	20		Not estimable	2008
Ahmed 2010	4.93	0.7	30	6.61	0.69	30	12.7%	-2.39 [-3.06, -1.71]	2010
Dias 2010	2.26	0.7	16	3.1	0.69	17	12.5%	-1.18 [-1.93, -0.43]	2010
Gorganchian 2016	0.62	0.7	12	5.1	2.22	12	11.2%	-2.63 [-3.77, -1.49]	2016
Yılmaz 2018	1	0.5	26	4	0.74	26	11.4%	-4.68 [-5.76, -3.60]	2018
Szmit 2021	1.3	1	24	2.9	1.5	24	12.9%	-1.23 [-1.86, -0.61]	2021
Parseliunas 2021	0.75	0.84	40	1.2	0.84	40	13.3%	-0.53 [-0.98, -0.08]	2021
Subtotal (95% CI)			**222**			**217**	**100.0%**	**-1.50 [-2.39, -0.61]**	
Heterogeneity: Tau² = 1.50; Chi² = 102.30, df = 7 (P < 0.00001); I² = 93%									
Test for overall effect: Z = 3.32 (P = 0.0009)									
1.5.2 Low frequency									
Dalamagka 2015	0.63	0.9898	36	1.1	1.48	18	100.0%	-0.39 [-0.97, 0.18]	2015
Subtotal (95% CI)			**36**			**18**	**100.0%**	**-0.39 [-0.97, 0.18]**	
Heterogeneity: Not applicable									
Test for overall effect: Z = 1.36 (P = 0.18)									



