B.6 Therapeutic ultrasound

Overview of the PICO structure

Definition of the intervention	
Therapeutic ultrasound is an electrophysical treatment modality postulated to deliver energy to deep tissue sites through ultrasonic waves, to increase tissue temperature and/or create non-thermal physiological changes. Physiological changes are purported to improve symptoms (pain, inflammation) and promote or accelerate tissue healing. Unlike diagnostic ultrasound for medical imaging (which transmits ultrasonic waves and transforms the returning echo into an image), therapeutic ultrasound is a one-way energy delivery system which uses a crystal sound head to transmit acoustic waves at 1 or 3 MHz and at amplitude densities of between 0.1 W/cm^2 and 3 W/cm^2, in continuous or pulsed mode.	
PICO question	
Population and subgroups	Community-dwelling adults (aged 20 years and over) experiencing chronic primary low back pain, with or without leg pain, including older people (aged 60 years and older). Subgroups: • Age (all adults and those aged 60 years and over) • Gender and/or sex • Presence of leg pain (radicular, non-radicular, mixed) • Race/ethnicity - studies of populations who were historically marginalized compared with studies of those who were not • Regional economic development - studies carried out in high-income countries compared with studies in low- to middle-income countries
Comparators	a) Placebo/sham b) No or minimal intervention, or where the effect of the intervention can be isolated c) Usual care (described as usual care in the trial)

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Outcomes	Critical outcomes constructs (all adults) Critical outcomes constructs (older adults, aged ≥ 60 years) • Pain • Back-specific function/disability • General function/disability • Health-related quality of life • Psychosocial function • Social participation • Adverse events (as reported in trials) Pain • Back-specific function/disability • General function/disability • Health-related quality of life • Psychosocial function • Social participation • Adverse events (as reported in trials) • Change in the use of medications • Falls

Other Evidence-to-Decision (EtD) considerations

Summary of *values and preferences*	
All adults	**Older people**
No evidence synthesis commissioned for all adults. Judgements made based on experience of GDG members	No evidence identified

Summary of *resource considerations*	
All adults	**Older people**

No evidence synthesis commissioned for all adults. Judgements made based on experience of GDG members	No evidence identified

Summary of *equity and human rights considerations*	
All adults	**Older people**
No evidence synthesis commissioned for all adults. Judgements made based on experience of GDG members	No evidence identified

Summary of *acceptability considerations*	
All adults	**Older people**
No evidence synthesis commissioned for all adults. Judgements made based on experience of GDG members	No evidence identified

Summary of *feasibility considerations*	
All adults	**Older people**
No evidence synthesis commissioned for all adults. Judgements made based on experience of GDG members	No evidence identified

Summary of judgements

Domain	**All adults**	**Older people**
Benefits	Small; trivial; uncertain	Small; trivial; uncertain
Harms	Trivial; uncertain	Trivial; uncertain

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Balance benefits to harms	Does not favour ultrasound; probably does not favour ultrasound; uncertain	Does not favour ultrasound; probably does not favour ultrasound; uncertain
Overall certainty	Low; very low	Low; very low
Values and preferences	Possibly important uncertainty or variability; probably no important uncertainty or variability	Possibly important uncertainty or variability; probably no important uncertainty or variability
Resource considerations	Moderate; moderate costs; negligible; negligible costs and savings	Moderate; moderate costs; negligible; negligible costs and savings
Equity and human rights	No impact; probably reduced; uncertain	No impact; probably reduced; uncertain
Acceptability	Yes; probably yes; probably no; varies	Yes; probably yes; probably no; varies
Feasibility	Yes; probably yes; varies	Yes; probably yes; varies

GRADE Table 1. ***What are the benefits and harms of therapeutic ultrasound in the management of community-dwelling adults (including older adults aged 60 years and over) with chronic primary low back pain (with or without leg pain) compared with sham ultrasound?***

