**Table E38. Data abstraction of randomized controlled trials of LLLT**

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| **Author, Year** | **Country Number of Centers and Setting** | **Inclusion Criteria** | **Number Randomized, Analyzed Attrition** | **Intervention** | **Study Participants** | **Duration of Pain (acute, subacute, chronic)** |
| Ay, 2010 | TurkeySingle-center | Acute of chronic low backpainExcluded: neurological deficit, spondylosis,spinal stenosis, infection, malignant spinal disease, previous spinal surgery, pregnancy | Randomized: 80Analyzed: 80Attrition: 0% (0/80) | Acute LBPA. GaAlAs laser, 850 nm + heat 5 times/week for 3 weeks (n=20)B. Sham laser + heat 5 times/week for 3 weeks (n=20)Chronic LBPA. GaAlAs laser 850 nm + heat 5 times/week for 3 weeks (n=20)B. Sham laser + heat 5 times/week for 3 weeks (n=20) | A vs. B: Acute LBPMean age 48 vs. 45 years30% vs. 40% femalePain, VAS: 6.7 vs. 6.15Pain, patient global assessment: 6.45 vs. 5.0Pain, physician global assessment: 6.6 vs. 6.15Disability, RDQ: 13.2 vs.12.6Disability, Modified ODI:19.8 vs. 20.8A vs. B: Chronic LBP Mean age 52 vs. 55 years55% vs. 45% femalePain, VAS: 6.0 vs. 6.6Pain, patient global assessment: 5.65 vs. 6.05Pain, physician global assessment: 5.8 vs. 6.3Disability, RDQ: 15.1 vs.15.6Disability, Modified ODI:23.9 vs. 24.65 | Acute: 2 vs. 2 monthsChronic: 50 vs. 48 months |
| Djavid, 2007 | IranSingle-center | Age 20-60 years with lowback pain for at least 12 weeksExcluded: degenerative disc disease, herniation, fracture, spondylosis, spinal stenosis, neurologic deficits, systemic or psychiatric illness, pregnancy | Randomized: 61Analyzed: 43Attrition: 30% (18/61) | A. GaAlAs, 810 nm laser 2times/week for 6 weeks(n=16)B. GaAlAs laser, 810 nm 2 times/week for 6 weeks + exercise (n=19)C. Sham laser 2 times/week for 6 weeks + exercise (n=18) | A vs. B vs. CMean age 40 vs. 38 vs. 36 years56% vs. 37% vs. 17%femaleRace not reportedPain, VAS 7.3 vs. 6.2 vs. 6.3Disability, ODI 33.0 vs. 34.0 vs. 31.8 | Chronic: mean 29 vs.29 vs. 25 months |

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| **Author, Year** | **Duration of****Followup** | **Results****(list results for acute, subacute and chronic separately)** | **Adverse Events Including Withdrawals** | **Funding****Source** | **Quality****Rating** |
| Ay, 2010 | 3 weeks | A vs. B: Acute LBPPain, VAS mean change from baseline: -4.0 vs. -4.15; p=0.07Pain, patient global assessment mean change from baseline: -3.9 vs. -4.7;p=0.006Pain, physician global assessment mean change from baseline: -4.1 vs. -4.2; p=-0.71Disability, RDQ mean change from baseline: -6.0 vs. -5.65; p=0.39Disability, Modified ODI mean change from baseline: -8.2 vs. -8.7; p=0.15A vs. B: Chronic LBPPain, VAS mean change from baseline: -3.35 vs. -3.95; p=0.03Pain, patient global assessment mean change from baseline: -3.3 vs. -3.9;p=0.11Pain, physician global assessment mean change from baseline: -3.15 vs. -4.05;p=0.01Disability, RDQ mean change from baseline: -6.7 vs. -4.65; p=<0.0001Disability, Modified ODI mean change from baseline: -9.6 vs. -6.2; p; p<0.0001 | Not reported | Notreported | Good |
| Djavid, 2007 | 12 weeks | A vs. B vs. CPain, VAS: 4.4 vs. 2.4 vs. 4.3; A vs. B, p=0.002; A vs. C, p=0.87; B vs. C, p=0.0005; mean change from baseline -2.9 vs. -3.8 vs. -2.0Disability, ODI: 20.8 vs. 16.8 vs. 24.1; A vs. B, p=0.006; A vs. C, p=0.06; B vs. C, p=0.0001 | No adverse events inany group (data not shown) | Notreported | Fair |