Test for subgroup differences: Chi² = 4.23, df = 1 (P = 0.04), I² = 76.4%

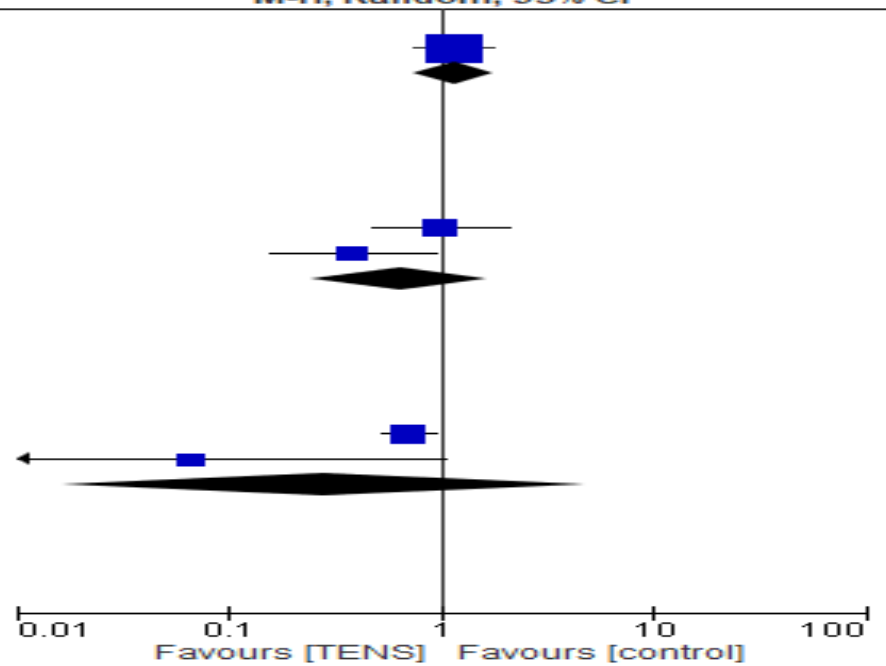
Supplementary figure 2



Supplementary figure 3

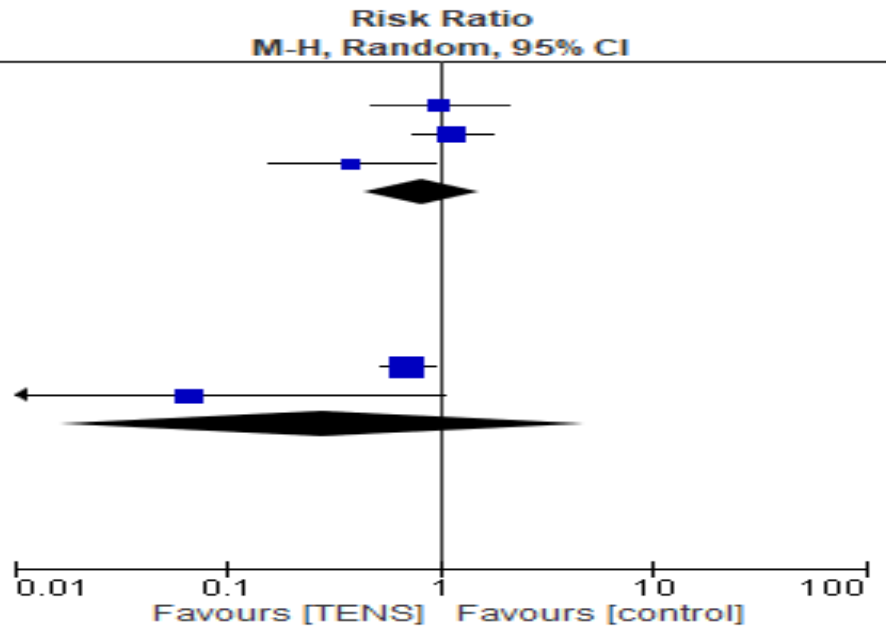
A

Study or Subgroup	TENS Events	TENS Total	Control Events	Control Total	Weight	Risk Ratio M-H, Random, 95% CI
2.1.1 General						
Smedley 1988	21	34	15	28	100.0%	1.15 [0.75, 1.78]
Subtotal (95% CI)		**34**		**28**	**100.0%**	**1.15 [0.75, 1.78]**
Total events	21		15			
Heterogeneity: Not applicable						
Test for overall effect: Z = 0.64 (P = 0.52)						
2.1.2 Spinal						
Gilbert 1986	8	20	8	20	53.5%	1.00 [0.47, 2.14]
Eidy 2016	5	33	13	33	46.5%	0.38 [0.15, 0.96]
Subtotal (95% CI)		**53**		**53**	**100.0%**	**0.64 [0.25, 1.66]**
Total events	13		21			
Heterogeneity: Tau² = 0.29; Chi² = 2.58, df = 1 (P = 0.11); I² = 61%						
Test for overall effect: Z = 0.92 (P = 0.36)						
2.1.3 Local						
Ahmed 2010	19	30	27	30	61.1%	0.70 [0.52, 0.95]
Gorganchian 2016	0	12	7	12	38.9%	0.07 [0.00, 1.05]
Subtotal (95% CI)		**42**		**42**	**100.0%**	**0.28 [0.02, 4.79]**
Total events	19		34			
Heterogeneity: Tau² = 3.40; Chi² = 4.40, df = 1 (P = 0.04); I² = 77%						
Test for overall effect: Z = 0.88 (P = 0.38)						
Test for subgroup differences: Chi² = 2.01, df = 2 (P = 0.37), I² = 0.7%						



B

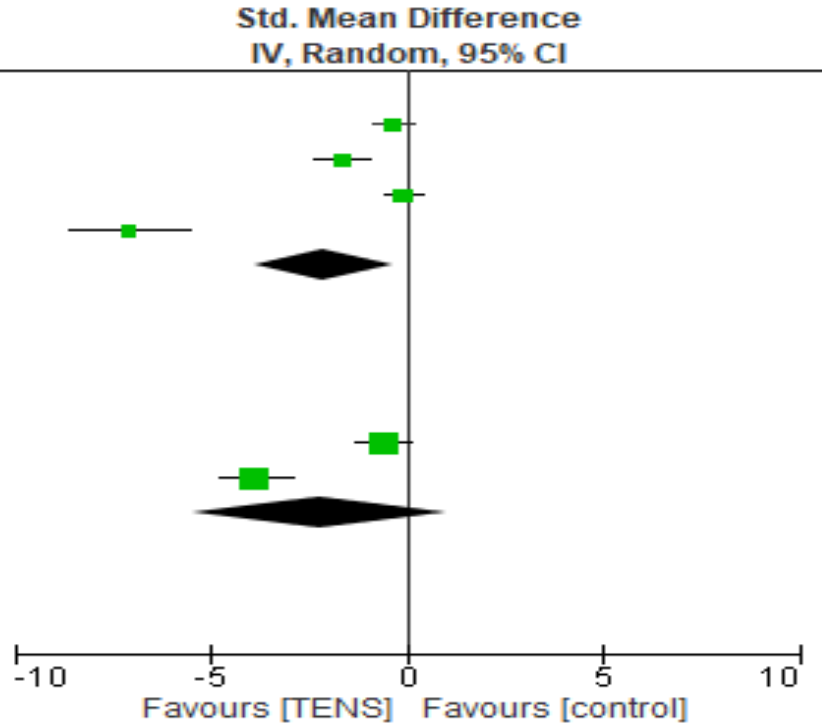
Study or Subgroup	TENS Events	TENS Total	Control Events	Control Total	Weight	Risk Ratio M-H, Random, 95% CI
2.2.1 Single						
Gilbert 1986	8	20	8	20	30.5%	1.00 [0.47, 2.14]
Smedley 1988	21	34	15	28	44.1%	1.15 [0.75, 1.78]
Eidy 2016	5	33	13	33	25.4%	0.38 [0.15, 0.96]
Subtotal (95% CI)		**87**		**81**	**100.0%**	**0.84 [0.45, 1.55]**
Total events	34		36			
Heterogeneity: Tau² = 0.18; Chi² = 4.94, df = 2 (P = 0.08); I² = 60%						
Test for overall effect: Z = 0.57 (P = 0.57)						
2.2.2 Repetitive						
Ahmed 2010	19	30	27	30	61.1%	0.70 [0.52, 0.95]
Gorganchian 2016	0	12	7	12	38.9%	0.07 [0.00, 1.05]
Subtotal (95% CI)		**42**		**42**	**100.0%**	**0.28 [0.02, 4.79]**
Total events	19		34			
Heterogeneity: Tau² = 3.40; Chi² = 4.40, df = 1 (P = 0.04); I² = 77%						
Test for overall effect: Z = 0.88 (P = 0.38)						
Test for subgroup differences: Chi² = 0.54, df = 1 (P = 0.46), I² = 0%						