Certainty assessment							№ of patients		Effect		Certainty	Comments
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Therapeutic ultrasound	Sham ultrasound	Relative (95% CI)	Absolute (95% CI)		
Pain - short term (assessed with: VAS at rest; Scale from: 0 to 100)[a]												
4[b,c]	randomized trials	serious[d]	very serious[e]	not serious	serious[f]	none	69	70	-	MD 10.24 lower (24.3 lower to 3.81 higher)	⨁◯◯◯ Very low	Analysis 1.1
Population subgroups 1 and 2 - not reported (no subgroup analysis performed)												
Population subgroup 3: presence of radicular leg pain												
Radicular leg pain excluded 2[g]	randomized trials	serious[h]	very serious[i]	not serious	very serious[j]	none	42	39	-	MD 8.71 lower (30.46 lower to 13.04 higher)	⨁◯◯◯ Very low	
Not specified whether participants had radicular leg pain 2[k]	randomized trials	serious[l]	very serious[m]	not serious	very serious[j,n]	none	27	31	-	MD 11.67 lower (35.87 lower to 12.53 higher)	⨁◯◯◯ Very low	
Population subgroup 4: regional economic development												
High income 1[o]	randomized trials	serious[d]	not serious[p]	serious[q]	serious[r]	none	12	16	-	MD 0.9 higher (8.2 lower to 10 higher)	⨁◯◯◯ Very low	

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Certainty assessment							№ of patients		Effect		Certainty	Comments
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Therapeutic ultrasound	Sham ultrasound	Relative (95% CI)	Absolute (95% CI)		
Low/middle income 3[s]	randomized trials	serious[l]	very serious[t]	not serious	very serious[j]	none	57	54	-	MD 13.86 lower (30.55 lower to 2.82 higher)	⨁◯◯◯ Very low	
Pain - short term (assessed with >=30% reduction)												
1	randomized trials	Serious[ac]	Not serious[p]	not serious	Serious[r]	none	128/233 (54.9%)	120/222 (54.1%)	RR 1.02 (0.86 to 1.20)	11 more per 1000 (from 76 fewer to 108 more)	⨁⨁◯◯ Low	
Pain - short term (assessed with >=50% reduction)												
1	randomized trials	Serious[ac]	Not serious[p]	not serious	Serious[r]	none	103/233 (44.2%)	90/222 (40.5%)	RR 1.09 (0.88 to 1.35)	36 more per 1000 (from 49 fewer to 142 more)	⨁⨁◯◯ Low	
Pain - intermediate term or long term – no studies were identified that reported on this outcome												
-	-	-	-	-	-	-	-	-	-	-	-	
Back-specific functional status - short term (assessed with: FRI, m-OSW, RMDQ)[g]												
4[v,w]	randomized trials	serious[x]	not serious[y]	not serious	serious[r]	none	280	266	-	SMD 0.23 SD lower (0.59 lower to 0.13 higher)	⨁⨁◯◯ Low	Analysis 1.7
Population subgroups 1 and 2 - not reported (no subgroup analysis performed)												
Population subgroup 3: presence of radicular leg pain												

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Certainty assessment							№ of patients		Effect		Certainty	Comments
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Therapeutic ultrasound	Sham ultrasound	Relative (95% CI)	Absolute (95% CI)		
Radicular leg pain excluded [3z]	randomized trials	serious[aa]	not serious	not serious	serious[r]	none	47	44	-	SMD 0.46 SD lower (0.88 lower to 0.04 lower)	⨁⨁◯◯ Low	
Not specified whether participants had radicular leg pain [1ab]	randomized trials	serious[ac]	not serious[p]	not serious	serious[r]	none	233	222	-	SMD 0 SD (0.18 lower to 0.18 higher)	⨁⨁◯◯ Low	
Population subgroup 4: regional economic development												
High income [1ab]	randomized trials	serious[ac]	not serious[p]	serious[q]	serious[r]	none	233	222	-	SMD 0 SD (0.18 lower to 0.18 higher)	⨁◯◯◯ Very low	
Low/middle income [3z]	randomized trials	serious[aa]	not serious	not serious	serious[r]	none	47	44	-	SMD 0.46 SD lower (0.88 lower to 0.04 lower)	⨁⨁◯◯ Low	
Back-specific functional status - intermediate term or long term - no studies were identified that reported on this outcome												
-	-	-	-	-	-	-	-	-	-	-	-	
General functional status - short term, intermediate term or long term - no studies were identified that reported on this outcome												
-	-	-	-	-	-	-	-	-	-	-	-	
Health related quality of life - short term (assessed with: SF36 (general health); Scale from: 0 to 100)[l]												
2[ae]	randomized trials	serious[h]	not serious	not serious	serious[r]	none	254	243	-	MD 0.76 lower (5.1 lower to 3.59 higher)	⨁⨁◯◯ Low	Analysis 1.11

