**Table C1. Evidence table for all included studies**

| **Study** | **Participants** | **Inclusion Criteria** | **Exclusion Criteria** | **Intervention(s)** | **Relevant Outcomes Reported** |
| --- | --- | --- | --- | --- | --- |
| Abbott, 2015[65](#_ENREF_65)Study design: RCTTrial name: NoneStudy Location: New ZealandHealth care setting: Academic orthopedic surgery clinic/department, Physical therapy outpatient clinicSingle Site | Total n = 75Mean Age: 64Arm 1, Mean Age: 64(10)BMI: 29.2(6.1)Arm 2, Mean Age: 65(10)BMI: 30.2(5.6)Arm 3, Mean Age: 61(12)BMI: 27.6(4.7)Arm 4, Mean Age: 64(10.2)BMI: 29.8(6.6)Female: 62%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingSubtype: NRDiagnosis: ACRAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeMinimum Age: 40ACR: NA | Surgery knee limb in prior previous hip or knee replacement of the affected joint or any other surgical procedure in the previous 6 months month(s)Pending surgeryAnalgesics use in the previous Injected opioid or analgesic use in the previous 30 days month(s)Injected corticosteroids in the prior 30 days, hip or knee month(s)RAPhysical impairments that would prevent participationInability to comprehend study instructions or to attend and complete the sessions and follow-up | Arm 1: Land-based exercisen = 19Placebo/Dose: 45 minutes per sessionFrequency: 12 sessions per 9 weeksDuration: 9 weeksMethod of Blinding: NACo-Intervention: noneArm 2: Land-based exercisen = 19Dose: 45 minutes per sessionFrequency: 8 sessions in 9 weeks, 2 booster sessions at 5 months, 1 session at 8 months, 1 session at 11 monthsDuration: 11 monthsMethod of Blinding: NACo-Intervention: Booster sessions at 5, 8, and 11 monthsArm 3: Land-based exercise + manipulationn = 18Dose: 45 minutes per exercise session and 30-45 minutes per manual therapy sessionFrequency: 12 sessions exercise and manual therapy each in 9 weeksDuration: 9 weeksMethod of Blinding: NACo-Intervention: Manual therapyArm 4: Land-based exercise plus manipulationn = 19Dose: 45 minutes per exercise session and 30-45 minutes per manual therapy sessionFrequency: 12 sessions exercise and manual therapy each in 9 weeks plus 2 booster sessions at 5 months, 1 session at 8 months, 1 session at 11 monthsDuration: 11 monthsMethod of Blinding: NACo-Intervention: Booster sessions plus manual therapy | TUG (s):Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : -1.00 95% CI: (-2.58, 0.58)Comparator: Arm 3 vs Arm 1 , MD : 0.00 95% CI: (-1.42, 1.42)Comparator: Arm 4 vs Arm 1 , MD : -0.10 95% CI: (-2.02, 1.82)WOMAC total:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : -56.10 95% CI: (-92.70, -19.50)Comparator: Arm 3 vs Arm 1 , MD : -39.20 95% CI: (-69.38, -9.02)Comparator: Arm 4 vs Arm 1 , MD : -8.30 95% CI: (-41.90, 25.30)Pain intensity score:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : -2.00 95% CI: (-3.84, -0.16)Comparator: Arm 3 vs Arm 1 , MD : -2.30 95% CI: (-4.07, -0.53)Comparator: Arm 4 vs Arm 1 , MD : 0.20 95% CI: (-1.86, 2.26) |