Supplementary figure 4

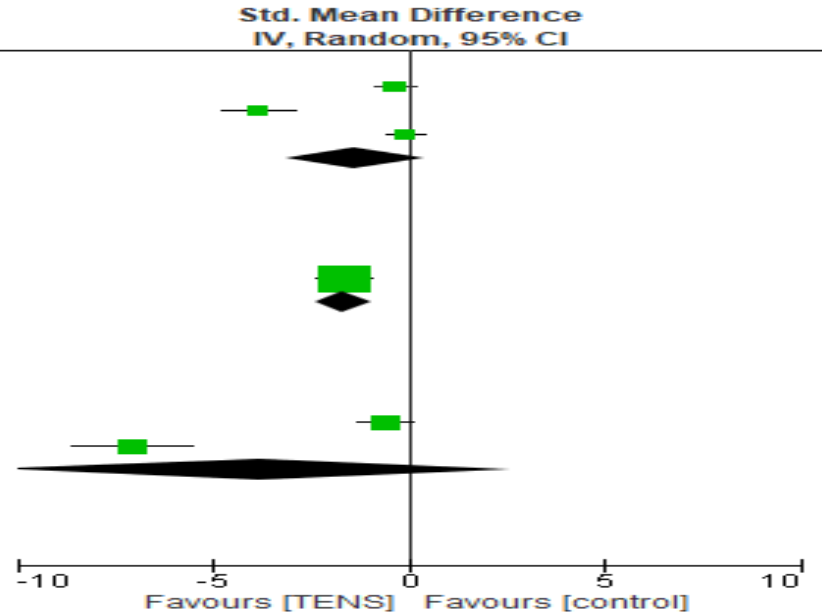
A

Study or Subgroup	TENS Mean	TENS SD	TENS Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
3.1.1 Conventional TENS								
Smedley 1988	6.8	1.3	34	7.3	1.6	28	26.1%	-0.34 [-0.85, 0.16]
DeSantana 2008	1.7	1.2	20	5.9	3.3	20	25.5%	-1.66 [-2.39, -0.93]
Eidy 2016	4.15	1.25	33	4.27	1.35	33	26.2%	-0.09 [-0.57, 0.39]
Yılmaz 2018	2	0.46	26	5	0.37	26	22.2%	-7.08 [-8.59, -5.56]
Subtotal (95% CI)			**113**			**107**	**100.0%**	**-2.11 [-3.85, -0.36]**
Heterogeneity: Tau² = 2.97; Chi² = 82.59, df = 3 (P < 0.00001); I² = 96%								
Test for overall effect: Z = 2.37 (P = 0.02)								
3.1.2 AL-TENS								
Dias 2010	1.4	1.4	16	2.6	2.4	17	50.5%	-0.59 [-1.29, 0.11]
Dalamagka 2015	2.35	0.5837	36	4.43	0.4	18	49.5%	-3.86 [-4.81, -2.92]
Subtotal (95% CI)			**52**			**35**	**100.0%**	**-2.21 [-5.42, 0.99]**
Heterogeneity: Tau² = 5.17; Chi² = 29.75, df = 1 (P < 0.00001); I² = 97%								
Test for overall effect: Z = 1.35 (P = 0.18)								
Test for subgroup differences: Chi² = 0.00, df = 1 (P = 0.96), I² = 0%								