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Certainty assessment							№ of patients		Effect		Certainty	Comments
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Therapeutic ultrasound	Sham ultrasound	Relative (95% CI)	Absolute (95% CI)		
Population subgroups 1 and 2 - not reported (no subgroup analysis performed)												
Population subgroup 3: presence of radicular leg pain												
Radicular leg pain excluded [1af]	randomized trials	serious[d]	not serious[p]	not serious	very serious[ag]	none	21	21	-	MD 3.09 higher (8.91 lower to 15.09 higher)	⨁◯◯◯ Very low	
Not specified whether participants had radicular leg pain [1ab]	randomized trials	serious[ac]	not serious[p]	not serious	serious[r]	none	233	222	-	MD 1.34 lower (6 lower to 3.32 higher)	⨁⨁◯◯ Low	
Population subgroup 4: regional economic development												
High income [1ab]	randomized trials	serious[ac]	not serious[p]	serious[q]	serious[r]	none	233	222	-	MD 1.34 higher (6 lower to 3.32 higher)	⨁◯◯◯ Very low	
Low/middle income [1af]	randomized trials	serious[d]	not serious[p]	serious[ah]	very serious[ag]	none	21	21	-	MD 3.09 higher (8.91 lower to 15.09 higher)	⨁◯◯◯ Very low	
Health-related quality of life - intermediate term or long term - no studies were identified that reported on this outcome												
-	-	-	-	-	-	-	-	-	-	-	-	
Adverse events[n]												
[1ab]	randomized trials	serious[ac]	not serious[p]	not serious	very serious[n]	none	14/233 (6.0%)	13/222 (5.9%)	**RR 1.03** (0.49 to 2.13)	**2 more per 1.000** (from 30 fewer to 66 more)	⨁◯◯◯ Very low	Analysis 1.14

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Certainty assessment							№ of patients		Effect		Certainty	Comments
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Therapeutic ultrasound	Sham ultrasound	Relative (95% CI)	Absolute (95% CI)		
Population subgroups 1, 2, 3 and 4 - not reported (no subgroup analysis performed; only one included study for this outcome)												
Serious adverse events[n]												
1[ab]	randomized trials	serious[ac]	not serious[p]	not serious	very serious[n]	none	3/233 (1.3%)	6/222 (2.7%)	**RR 0.48** (0.12 to 1.88)	**14 fewer per 1.000** (from 24 fewer to 24 more)	⨁◯◯◯ Very low	Analysis 1.15
Population subgroups 1, 2, 3 and 4 - not reported (no subgroup analysis performed; only one included study for this outcome)												
Psychological functioning (depression)- short term (assessed with: BDI; Scale from: 0 to 63)[p]												
1[af]	randomized trials	serious[d]	not serious[p]	not serious	serious[r]	none	21	21	-	MD 1.25 lower (5.71 lower to 3.21 higher)	⨁⨁◯◯ Low	Analysis 1.16
Population subgroups 1, 2, 3 and 4 - not reported (no subgroup analysis performed; only one included study for this outcome)												
Psychological functioning (depression)- long term - no studies were identified that reported on this outcome												
-	-	-	-	-	-	-	-	-	-	-	-	
Social participation -short term (assessed as lost one or more work days in past 4 weeks because of LBP)[r]												
1[ab]	randomized trials	serious[al]	not serious[p]	not serious	very serious[j]	none	14/112 (12.5%)	6/99 (6.1%)	**RR 2.06** (0.82 to 5.16)	**64 more per 1.000** (from 11 fewer to 252 more)	⨁◯◯◯ Very low	Analysis 1.17
Population subgroups 1, 2, 3 and 4 - not reported (no subgroup analysis performed; only one included study for this outcome)												
Social participation - intermediate term or long term - no studies were identified that reported on this outcome												
-	-	-	-	-	-	-	-	-	-	-	-	

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CI: confidence interval; MD: mean difference; RR: risk ratio; SMD: standardized mean difference; VAS: visual analogue scale; FRI: Functional Rating Index; m-OSW: modified Oswestry scale; RMDQ: Roland Morris Disability Questionnaire; SD: standard deviation: SF36: Short Form 36; BDI: Beck Depression Inventory; LBP: Low back pain