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| **Author, Year** | **Country Number of Centers and Setting** | **Inclusion Criteria** | **Number Randomized, Analyzed Attrition** | **Intervention** | **Study Participants** | **Duration of Pain (acute, subacute, chronic)** |
| Hsieh, 2014 | TaiwanSingle center | 18 to 85 years of age,nonspecific low back pain for >12 weeksExclude: Specific conditions (infection, inflammation, fracture, tumor); history of cancer, vertigo, stroke, or other condition that may impair postural stability, lowback surgery with implant; pregnant or plans to become pregnant | Randomized: 70 (35vs. 35)Analyzed: 60 (33 vs.27)Attrition: 14% (10/70) | A: GaAlAs, 890 nm laser with780 mW power (total 83.2J/cm2), 40 minutes three times a week for 2 weeks (n=33)B: Sham laser, 40 minutes three times a week for 2 weeks (n=27) | A vs. BMean age 60 vs. 58 years58% vs. 70% female Race not reported Pain, VAS 7.9 vs. 7.9Disability, ODI 2.3 vs. 2.6Radiation in lower limb: 70%vs. 78% | Chronic: mean durationnot reported, >12 weeks by inclusion criteria |

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| **Author, Year** | **Duration of****Followup** | **Results****(list results for acute, subacute and chronic separately)** | **Adverse Events Including Withdrawals** | **Funding****Source** | **Quality****Rating** |
| Hsieh, 2014 | 2 weeks | A vs. BPain (mean, 0-10 VAS): 7.8 vs. 7.9 at baseline, mean change 0.73 vs. 0.4 at 2 weeks, difference -0.3 (95% CI -1.0 to 0.3)ODI (mean, scale unclear): 2.3 vs. 2.6 at baseline, mean change -0.4 vs. -0.1 at2 weeks, difference -0.3 (95% CI -0.6 to -0.1)Frenchay Activities Index (mean, 0 to 45): 32.2 vs. 33.5 at baseline, mean change 1.9 vs. 1.5 at 2 weeks, difference -0.4 (95% CI -3.4 to 2.6) Osteoarthritis Quality of Life Questionnaire (mean, scale not reported): 3.8 vs.5.9 at baseline, mean change -0.5 vs. -0.6 at 2 weeks, difference -0.1 (95% CI -1.4 to 1.1)Multidimensional Fatigue Inventory: No differences on any subscale | No systemic or localside effects noted during or after treatment | Shin KongWu Ho-Su Memorial Hospital and National Science Council, Taiwan | Fair |

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| **Author, Year** | **Country Number of Centers and Setting** | **Inclusion Criteria** | **Number Randomized, Analyzed Attrition** | **Intervention** | **Study Participants** | **Duration of Pain (acute, subacute, chronic)** |
| Jovicic, 2012 | SerbiaSingle-center | Acute, clinicallydiagnosed LBP (duration<4 weeks)Excluded: chronic low back pain or previous surgery | Randomized: 66Analyzed: 66Attrition: 0% (0.66) | A. 904 nm laser, 0.1 jouleper point (0.4 points/day;n=22)B. 904 nm laser, 1.0 joule per point (4.0 points/day; n=22)C. 904 nm laser, 4.0 joules per point (16.0 points/day; n=22) | A vs. B vs. CMean age 47 vs. 44 vs. 45 yearsGender, race not reported Lumbar pain, VAS: 7 vs. 7 vs. 6.5 | Acute: mean durationnot reported; inclusion criteria required <4 weeks duration of symptoms |

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| **Author, Year** | **Duration of****Followup** | **Results****(list results for acute, subacute and chronic separately)** | **Adverse Events Including Withdrawals** | **Funding****Source** | **Quality****Rating** |
| Jovicic, 2012 | 2 weeks | A vs. B vs. CLumbar pain, VAS mean change (results depicted graphically): -3 vs. -3 vs. -3.5;p>0.05Function, Activities of Daily Life: walking, mean change from baseline in proportion able to complete activity - all outcomes A or B vs. C p=0.007Able to walk:Not able to walk >1 hour: 4.5% vs. 4.6% vs. 13.6% Not able to walk >30 mins: 18.2% vs. 13.6% vs. 41% Not able to walk >10 mins: -4.6% vs. -13.7% vs. -18.2%Only able to walk a few steps: -27.3% vs. -22.8% vs. -31.8% Not able to walk at all: -4.5% vs. -4.5% vs. -9.1%Function, Activities of Daily Living: sitting, mean change from baseline in proportion able to complete activity - all outcomes A or B vs. C p=0.005Able to sit: 4.6% vs. 4.5% vs. 4.5%Not able to sit >1 hour: 27.3% vs. 0% vs. 31.9% Not able to sit >30 mins: 13.7% vs. 50% vs. 0%Not able to sit > a few mins: -40.9% vs. -31.9% vs. -36.4% Not able to sit at all: -4.5% vs. -22.8% vs. -13.6%Function, Activities of Daily Living: standing, mean change from baseline in proportion able to complete activity - all outcomes A or B vs. C p=0.013Able to stand: 9.1% vs. 0% vs. 13.6%Able to stand with pain: 4.6% vs. 22.7% vs. 22.8%Not able to stand >1 hour: 13.6% vs. 13.6% vs. 36.4% Not able to stand >30 mins: 27.3 vs. 18.2% vs. 9.1%Not able to stand >10 mins: -31.8% vs. -18.2% vs. -31.8% Not able to stand at all: -22.8% vs. -36.4% vs. -31.8% | No systemic or localside effects reported(data not shown) | Notreported | Fair |