B

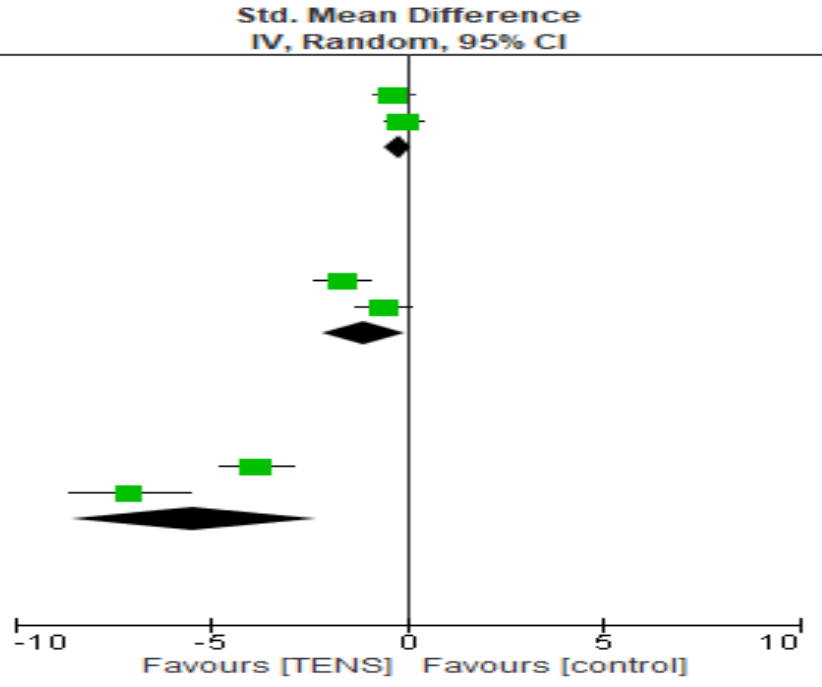
Study or Subgroup	TENS Mean	TENS SD	TENS Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
3.2.1 General								
Smedley 1988	6.8	1.3	34	7.3	1.6	28	34.1%	-0.34 [-0.85, 0.16]
Dalamagka 2015	2.35	0.5837	36	4.43	0.4	18	31.8%	-3.86 [-4.81, -2.92]
Eidy 2016	4.15	1.25	33	4.27	1.35	33	34.1%	-0.09 [-0.57, 0.39]
Subtotal (95% CI)			**103**			**79**	**100.0%**	**-1.38 [-3.13, 0.38]**
Heterogeneity: Tau² = 2.28; Chi² = 51.00, df = 2 (P < 0.00001); I² = 96%								
Test for overall effect: Z = 1.54 (P = 0.12)								
3.2.2 Spinal								
DeSantana 2008	1.7	1.2	20	5.9	3.3	20	100.0%	-1.66 [-2.39, -0.93]
Subtotal (95% CI)			**20**			**20**	**100.0%**	**-1.66 [-2.39, -0.93]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 4.46 (P < 0.00001)								
3.2.3 Local								
Dias 2010	1.4	1.4	16	2.6	2.4	17	50.6%	-0.59 [-1.29, 0.11]
Yılmaz 2018	2	0.46	26	5	0.37	26	49.4%	-7.08 [-8.59, -5.56]
Subtotal (95% CI)			**42**			**43**	**100.0%**	**-3.80 [-10.16, 2.56]**
Heterogeneity: Tau² = 20.68; Chi² = 58.00, df = 1 (P < 0.00001); I² = 98%								
Test for overall effect: Z = 1.17 (P = 0.24)								
Test for subgroup differences: Chi² = 0.53, df = 2 (P = 0.77), I² = 0%								



Supplementary figure 4

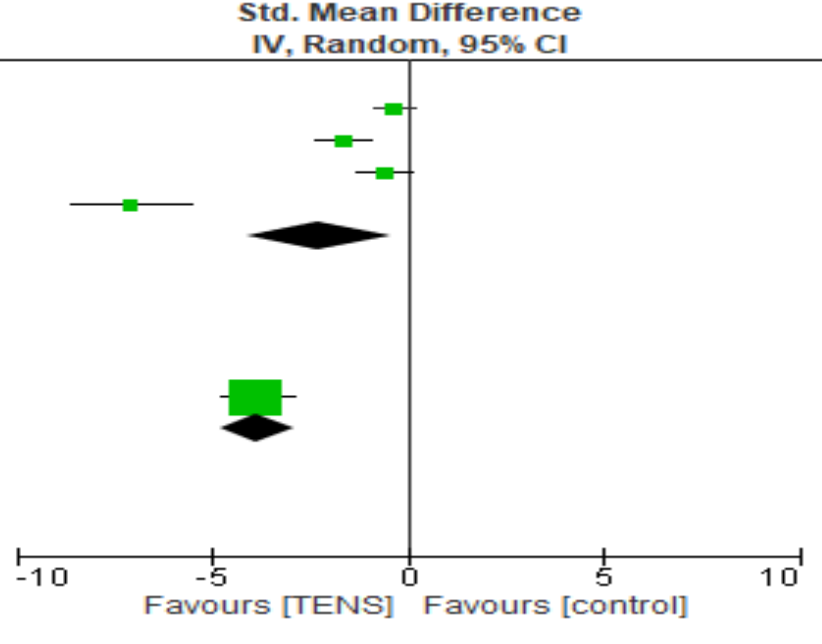
C

Study or Subgroup	TENS Mean	TENS SD	TENS Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
3.3.1 Single								
Smedley 1988	6.8	1.3	34	7.3	1.6	28	47.8%	-0.34 [-0.85, 0.16]
Eidy 2016	4.15	1.25	33	4.27	1.35	33	52.2%	-0.09 [-0.57, 0.39]
Subtotal (95% CI)			**67**			**61**	**100.0%**	**-0.21 [-0.56, 0.14]**
Heterogeneity: Tau² = 0.00; Chi² = 0.50, df = 1 (P = 0.48); I² = 0%								
Test for overall effect: Z = 1.19 (P = 0.23)								
3.3.2 Twice								
DeSantana 2008	1.7	1.2	20	5.9	3.3	20	49.5%	-1.66 [-2.39, -0.93]
Dias 2010	1.4	1.4	16	2.6	2.4	17	50.5%	-0.59 [-1.29, 0.11]
Subtotal (95% CI)			**36**			**37**	**100.0%**	**-1.12 [-2.16, -0.07]**
Heterogeneity: Tau² = 0.44; Chi² = 4.29, df = 1 (P = 0.04); I² = 77%								
Test for overall effect: Z = 2.10 (P = 0.04)								
3.3.3 Repetitive								
Dalamagka 2015	2.35	0.5837	36	4.43	0.4	18	51.8%	-3.86 [-4.81, -2.92]
Yilmaz 2018	2	0.46	26	5	0.37	26	48.2%	-7.08 [-8.59, -5.56]
Subtotal (95% CI)			**62**			**44**	**100.0%**	**-5.41 [-8.56, -2.26]**
Heterogeneity: Tau² = 4.76; Chi² = 12.45, df = 1 (P = 0.0004); I² = 92%								
Test for overall effect: Z = 3.37 (P = 0.0008)								
Test for subgroup differences: Chi² = 12.62, df = 2 (P = 0.002), I² = 84.1%								