Explanations

a. FU time between 2- 8 weeks
b. Durmus 2010a; Ebadi 2012; Grubisic 2006; Khan 2013
c. One study measured the outcome on an additional scale (Khan 2013): PRI at 4 weeks: n=30; mean difference -5.42, 95% CI (-7.40 to -3.44).
d. Risk of bias downgraded by 1 level due to unclear or high risk of bias regarding random sequence generation, allocation concealment, blinding of care providers, incomplete outcome data, selective reporting, co-interventions, and compliance with the intervention.
e. Inconsistency downgraded by 2 levels: considerable heterogeneity I^2>90%. Two studies showing little to no difference and two studies showing effects in favour of therapeutic ultrasound, not explained by pre-defined subgroups.
f. Imprecision downgraded by 1 level: due to wide confidence interval consistent with the possibility for benefit and the possibility for no effect and low number of participants.
g. Durmus 2010a; Ebadi 2012
h. Risk of bias downgraded by 1 level due to unclear or high risk regarding randomisation sequence generation, allocation concealment, blinding of care providers, incomplete outcome data, selective reporting, co-interventions, and compliance.
i. Inconsistency downgraded by 2 levels: unexplained considerable heterogeneity I^2 = 91%
j. Imprecision downgraded by 2 levels: due to wide confidence interval consistent with the possibility for benefit and the possibility for no effect and low number of participants.
k. Grubisic 2006; Khan 2013
l. Risk of bias downgraded by 1 level due to unclear or high risk of bias regarding random sequence generation, allocation concealment, blinding of care providers, incomplete outcome data, selective reporting, similar groups, co-interventions, and compliance.
m. Inconsistency downgraded by 2 levels: unexplained considerable heterogeneity I^2 = 95%
n. Imprecision downgraded by 2 levels: due to wide confidence interval consistent with the possibility for benefit and the possibility for harm and low number of participants.
o. Grubisic 2006
p. Inconsistency not assessed because only one study included in this analysis.
q. Indirectness downgraded by 1 level: only one study included in this subgroup, unclear if it is representative of all high-income countries.
r. Imprecision downgraded by 1 level: low number of participants.
s. Durmus 2010a; Ebadi 2012; Khan 2013
t. Inconsistency downgraded by 2 levels: unexplained considerable heterogeneity I^2 = 93%
u. FU time between 3 - 12 weeks
v. Ansari 2006; Durmus 2010a; Ebadi 2012; Licciardone 2013
w. One study measured this outcome on an additional scale (Durmus 2010a): PDI at 3 weeks: n=42; mean difference 8.25, 95% CI (-0.67 to 17.17)
x. Risk of bias downgraded by 1 level due to unclear or high risk of bias regarding random sequence generation, allocation concealment, blinding of care providers, incomplete outcome data, selective reporting, co-interventions and compliance with the intervention.
y. Despite moderate heterogeneity (I^2 = 43%), not downgraded for inconsistency because this may be explained by subgroup analyses.
z. Ansari 2006; Durmus 2010a; Ebadi 2012
aa. Risk of bias downgraded by 1 level due to unclear or high risk regarding randomisation sequence generation, allocation concealment, blinding of care providers, dropouts, intention-to-treat, selective reporting, similar groups at baseline, co-interventions, and compliance.
ab. Licciardone 2013
ac. Risk of bias downgraded by 1 level due to high risk of bias regarding blinding of care providers.
ad. FU time 3 weeks and 12 weeks
ae. Durmus 2010a; Licciardone 2013
af. Durmus 2010a

ag. Imprecision downgraded by 2 levels: due to wide confidence interval consistent with the possibility for no effect and the possibility for harm and low number of participants.
ah. Indirectness downgraded by 1 level: only one study included in this subgroup, unclear if it is representative of all low/middle-income countries.
ai. FU time not specified
aj. FU time 3 weeks
ak. FU time 12 weeks
al. Risk of bias downgraded by 1 level due to high risk of bias regarding blinding of care providers and incomplete outcome data (no ITT analysis; outcome was assessed only in a subgroup of participants employed at baseline).