| Acosta-Olivo, 2014[26](#_ENREF_26)Study design: RCTTrial name: NoneStudy Location: MexicoHealth care setting: Academic orthopedic surgery clinic/departmentSingle Site | Total n = 42Age Range: NRArm 1, Mean Age: NRBMI: NRArm 2, Mean Age: NRBMI: NRFemale: NRRacial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: K-L: Grade IAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: 3 monthsMinimum Age: 40Able to sign ConsentWithout previous treatmentNR | Surgery knee limb in prior 2 months month(s)Prior experience with the intervention of interestUse of anticoagulantsVarus-valgus deformitiesPrior arthritis in the kneeAutoimmune disordersCerebrovascular diseases; hemoglobin <11; drug or alcohol abuse; active infections | Arm 1: Controln = 21Dose: 1g paracetamolFrequency: 3 times per dayDuration: 1 monthArm 2: Cell-based therapiesn = 21Dose: 5 ml plasma per injectionFrequency: 2 doses per monthDuration: 1 month | KOOS:Follow-Up Time: 4 months :Comparator: Arm 2 vs Arm 1 , MD : -9.00 95% CI: (-18.11, 0.11)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -6.90 95% CI: (-18.29, 4.49) |
| Atamaz, 2012[87](#_ENREF_87)Study design: RCTTrial name: NoneStudy Location: NRHealth care setting: NRMultiple Sites: 4 | Total n = 203Total # of knees = NRAge Range: NRArm 1, Mean Age: 60.7 (SD 6.5)BMI: 29.0 (SD 4.1)Arm 2, Mean Age: 61.9 (SD 6.9)BMI: 28.4 (SD 3.5)Female: 82.3%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: K-L: 2&3,~Symptomatic with at least 40mm or 4cm severity of pain on the VAS for at least 6 months,ACRAnalgesic Use: Yes,Patients were asked to discontinue any pretreatment with NSAIDs drugs 7 days before the start of the study. If the patient required analgesic medication for knee pain, paracetamol use was permitted and noted. | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: 6 monthsMinimum Age: 51Maximum Age:79Otherwise HealthyK-L: 2&3ACR: confirmed knee OA | Concomitant medical problems that prevent participationSurgery knee limb in prior 6 month(s)Injected hyaluronic acid in the past or during the past 6 month(s)Injected corticosteroids in the prior 1 month(s)Prior experience with the intervention of interestDiagnosis of joint infection, a specific condition (neoplasm, diabetes mellitus, paresis, osteonecrosis, recent trauma, etc.), ascertained/suspected pregnancy or lactation, and poor general health status that would interfere with the functional assessmentsHistory of any contraindication for electrotherapyReceived corticosteroid therapy or chondroprotective agents during the 30 days prior to the study or viscosupplementation treatment within 6 months prior to the studyUndergone previous major surgery, such as joint replacement or arthroscopy, within 6 months prior to the study | Arm 1: Shamn = 37, Placebo/Sham TENS, Dose: 20 minutes, Frequency: 5 times per week, Duration: 3 weeksMethod of Blinding: All patients, investigators, and analysts were blinded, with the exception of members of the data and safety monitoring boardCo-Intervention: Exercise program in groups of 4-5 patients led by a physiotherapist 3x/week for 3 weeks, included 5- to 6-minutes of jogging, stretching exercises (approx. 10min), isometric quadriceps exercises (10–15 repetitions) in the seated position were performed for 10 seconds with 10-second breaks, and chair lift and mini squats exercises (10–15 reps). At the end of 3 weeks, the physiotherapist prescribed a home-based training program (3x/week) as well as group exercise. Before the treatments, all patients participated in a single education group session of approximately 1-hour duration.Arm 2: Neuromuscular electrical stimulationn = 37, Dose: 80Hz with 10- to 30-mA intensity for 20 minutes, Frequency: 5 times per week, Duration: 3 weeksMethod of Blinding: All patients, investigators, and analysts were blinded, with the exception of members of the data and safety monitoring boardCo-Intervention: Exercise program in groups of 4-5 patients led by a physiotherapist 3x/week for 3 weeks, included 5- to 6-minutes of jogging, stretching exercises (approx. 