D

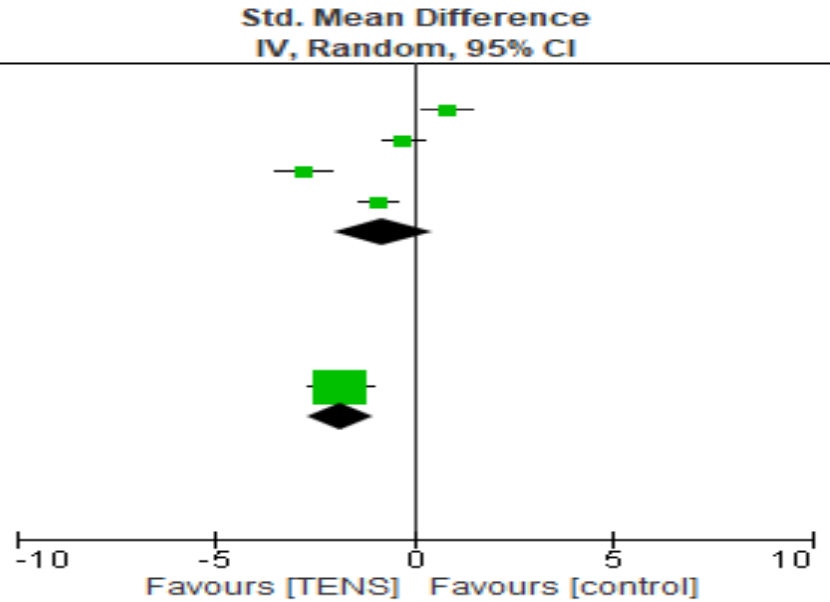
Study or Subgroup	TENS Mean	TENS SD	TENS Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
3.4.1 High frequency								
Smedley 1988	6.8	1.3	34	7.3	1.6	28	26.1%	-0.34 [-0.85, 0.16]
DeSantana 2008	1.7	1.2	20	5.9	3.3	20	25.6%	-1.66 [-2.39, -0.93]
Dias 2010	1.4	1.4	16	2.6	2.4	17	25.7%	-0.59 [-1.29, 0.11]
Yilmaz 2018	2	0.46	26	5	0.37	26	22.6%	-7.08 [-8.59, -5.56]
Subtotal (95% CI)			**96**			**91**	**100.0%**	**-2.26 [-4.11, -0.42]**
Heterogeneity: Tau² = 3.31; Chi² = 72.66, df = 3 (P < 0.00001); I² = 96%								
Test for overall effect: Z = 2.41 (P = 0.02)								
3.4.2 Low frequency								
Dalamagka 2015	2.35	0.5837	36	4.43	0.4	18	100.0%	-3.86 [-4.81, -2.92]
Subtotal (95% CI)			**36**			**18**	**100.0%**	**-3.86 [-4.81, -2.92]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 8.01 (P < 0.00001)								
Test for subgroup differences: Chi² = 2.29, df = 1 (P = 0.13), I² = 56.4%								