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GRADE Table 2. ***What are the benefits and harms of therapeutic ultrasound in the management of community-dwelling adults (including older adults aged 60 years and over) with chronic primary low back pain (with or without leg pain) compared with no intervention?***

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Therapeutic ultrasound	no intervention	Relative (95% CI)	Absolute (95% CI)		
Pain - short term (assessed with: VAS at rest, NPRS; Scale from: 0 to 100)[a]												
5[b,c]	randomized trials	very serious[d]	serious[e]	not serious	very serious[f]	none	125	99	-	MD 18.56 lower (27.98 lower to 9.13 lower)	⨁◯◯◯ Very low	Analysis 2.1
Population subgroup 1: gender and/or sex												
Females 2[g]	randomized trials	very serious[h]	serious[i]	not serious	very serious[f]	none	70	44	-	MD 27.26 lower (48.42 lower to 6.1 lower)	⨁◯◯◯ Very low	
Mixed 3[j]	randomized trials	very serious[d]	not serious	not serious	very serious[f]	none	55	55	-	MD 12.2 lower (18.98 lower to 5.41 lower)	⨁◯◯◯ Very low	
Population subgroup 2: race/ethnicity (no subgroup analysis performed; no studies included marginalized populations)												
Population subgroup 3: presence of radicular leg pain												
Radicular leg pain excluded 2[k]	randomized trials	very serious[d]	not serious	not serious	very serious[f]	none	35	35	-	MD 17.21 lower (24.7 lower to 9.7 lower)	⨁◯◯◯ Very low	

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Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Therapeutic ultrasound	no intervention	Relative (95% CI)	Absolute (95% CI)		
Not specified whether participants had radicular leg pain 3[l]	randomized trials	very serious[d]	serious[m]	not serious	very serious[f]	none	90	64	-	MD 19.7 lower (37.11 lower to 2.3 lower)	⨁◯◯◯ Very low	
Population subgroup 4: regional economic development												
High income 1[n]	randomized trials	very serious[o]	not serious[p]	serious[q]	very serious[f]	none	15	15	-	MD 17.8 lower (32.55 lower to 3.05 lower)	⨁◯◯◯ Very low	
Low/middle income 4[r]	randomized trials	very serious[d]	serious[s]	not serious	very serious[f]	none	110	84	-	MD 18.81 lower (30.28 lower to 7.34 lower)	⨁◯◯◯ Very low	
Pain - intermediate term (assessed with: NPRS; Scale from: 0 to 100)[g]												
1[u]	randomized trials	very serious[v]	not serious[p]	not serious	serious[w]	none	17	17	-	MD 23.5 lower (30.68 lower to 16.32 lower)	⨁◯◯◯ Very low	Analysis 2.6
Population subgroups 1, 2, 3 and 4 - not reported (no subgroup analysis performed; only one included study for this outcome)												
Pain - long term - not reported												
-	-	-	-	-	-	-	-	-	-	-	-	
Population subgroups 1, 2, 3 and 4 - not reported												

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Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Therapeutic ultrasound	no intervention	Relative (95% CI)	Absolute (95% CI)		
Back-specific functional status - short term (assessed with: m-OSW, ODI, RMDQ)[a]												
6[x,y]	randomized trials	very serious[d]	not serious	not serious	serious[w]	none	144	119	-	SMD 0.48 SD lower (0.81 lower to 0.15 lower)	⨁◯◯◯ Very low	Analysis 2.7
Population subgroup 1: gender and/or sex												
Female 3[z]	randomized trials	very serious[d]	serious[aa]	not serious	serious[w]	none	89	64	-	SMD 0.39 SD lower (1.08 lower to 0.29 higher)	⨁◯◯◯ Very low	
Mixed 3[j]	randomized trials	very serious[d]	not serious	not serious	serious[w]	none	55	55	-	SMD 0.54 SD lower (0.92 lower to 0.16 lower)	⨁◯◯◯ Very low	
Population subgroup 2: race/ethnicity (no subgroup analysis performed; no studies included marginalized populations)												
Population subgroup 3: presence of radicular leg pain												
Radicular leg pain excluded 3[ab]	randomized trials	very serious[d]	not serious	not serious	serious[w]	none	54	55	-	SMD 0.18 SD lower (0.55 lower to 0.2 higher)	⨁◯◯◯ Very low	