10min), isometric quadriceps exercises (10–15 repetitions) in the seated position were performed for 10 seconds with 10-second breaks, and chair lift and mini squats exercises (10–15 reps). | VAS pain:Follow-Up Time: 1 month :Comparator: Arm 2 vs Arm 1 , MD : 4.30 95% CI: (-5.99, 14.59)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : 0.20 95% CI: (-11.23, 11.63)WOMAC function:Follow-Up Time: 1 month :Comparator: Arm 2 vs Arm 1 , MD : -2.50 95% CI: (-8.66, 3.66)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -2.50 95% CI: (-9.73, 4.73)WOMAC pain:Follow-Up Time: 1 month :Comparator: Arm 2 vs Arm 1 , MD : -1.40 95% CI: (-3.69, 0.89)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -1.30 95% CI: (-3.89, 1.29) |
| Atamaz, 2012[87](#_ENREF_87) -Continued |  |  |  | At the end of 3 weeks, the physiotherapist prescribed a home-based training program (3x/week) as well as group exercise. Before the treatments, all patients participated in a single education group session of approximately 1-hour duration.Arm 3-6 : Not of Interest |  |
| Atkins, 2013[122](#_ENREF_122)Study design: RCTTrial name: NoneStudy Location: USHealth care setting: Wellness centerSingle Site | Total n = 40Total # of knees = NRAge Range: NRArm 1, Mean Age: NRBMI: NRArm 2, Mean Age: NRBMI: NRFemale: NRRacial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: Written diagnosis of knee OA by participants' health care providerAnalgesic Use: NR | Minimum Age: 50AmbulatoryWillingness to attend 75% of scheduled self-massage sessionsNo limitations that prevented mobility of the kneeKnee pain, pain on most days of the prior month, and morning stiffness lasting less than 30 minutesCrepitus on motion and bony enlargement at affected jointsAgreement to practice no new exercise or stretching program and commitment to receiving no other mas sage therapy during the study | Concomitant medical problems that prevent participationPrior surgery on one or both kneesSurgery knee limb in prior 6 month(s)Injected corticosteroids in the prior 3 month(s)Active rheumatoid arthritis or other serious medical conditionsIntra-articular knee injection of a steroid within the previous 3 monthsSurgical procedure on either lower extremity within the past 6 months | Arm 1: Controln = 19Placebo/Control, wait listDose: NAFrequency: NADuration: 12 weeksMethod of Blinding: NoneCo-Intervention: Usual care only and received optional future dates for the knee self-massage trainingArm 2: Massagen = 21Dose: Supervised sessions were 1 hour, including 20 minutes of the intervention. During the unsupervised weeks, participants were encouraged to continue their twice-weekly practice of self-massage.Frequency: 2 times per weekDuration: 12 weeksMethod of Blinding: NoneCo-Intervention: Usual care | WOMAC function:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.80 95% CI: (NC, NC)WOMAC pain:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.65 95% CI: (NC, NC)WOMAC total:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.70 95% CI: (NC, NC) |