Supplementary figure 5

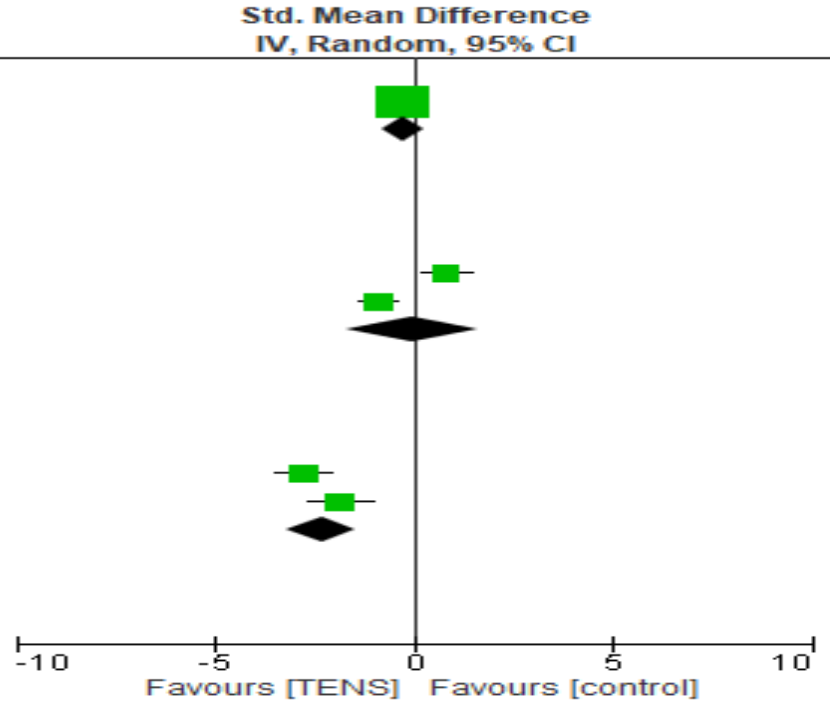
A

Study or Subgroup	TENS Mean	TENS SD	TENS Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
4.1.1 Conventional TENS								
Gilbert 1986	2.59	0.57	20	2.13	0.54	20	24.7%	0.81 [0.16, 1.46]
Smedley 1988	4.56	1.84	34	5.06	1.78	28	25.4%	-0.27 [-0.77, 0.23]
Ahmed 2010	4.05	0.57	30	5.6	0.54	30	24.3%	-2.76 [-3.47, -2.04]
Parseliunas 2021	0.48	0.4	40	0.94	0.6	40	25.6%	-0.89 [-1.35, -0.43]
Subtotal (95% CI)			**124**			**118**	**100.0%**	**-0.77 [-1.99, 0.46]**
Heterogeneity: Tau² = 1.47; Chi² = 55.80, df = 3 (P < 0.00001); I² = 95%								
Test for overall effect: Z = 1.23 (P = 0.22)								
4.1.2 AL-TENS								
Dias 2010	1.58	0.57	16	2.63	0.54	17	100.0%	-1.85 [-2.68, -1.02]
Subtotal (95% CI)			**16**			**17**	**100.0%**	**-1.85 [-2.68, -1.02]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 4.35 (P < 0.0001)								
Test for subgroup differences: Chi² = 2.04, df = 1 (P = 0.15), I² = 51.1%								



B

Study or Subgroup	TENS Mean	TENS SD	TENS Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI	Year
4.2.1 General									
Smedley 1988	4.56	1.84	34	5.06	1.78	28	100.0%	-0.27 [-0.77, 0.23]	1988
Subtotal (95% CI)			**34**			**28**	**100.0%**	**-0.27 [-0.77, 0.23]**	
Heterogeneity: Not applicable									
Test for overall effect: Z = 1.06 (P = 0.29)									
4.2.2 Spinal									
Gilbert 1986	2.59	0.57	20	2.13	0.54	20	49.1%	0.81 [0.16, 1.46]	1986
Parseliunas 2021	0.48	0.4	40	0.94	0.6	40	50.9%	-0.89 [-1.35, -0.43]	2021
Subtotal (95% CI)			**60**			**60**	**100.0%**	**-0.06 [-1.73, 1.61]**	
Heterogeneity: Tau² = 1.37; Chi² = 17.69, df = 1 (P < 0.0001); I² = 94%									
Test for overall effect: Z = 0.07 (P = 0.95)									
4.2.3 Local									
Ahmed 2010	4.05	0.57	30	5.6	0.54	30	52.8%	-2.76 [-3.47, -2.04]	2010
Dias 2010	1.58	0.57	16	2.63	0.54	17	47.2%	-1.85 [-2.68, -1.02]	2010
Subtotal (95% CI)			**46**			**47**	**100.0%**	**-2.33 [-3.22, -1.44]**	
Heterogeneity: Tau² = 0.26; Chi² = 2.63, df = 1 (P = 0.11); I² = 62%									
Test for overall effect: Z = 5.13 (P < 0.00001)									
Test for subgroup differences: Chi² = 16.19, df = 2 (P = 0.0003), I² = 87.6%									