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Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Therapeutic ultrasound	no intervention	Relative (95% CI)	Absolute (95% CI)		
Not specified whether participants had radicular leg pain 3[l]	randomized trials	very serious[d]	not serious	not serious	serious[w]	none	90	64	-	SMD 0.75 SD lower (1.09 lower to 0.41 lower)	⨁◯◯◯ Very low	
Population subgroup 4: regional economic development												
High income 1[n]	randomized trials	very serious[d]	not serious[p]	serious[q]	serious[w]	none	15	15	-	SMD 0.53 SD lower (1.26 lower to 0.2 higher)	⨁◯◯◯ Very low	
Low/middle income 5[ac]	randomized trials	very serious[d]	serious[ad]	not serious	serious[w]	none	129	104	-	SMD 0.46 SD lower (0.86 lower to 0.07 lower)	⨁◯◯◯ Very low	
Back-specific functional status - intermediate term (assessed with: ODI; Scale from: 0 to 100)[g]												
1[u]	randomized trials	very serious[v]	not serious[p]	not serious	very serious[f]	none	17	17	-	MD 9.12 lower (17.62 lower to 0.62 lower)	⨁◯◯◯ Very low	Analysis 2.12
Population subgroups 1, 2, 3 and 4 - not reported (no subgroup analysis performed; only one included study for this outcome)												
Back-specific functional status - long term - not reported												
-	-	-	-	-	-	-	-	-	-	-	-	
General functional status - short term, intermediate term or long term - not reported												

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Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Therapeutic ultrasound	no intervention	Relative (95% CI)	Absolute (95% CI)		
-	-	-	-	-	-	-	-	-	-	-	-	
Health related quality of life - short term (assessed with: SF36 (general health); Scale from: 0 to 100)[l]												
3[af]	randomized trials	very serious[d]	not serious	not serious	serious[w]	none	62	62	-	MD 0.46 lower (6.53 lower to 5.62 higher)	⨁◯◯◯ Very low	Analysis 2.13
Population subgroup 1: gender and/or sex												
Female 2[ag]	randomized trials	very serious[d]	not serious	not serious	serious[w]	none	39	39	-	MD 2.55 lower (9.61 lower to 4.52 higher)	⨁◯◯◯ Very low	
Mixed 1[ah]	randomized trials	very serious[d]	not serious[p]	not serious	very serious[ai]	none	23	23	-	MD 4.6 higher (6.47 lower to 15.67 higher)	⨁◯◯◯ Very low	
Population subgroup 2: race/ethnicity (no subgroup analysis performed; no studies included marginalized populations)												
Population subgroup 3: presence of radicular leg pain												
Radicular leg pain excluded 2[ag]	randomized trials	very serious[d]	not serious	not serious	serious[w]	none	39	39	-	MD 2.55 lower (9.61 lower to 4.52 higher)	⨁◯◯◯ Very low	

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Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Therapeutic ultrasound	no intervention	Relative (95% CI)	Absolute (95% CI)		
Not specified whether participants had radicular leg pain [1ah]	randomized trials	very serious[d]	not serious[p]	not serious	very serious[ai]	none	23	23	-	MD 4.6 higher (6.47 lower to 15.67 higher)	⨁◯◯◯ Very low	
Population subgroup 4: regional economic development (no subgroup analysis performed; all studies were carried out in low- or middle-income settings)												
Health-related quality of life - intermediate term or long term - not reported												
-	-	-	-	-	-	-	-	-	-	-	-	
Adverse events												
1[aj]	randomized trials	very serious[v]	not serious[p]	not serious	very serious[ak]	none	0/20 (0.0%)	0/20 (0.0%)	not estimable		⨁◯◯◯ Very low	Analysis 2.16
Population subgroups 1, 2, 3 and 4 - not reported (no subgroup analysis performed; only one included study for this outcome)												
Serious adverse events - not reported												
-	-	-	-	-	-	-	-	-	-	-	-	
Psychological functioning (depression) - short term (assessed with: BDI; Scale from: 0 to 63)[r]												
2[ag]	randomized trials	very serious[d]	not serious	not serious	serious[w]	none	39	40	-	MD 0.83 lower (2.44 lower to 0.78 higher)	⨁◯◯◯ Very low	Analysis 2.17
Population subgroups 1, 2, 3 and 4 - not reported (no subgroup analysis performed)												
Psychological functioning (depression) - intermediate term or long term - not reported												
-	-	-	-	-	-	-	-	-	-	-	-	
Social participation - short term, intermediate term or long term - not reported												

Web Annex D.B6: ETD summary for WHO Guideline on non-surgical management of chronic primary low back pain in adults

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Therapeutic ultrasound	no intervention	Relative (95% CI)	Absolute (95% CI)		
-	-	-	-	-	-	-					-	