| Atukorala, 2016[128](#_ENREF_128)Study design: Single arm trialTrial name: Healthy weight for lifeStudy Location: AustraliaHealth care setting: internet and phone-based programMultiple Sites: NR (internet-based) | Total n = 1383Mean Age(SD): Mean age 64.0(8.7)Arm 1, Mean Age: 64(8.7)BMI: 34.4(5.2)Female: 70.9%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: K-L: not specified,Mean KOOS pain 56.3(6.8)Analgesic Use: NR | Diagnosis of osteoarthritis of the kneeBMI>28Referral to orthopedist for KREnrollment in OAHWFL programRadiographic or arthroscopy: NR | Exclusion : NR | Arm 1: Weight loss and exercisen = 1383Dose: NAFrequency: NADuration: 18 weeks | KOOS function:Follow-Up Time: 18 weeks :Comparator: >10% weight change (post-pre) , MD : 17.40 95% CI: (15.9, 18.9)Comparator: 7.6-10% weight change (post-pre) , MD : 13.60 95% CI: (11.9, 15.3)Comparator: 5.1-7.5% weight change (post-pre) , MD : 12.00 95% CI: (10.2, 13.8)Comparator: 2.5-5% weight change (post-pre) , MD : 8.90 95% CI: (7.0, 10.8)Comparator: <2.5% weight change (post-pre) , MD : 7.80 95% CI: (4.8, 10.8)KOOS pain:Follow-Up Time: 18 weeks :Comparator: >10% weight change (post-pre) , MD : 16.70 95% CI: (15.2, 18.2)Comparator: 7.6-10% weight change (post-pre) , MD : 13.30 95% CI: (11.6, 15.0)Comparator: 5.1-7.5% weight change (post-pre) , MD : 12.00 95% CI: (10.2, 13.8)Comparator: 2.5-5% weight change (post-pre) , MD : 9.90 95% CI: (7.7, 12.1)Comparator: <2.5% weight change (post-pre) , MD : 6.10 95% CI: (3.2, 9.0) |
| Avelar, 2011[93](#_ENREF_93)Study design: RCTTrial name: NoneStudy Location: NRHealth care setting: NRSite size: NR | Total n = 23Total # of knees = NRAge Range: NRArm 1, Mean Age: 71 (SD 4)BMI: NRArm 2, Mean Age: 75 (SD 5)BMI: NRFemale: 86.96%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: bilateral 34.8% (of 21), unilateral 56.5% (of 21)Subtype: NRDiagnosis: K-L: 1-4,Knee OA in at least 1 knee clinical and radiographic criteria according to ACRAnalgesic Use: NR | Minimum Age: 60AmbulatoryAble to sign ConsentNot requiring a walking aidAny cognitive deficit as determined by the Mini-Mental Status Examination | Concomitant medical problems that prevent participationConcomitant or prior use of other medsPrior acute injury to the kneeNot having suffered any recent knee injuryAny orthopedic, neurological, respiratory, or acute cardiac diseases that would preclude the studyNot having been submitted to any rehabilitation procedure in the previous 3 monthsNot having used glucocorticoids for at least 2 months prior the study | Arm 1: Controln = 11Placebo/ControlDose: NAFrequency: NADuration: 12 weeksMethod of Blinding: Blinded, not otherwise describedCo-Intervention: Squatting exercises, for each repetition, individuals were instructed to perform 3 seconds of isometric flexion of the quadriceps to 60 degrees and 3 seconds of isometric flexion of the quadriceps to 10 degrees. Prior to the squatting exercises, both groups warmed-up on an ergometric bicycle at 70% of the predicted maximum heart rate for age for 10 minutesArm 2: Vibrating platform (whole body vibration)n = 12Dose: Frequency of 35Hz–40Hz, amplitude of 4mm, and acceleration that ranged from 2.78G to 3.26GFrequency: 3 times per weekDuration: 12 weeksMethod of Blinding: Blinded, not otherwise describedCo-Intervention: Squatting exercises, for each repetition, individuals were instructed to perform 3 seconds of isometric flexion of the quadriceps to 60 degrees and 3 seconds of isometric flexion of the quadriceps to 10 degrees. Prior to the squatting exercises, both groups warmed-up on an ergometric bicycle at 70% of the predicted maximum heart rate for age for 10 minutes | 6 min walk (meter):Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : -27.62 95% CI: (-76.92, 21.68)TGUG (s):Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : 0.02 95% CI: (-0.93, 0.97)WOMAC function:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : -59.00 95% CI: (-373.43, 255.43)WOMAC pain:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : 24.00 95% CI: (-60.64, 108.64) |