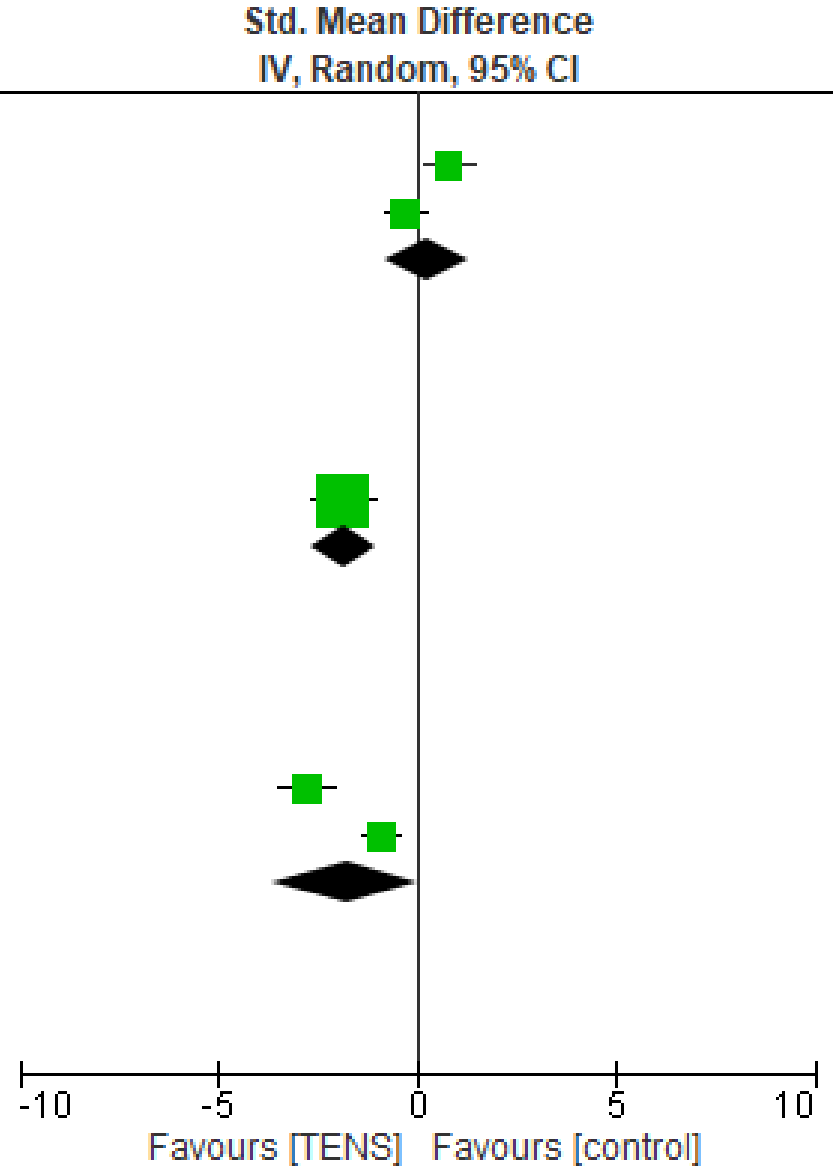


Supplementary figure 5

C

Study or Subgroup	TENS Mean	TENS SD	TENS Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI	Year
4.3.1 Single									
Gilbert 1986	2.59	0.57	20	2.13	0.54	20	48.2%	0.81 [0.16, 1.46]	1986
Smedley 1988	4.56	1.84	34	5.06	1.78	28	51.8%	-0.27 [-0.77, 0.23]	1988
Subtotal (95% CI)			**54**			**48**	**100.0%**	**0.25 [-0.81, 1.31]**	
Heterogeneity: Tau² = 0.50; Chi² = 6.72, df = 1 (P = 0.010); I² = 85%									
Test for overall effect: Z = 0.46 (P = 0.64)									
4.3.2 Twice									
Dias 2010	1.58	0.57	16	2.63	0.54	17	100.0%	-1.85 [-2.68, -1.02]	2010
Subtotal (95% CI)			**16**			**17**	**100.0%**	**-1.85 [-2.68, -1.02]**	
Heterogeneity: Not applicable									
Test for overall effect: Z = 4.35 (P < 0.0001)									
4.3.3 Repetitive									
Ahmed 2010	4.05	0.57	30	5.6	0.54	30	48.9%	-2.76 [-3.47, -2.04]	2010
Parseliunas 2021	0.48	0.4	40	0.94	0.6	40	51.1%	-0.89 [-1.35, -0.43]	2021
Subtotal (95% CI)			**70**			**70**	**100.0%**	**-1.80 [-3.63, 0.02]**	
Heterogeneity: Tau² = 1.64; Chi² = 18.28, df = 1 (P < 0.0001); I² = 95%									
Test for overall effect: Z = 1.94 (P = 0.05)									