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| **Author, Year** | **Country Number of Centers and Setting** | **Inclusion Criteria** | **Number Randomized, Analyzed Attrition** | **Intervention** | **Study Participants** | **Duration of Pain (acute, subacute, chronic)** |
| Konstantinovic, 2010 | SerbiaSingle-center | Acute LBP (symptomatic<4 weeks) and unilateral radiculopathyExcluded: Use of oral or injected corticosteroids within month preceding study entry or previous surgery | Randomized: 546Analyzed: 546Attrition: 0% (0/546) | A. 904 nm laser 5times/week for 3 weeks + nimesulide 200 mg/day (n=182)B. Sham laser 5 times/week for 3 weeks + nimesulide 200 mg/day (n=182)C. Nimesulide 200 mg/day(n=182) | A vs. B vs. CMean age 44 vs. 42 vs. 45 years59% vs. 58% vs. 57%femaleRace not reportedLumbar pain, VAS: 66 vs. 65 vs. 67Disability, ODI: 32 vs. 32 vs.31Quality of life, SF-36 PCS:10 vs. 10 vs. 10Quality of life, SF-36 MCS:12 vs. 12 vs. 12 | Acute: mean 15 vs. 18vs. 16 days |
| Vallone, 2014 | ItalySingle center | Nonspecific low back pain>6 months duration, age>18 yearsExcluded: Nerve root systems, systemic disease and specific conditions, medication for psychological problems, pregnant | Randomized: 100(50 vs. 50) Analyzed: Unclear Attrition: Unclear | A: GaAlAs, 980 nm laser, 1minute per spot, total 1200 Jper spot for 1 month at each spot 3 times a week for 3 weeks, applied to 6 spots + exercise (stretching, strengthening) (n=50)B: Sham laser as above +exercise (n=50) | A vs. BMean age 68 years overall57% female overallRace not reportedPain (0-10 VAS): 6.64 vs.6.36Function: Not reported | Chronic: mean notreported, all >6 months by inclusion criteria |

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| **Author, Year** | **Duration of****Followup** | **Results****(list results for acute, subacute and chronic separately)** | **Adverse Events Including Withdrawals** | **Funding****Source** | **Quality****Rating** |
| Konstantinovic, 2010 | 3 weeks | A vs. B vs. CLumbar pain, VAS mean change: -30 vs. -15.7 vs. -20.8; p<0.01 for all comparisonsDisability, ODI mean change: -12 vs. -6.5 vs. -10; p<0.01 for all comparisons Disability, ODI proportion improved (defined as change from moderate to minimal disability category): 72% (151/182) vs. 54% (98/182) vs. 18% (33/182); A vs. B, RR 1.54 (95% CI 1.33 to 1.79); A vs. C, RR 4.58 (95% CI 3.34 to 6.27); B vs. C, RR 2.97 (95% CI 2.12 to 4.16)Quality of life, SF-36 PCS: -4 vs. -2 vs. -3; A vs. B, A vs. C p<0.01; B vs. Cp=0.06Quality of life, SF-36 MCS: -6 vs. -3 vs. -4; p<0.01 for all comparisons | Two withdrawals dueto worsening pain; intervention group(s) not reported | Notreported | Good |
| Vallone, 2014 | 3 weeks | A vs. BPain (mean, 0-10 VAS): 6.64 vs. 6.36 at baseline, 2.68 vs. 4.08 at 3 w, change from baseline 3.96 vs. 2.32 (p<0.01)Complete pain relief: 10% (5/50) vs. 2.0% (1/50), RR 5.0 (95% CI 0.61 to 41.3) | Not reported | Nonereported | Fair |

**Please see Appendix C. Included Studies for full study references.**