| Azlin, 2011[116](#_ENREF_116)Study design: RCTTrial name: NoneStudy Location: MalaysiaHealth care setting: Physiotherapy unit in academic medical centerSingle Site | Total n = 13Age Range: 40Arm 1, Mean Age: 59.7(4.9)BMI: 26.2Arm 2, Mean Age: 63.1 (10.8)BMI: 28.5Female: 85%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: bilateral 85%, unilateral 15%Subtype: NRDiagnosis: By orthopedic specialistAnalgesic Use: Yes,Continued normal medications | Diagnosis of osteoarthritis of the knee:By orthopedic specialistAmbulatoryAscend and descend at least a flight of stairWillingness to be randomizedSub-acute or chronic OANumber of knees >=1 | Concomitant medical problems that prevent participationPrior surgery on one or both kneesPrior acute injury to the kneeAcute inflammation or contractureCognitive problem (MMSE<20)Pain during exercise | Arm 1: Controln = 6Placebo/Conventional physical therapyFrequency: Twice a weekDuration: 4 weeksArm 2: Passive joint mobilizationn = 7Frequency: Twice a weekDuration: 4 weeksCo-Intervention: Conventional physiotherapy (exercises followed by thermal therapy with hot pack) | VAS pain stairs:Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.99 95% CI: (-21.54, 15.56) |
| Bagnato, 2016[92](#_ENREF_92)Study design: RCTTrial name: NoneStudy Location: ItalyHealth care setting: Academic rheumatology clinic/departmentSingle Site | Total n = 66Age Range: >=40Arm 1, Mean Age: 66.9 (10)BMI: 27.1 (4.1)Arm 2, Mean Age: 68.6 (11.9)BMI: 27.7 (4.6)Female: 72%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: A diagnosis of primary OA of the knee according to the ACR criteria, including radiological evidence of OAAnalgesic Use: Yes,43% of total used analgesics; 40% of tx group and 46% of control group | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: >=6 monthsMinimum Age: >=40Persistent pain despite receiving the maximal tolerated doses of conventional medical therapy, including acetaminophen and/or an NSAID, with persistent pain defined as a minimal mean score of 40 mm on the VAS for global painDaily pain during the month prior to study enrolmentAbility to attend follow-up appointmentsNo change in pain medication during the last monthACR: a diagnosis of primary OA of the knee according to the ACR criteria, including radiological evidence of OA | Concomitant medical problems that prevent participationConcomitant or prior use of other medsInjected corticosteroids in the prior month(s)Patients affected by secondary causes of OA, DIP joint OA, local or systemic infection, secondary FM, diabetes mellitus, systemic arthritis, coagulopathy, patients on anticoagulant therapy and patients who had received previous intra-articular steroid injection or with avascular necrosis of bone were excluded. | Arm 1: Sham PEMFn = 33Placebo/ShamDose: 12 hoursFrequency: DailyDuration: 4 weeksMethod of Blinding: Double blindArm 2: Pulsed electromagnetic fields (PEMF)n = 33Dose: 12 hoursFrequency: DailyDuration: 4 weeksMethod of Blinding: Double bind | SF-36 mental health:Follow-Up Time: 1 month :Comparator: Arm 2 vs Arm 1 , MD : -0.20 95% CI: (-2.32, 1.92)SF-36 physical health:Follow-Up Time: 1 month :Comparator: Arm 2 vs Arm 1 , MD : -2.70 95% CI: (-5.81, 0.41)VAS pain:Follow-Up Time: 1 month :Comparator: Arm 2 vs Arm 1 , MD : -11.30 95% CI: (-19.17, -3.43)WOMAC function:Follow-Up Time: 1 month :Comparator: Arm 2 vs Arm 1 , MD : -8.00 95% CI: (-26.32, 10.32)WOMAC pain:Follow-Up Time: 1 month :Comparator: Arm 2 vs Arm 1 , MD : -5.20 95% CI: (-9.72, -0.68)WOMAC total:Follow-Up Time: 1 month :Comparator: Arm 2 vs Arm 1 , MD : -14.70 95% CI: (-36.83, 7.43) |