Test for subgroup differences: Chi² = 9.86, df = 2 (P = 0.007), I² = 79.7%

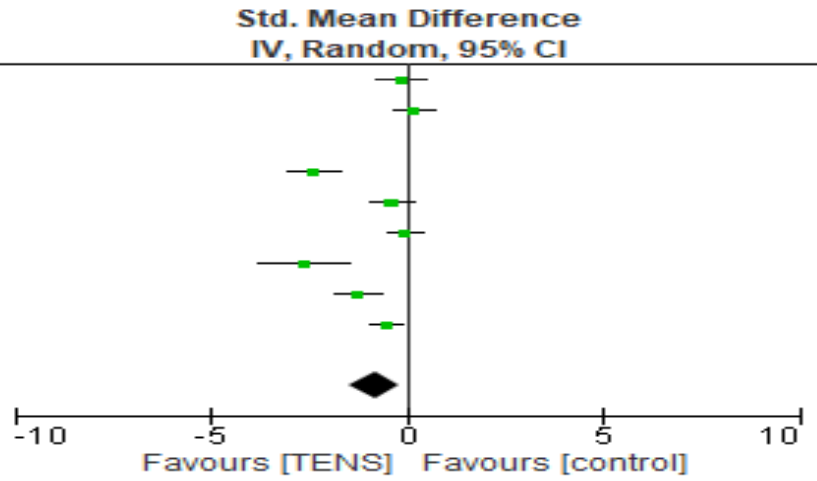


Supplementary figure 6

A

Study or Subgroup	TENS Mean	TENS SD	TENS Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
Gilbert 1986	3.26	0.7	20	3.37	0.69	20	12.6%	-0.16 [-0.78, 0.47]
Smedley 1988	5.5	2.3	34	5.1	1.7	28	13.2%	0.19 [-0.31, 0.69]
DeSantana 2008	0	0	20	3.4	2.2	20		Not estimable
Ahmed 2010	4.93	0.7	30	6.61	0.69	30	12.3%	-2.39 [-3.06, -1.71]
Dalamagka 2015	0.63	0.9898	36	1.1	1.48	18	12.9%	-0.39 [-0.97, 0.18]
Eidy 2016	3.51	1.5	33	3.57	1.5	33	13.3%	-0.04 [-0.52, 0.44]
Gorganchian 2016	0.62	0.7	12	5.1	2.22	12	9.6%	-2.63 [-3.77, -1.49]
Szmit 2021	1.3	1	24	2.9	1.5	24	12.6%	-1.23 [-1.86, -0.61]
Parseliunas 2021	0.75	0.84	40	1.2	0.84	40	13.5%	-0.53 [-0.98, -0.08]
Total (95% CI)			**249**			**225**	**100.0%**	**-0.82 [-1.43, -0.21]**

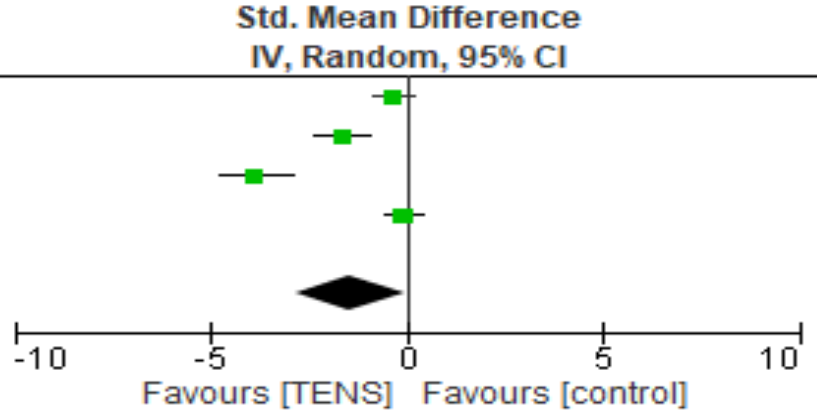
Heterogeneity: Tau² = 0.67; Chi² = 60.59, df = 7 (P < 0.00001); I² = 88%
Test for overall effect: Z = 2.65 (P = 0.008)



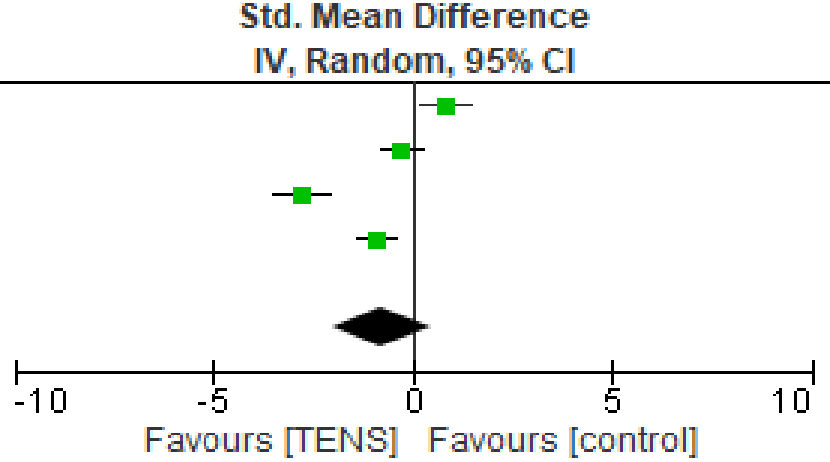
B

Study or Subgroup	TENS Mean	TENS SD	TENS Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
Smedley 1988	6.8	1.3	34	7.3	1.6	28	25.7%	-0.34 [-0.85, 0.16]
DeSantana 2008	1.7	1.2	20	5.9	3.3	20	24.8%	-1.66 [-2.39, -0.93]
Dalamagka 2015	2.35	0.5837	36	4.43	0.4	18	23.6%	-3.86 [-4.81, -2.92]
Eidy 2016	4.15	1.25	33	4.27	1.35	33	25.8%	-0.09 [-0.57, 0.39]
Total (95% CI)			**123**			**99**	**100.0%**	**-1.44 [-2.80, -0.07]**

Heterogeneity: Tau² = 1.81; Chi² = 57.13, df = 3 (P < 0.00001); I² = 95%
Test for overall effect: Z = 2.07 (P = 0.04)



C

Study or Subgroup	TENS Mean	TENS SD	TENS Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
Gilbert 1986	2.59	0.57	20	2.13	0.54	20	24.7%	0.81 [0.16, 1.46]
Smedley 1988	4.56	1.84	34	5.06	1.78	28	25.4%	-0.27 [-0.77, 0.23]
Ahmed 2010	4.05	0.57	30	5.6	0.54	30	24.3%	-2.76 [-3.47, -2.04]
Parseliunas 2021	0.48	0.4	40	0.94	0.6	40	25.6%	-0.89 [-1.35, -0.43]
Total (95% CI)			**124**			**118**	**100.0%**	**-0.77 [-1.99, 0.46]**

Heterogeneity: Tau² = 1.47; Chi² = 55.80, df = 3 (P < 0.00001); I² = 95%
Test for overall effect: Z = 1.23 (P = 0.22)