CI: confidence interval; MD: mean difference; RR: risk ratio; SMD: standardized mean difference; VAS: visual analogue scale; FRI: Functional Rating Index; m-OSW: modified Oswestry scale; RMDQ: Roland Morris Disability Questionnaire; SD: standard deviation: SF36: Short Form 36; BDI: Beck Depression Inventory; LBP: Low back pain

Explanations

a. FU time 3 - 12 weeks
b. Durmus 2013, Rubira 2019, Tantawy 2019, Tanveer 2022, Yurdakul 2019
c. One study measured the outcome on an additional scale (Rubira 2019): McGill at 4 weeks: n=74; MD -18.11, 95%CI (-27.25 to -8.97)
d. Risk of bias downgraded by 2 levels: due to unclear or high risk of bias across all studies regarding random sequence generation, allocation concealment, blinding of participants, blinding of care providers, blinding of outcome assessment, incomplete outcome data, selective reporting, similarity of groups at baseline, co-interventions, and compliance with the intervention.
e. Inconsistency downgraded by 1 level: unexplained substantial heterogeneity I^2=71%
f. Imprecision downgraded by 2 levels: due to wide confidence interval consistent with the possibility for benefit and the possibility for no effect and low number of participants.
g. Durmus 2013, Rubira 2019
h. Risk of bias downgraded by 2 levels: due to unclear or high risk of bias across all studies regarding random sequence generation, allocation concealment, blinding of participants, blinding of care providers, blinding of outcome assessment, incomplete outcome data, selective reporting, and compliance with the intervention.
i. Inconsistency downgraded by 1 level: unexplained considerable heterogeneity I^2 = 87%
j. Tantawy 2019, Tanveer 2022, Yurdakul 2019
k. Durmus 2013, Tantawy 2019
l. Rubira 2019, Tanveer 2022, Yurdakul 2019
m. Inconsistency downgraded by 1 level: unexplained considerable heterogeneity I^2 = 86%
n. Tantawy 2019
o. Risk of bias downgraded by 2 levels: due to unclear or high risk of bias regarding random sequence generation, blinding of participants, blinding of care providers, blinding of outcome assessment, incomplete outcome data, selective reporting, and compliance with the intervention.
p. Inconsistency not assessed because only one study included in this analysis.
q. Indirectness downgraded by 1 level: only one study included in this subgroup, unclear if it is representative of all high-income countries.
r. Durmus 2013, Rubira 2019, Tanveer 2022, Yurdakul 2019
s. Inconsistency downgraded by 1 level: unexplained substantial heterogeneity I^2=78%
t. FU time 20 weeks
u. Tanveer 2022
v. Risk of bias downgraded by 2 levels: due to unclear or high risk of bias regarding random sequence generation, allocation concealment, blinding of participants, blinding of care providers, blinding of outcome assessment, selective reporting, co-interventions, and compliance with the intervention.
w. Imprecision downgraded by 1 level: low number of participants.
x. Durmus 2010b, Durmus 2013, Rubira 2019, Tantawy 2019, Tanveer 2022, Yurdakul 2019
y. Three studies measured the outcome on an additional scale: PDI at 6-8 weeks: Durmus 2010b (n=39): MD -0.29, 95% CI (-3.07 to 2.49); Durmus 2013 (n=40): MD -0.10, 95% CI (-2.9 to 2.7); Tantawy 2019 n=30: MD -6.4, 95% CI (-15.14 to 2.34)
z. Durmus 2010b, Durmus 2013, Rubira 2019

aa. Inconsistency downgraded by 1 level: unexplained substantial heterogeneity I^2=76%
ab. Durmus 2010b, Durmus 2013, Tantawy 2019
ac. Durmus 2010b, Durmus 2013, Rubira 2019, Tanveer 2022, Yurdakul 2019
ad. Inconsistency downgraded by 1 level: unexplained heterogeneity I^2=52%
ae. FU time 3-6 week
af. Durmus 2010b, Durmus 2013, Yurdakul 2019
ag. Durmus 2010b, Durmus 2013
ah. Yurdakul 2019
ai. Imprecision downgraded by 2 levels: due to wide confidence interval consistent with the possibility for harm and the possibility for no effect and low number of participants.
aj. Durmus 2013
ak. Imprecision downgraded by 2 levels: no events in either group
al. FU time 6 weeks.

GRADE Table 3. ***What are the benefits and harms of therapeutic ultrasound in the management of community-dwelling adults (including older adults aged 60 years and over) with chronic primary low back pain (with or without leg pain) compared with usual care?***

No trials