| Barduzzi, 2013[59](#_ENREF_59)Study design: RCTTrial name: NoneStudy Location: BrazilHealth care setting: NRSite size: NR | Total n = 15Arm 1, Mean Age: 70.8(6.3)BMI: NRArm 2, Mean Age: 71.6(7.0)BMI: NRArm 3, Mean Age: 66.4(5.1)BMI: NRRacial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: bilateral 60%Subtype: NRDiagnosis: ACRAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeMinimum Age: 60Maximum Age:79Able to sign ConsentACR: NA | Concomitant medical problems that prevent participationPending surgeryPhysical Therapy or Rehab or exercise in the previous 3 months month(s)Use of assistive walking devicesNeurological dysfunction that promoted cognitive changes | Arm 1: Controln = 5Dose: NAFrequency: NADuration: NAArm 2: Water based physical therapyn = 5Dose: 60 minutes per session (2-4 sets, 20-25 repetitions)Frequency: 3 sessions per weekDuration: 4 months (45 day break between 12th and 13th session) 24 sessions totalArm 3: Land-based physical therapyn = 5Dose: 60 minutes per session (2-4 sets, 20-25 repetitions)Frequency: 3 sessions per weekDuration: 4 months (45 day break between 12th and 13th session) 24 sessions total | Walking speed:Follow-Up Time: 1 month :Comparator: Arm 2 vs Arm 1 , MD : -1.18 95% CI: (-5.39, 3.03)Comparator: Arm 3 vs Arm 1 , MD : -0.29 95% CI: (-4.77, 4.19)Follow-Up Time: 4.5 months :Comparator: Arm 3 vs Arm 2 , MD : 4.03 95% CI: (-0.51, 8.57) |
| Bartels, 2014[68](#_ENREF_68)Study design: Single arm trialTrial name: CAROTStudy Location: DenmarkHealth care setting: NRSite size: NR | Total n = 192Total # of knees = NRMean Age(SD): 62.6 (SD 6.3) (for 175 whoArm 1, Mean Age: 62.6 (SD 6.3)BMI: 37.1 (SD 4.4)Female: NRRacial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: ACR primary knee OAAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeMinimum Age: 51BMI >= 30 kg/m 2ACR: Primary knee OANR: Clinical symptoms and radiographic verification of the diagnosis | Exclusion : NR | Arm 1: Weight loss, self-managementn = 192Dose: 8-week formula weight loss diet 415-810 kcal/day, followed by 8 weeks on a hypo-energetic 1200 kcal/day diet of normal food and formula productsFrequency: Diet was daily. Weekly sessions (1.5 h/week) by a dietician giving nutritional instructions and behavioral therapyDuration: 16 weeksMethod of Blinding: NACo-Intervention: NR | KOOS function:Follow-Up Time: 16 weeks :Comparator: post-pre , MD : 12.10 95% CI: (10.0, 14.2)KOOS pain:Follow-Up Time: 16 weeks :Comparator: post-pre , MD : 10.70 95% CI: (8.5, 12.9)Weight (kg):Follow-Up Time: 16 weeks :Comparator: pre-post , MD : 14.00 95% CI: (13.3, 14.7) |
| Bellare, 2014[30](#_ENREF_30)Study design: RCTTrial name: NoneStudy Location: IndiaHealth care setting: Orthopedic clinicsMultiple Sites: 3 | Total n = 117Age Range: >=50Arm 1, Mean Age: 60.70 (8.31)BMI: 27.68 (3.03)Arm 2, Mean Age: 59.98 (8.81)BMI: 27.36 (3.71)Female: 23%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: ACRAnalgesic Use: Yes | Diagnosis of osteoarthritis of the knee:ACR | Exclusion : NR | Arm 1: Diet therapyn = 56Dose: 1200-1400 kcal/dDuration: 1 yearArm 2: Diet therapy + Glucosamine-chondroitinn = 61Dose: Glucosamine 1500mg/day; Chondroitin 1200mg/dayFrequency: Twice daily (G 750mg+C 600mg)Duration: 1 year | Lequesne Index Score:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : -3.20 95% CI: (-3.86, -2.54)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -2.56 95% CI: (-3.35, -1.77)VAS score:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : -1.70 95% CI: (-1.99, -1.41)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -2.08 95% CI: (-2.40, -1.76)WOMAC function:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : -7.90 95% CI: (-10.06, -5.74)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -3.86 95% CI: (-6.16, -1.56)WOMAC pain:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : -3.10 95% CI: (-3.69, -2.51)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -1.59 95% CI: (-2.31, -0.87) |
| Bennell, 2011[109](#_ENREF_109)Study design: RCTTrial name: NoneStudy Location: AustraliaHealth care setting: NRSite size: NR | Total n = 200Age Range: >=50Arm 1, Mean Age: 65.0 (7.9)BMI: 30.4 (5.6)Arm 2, Mean Age: 63.3 (8.1)BMI: 28.1 (4.2)Female: 58%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: Medial 100%Diagnosis: Radiological evidenceAnalgesic Use: Yes,Not specified | Diagnosis of osteoarthritis of the kneeMinimum Age: 50Able to sign ConsentPain on walking>=3Radiological knee alignment <=185 degreesX-ray: Osteophytes or joint space narrowing in medial compartment | Concomitant medical problems that prevent participationPrior surgery on one or both kneesSurgery knee limb in prior 6 month(s)Concomitant or prior use of other medsInjected corticosteroids in the prior 6 month(s)Prior experience with the intervention of interestK-L: 1 or 4Predominant patellofemoral joint symptomsSystemic arthritic conditions | Arm 1: Control Insolesn = 97Placebo/No-wedging insolesFrequency: All day every dayDuration: 12 monthsArm 2: Wedge Insolesn = 103Frequency: All day every dayDuration: 12 months | Pain numerical rating scale:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : 0.00 95% CI: (-0.65, 0.65)Quality of life:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : 0.00 95% CI: (-0.06, 0.06)WOMAC function:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : 0.70 95% CI: (-2.79, 4.19)WOMAC pain:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : 0.20 95% CI: (-0.75, 1.15) |
| Bennell, 2015[53](#_ENREF_53)Study design: RCTTrial name: NoneStudy Location: AustraliaHealth care setting: Academic sports medicine clinic/departmentSingle Site | Total n = 222Mean Age: 63Arm 1, Mean Age: 62.7 (7.9)BMI: 31.5 (5.9)Arm 2, Mean Age: 63.0 (7.9)BMI: 30.8 (6.4)Arm 3, Mean Age: 64.6 (8.3)BMI: 31.0 (6.0)Female: 60%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: bilateral 73%, unilateral 27%Diagnosis: K-L: 30% Grade II; 21% grade III; 23% grade IVAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: knee pain >=3 monthsMinimum Age: 50Average pain >=40/100mm on VAS in preceding weekAt least moderate difficulty with daily functioning (WOMAC physical function \_ 25/68 units)ACR Criteria: NA | Concomitant medical problems that prevent participationSurgery knee limb in prior 6 months month(s)Pending surgeryInjected corticosteroids in the prior 3 months month(s)Physical Therapy or Rehab or exercise in the previous 6 months month(s)Prior experience with the intervention of interestSystemic arthritisSelf-reported history of serious mental illness, such as schizophrenia, or self reported diagnosis of current clinical depression; neurological condition such as Parkinson’s disease, multiple sclerosis or strokeWalking exercise for >30 minutes continuously daily; participating in a regular (more than twice a week) structured and/or supervised exercise program such as attending exercise classes in a gym or use of a personal trainer | Arm 1: Land-based Exercise strength/resistance trainingn = 75Dose: 25 minutes exerciseFrequency: 10 sessions per 12 weeks plus home practiceDuration: 12 weeksArm 2: Self-managementn = 74Dose: NRFrequency: 10 sessions per 12 weeks plus home practiceDuration: 12 weeksArm 3: Self-management plus Land-based exercise: strength trainingn = 73Dose: 25 minute exercise sessions plus educational sessionFrequency: 10 sessions per 12 weeks plus home practiceDuration: 12 weeks | AQoL-6D:Follow-Up Time: 12 weeks :Comparator: Arm 3 vs Arm 2 , MD : -0.02 95% CI: (-0.07, 0.03)Follow-Up Time: 52 weeks :Comparator: Arm 3 vs Arm 2 , MD : -0.03 95% CI: (-0.07, 0.01)TUG (s):Follow-Up Time: 12 weeks :Comparator: Arm 3 vs Arm 2 , MD : -1.10 95% CI: (-1.97, -0.23)Follow-Up Time: 52 weeks :Comparator: Arm 3 vs Arm 2 , MD : -1.10 95% CI: (-1.84, -0.36)VAS overall pain:Follow-Up Time: 12 weeks :Comparator: Arm 3 vs Arm 2 , MD : -6.80 95% CI: (-13.73, 0.13)Follow-Up Time: 52 weeks :Comparator: Arm 3 vs Arm 2 , MD : -3.10 95% CI: (-10.78, 4.58)VAS walking:Follow-Up Time: 12 weeks :Comparator: Arm 3 vs Arm 2 , MD : -8.20 95% CI: (-15.41, -0.99)Follow-Up Time: 52 weeks :Comparator: Arm 3 vs Arm 2 , MD : -4.90 95% CI: (-13.21, 3.41) |
| Bennell, 2015[53](#_ENREF_53) -Continued |  |  | Inability to walk unaidedInadequate written and spoken English; inability to comply with the study protocol such as inability to attend physical therapy sessions or attend assessment appointments at the University |  | WOMAC function:Follow-Up Time: 12 weeks :Comparator: Arm 3 vs Arm 2 , MD : -8.10 95% CI: (-11.46, -4.74)Follow-Up Time: 52 weeks :Comparator: Arm 3 vs Arm 2 , MD : -5.30 95% CI: (-8.82, -1.78)WOMAC pain:Follow-Up Time: 12 weeks :Comparator: Arm 3 vs Arm 2 , MD : -1.50 95% CI: (-2.50, -0.50)Follow-Up Time: 52 weeks :Comparator: Arm 3 vs Arm 2 , MD : -0.60 95% CI: (-1.70, 0.50) |
| Bliddal, 2011[126](#_ENREF_126)Study design: RCTTrial name: NoneStudy Location: DenmarkHealth care setting: Home, NRSite size: NR | Total n = 96Age Range: 36-90Arm 1, Mean Age: 64.1 (10.5)BMI: 35.2 (4.5)Arm 2, Mean Age: 61.1 (11.1)BMI: 35 (5.5)Female: 89%Racial/Ethnic Distribution: NRLiving Situation: NRSubtype: NRDiagnosis: K-L: 2&3,ACRAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeMinimum Age: 18Overweight was defined as a body mass index (BMI) \_28 kg/m2. Only patients who explicitly expressed a clear, unequivocal desire for weight lossFluent in DanishACR | Concomitant medical problems that prevent participationHistory of other rheumatic diseases possibly responsible for secondary OA, diabetes mellitus or other endocrine disorders, and substantial abnormalities in haematological, hepatic, renal or cardiac function | Arm 1: Conventional diet programn = 45Placebo/ControlDose: 1200 calories/dayFrequency: DailyDuration: 52 weeksMethod of Blinding: Single-blindedArm 2: Low-energy dietn = 44Dose: 810-1200 cal/dayFrequency: DailyDuration: 52 weeksMethod of Blinding: Single-blinded | WOMAC disability:Follow-Up Time: 52 weeks :Comparator: Arm 2 vs Arm 1 , MD : -3.60 95% CI: (-9.14, 1.94)WOMAC pain:Follow-Up Time: 52 weeks :Comparator: Arm 2 vs Arm 1 , MD : -7.20 95% CI: (-13.30, -1.10)WOMAC total:Follow-Up Time: 52 weeks :Comparator: Arm 2 vs Arm 1 , MD : -4.30 95% CI: (-9.57, 0.97)Weightloss, kg:Follow-Up Time: 52 weeks :Comparator: Arm 2 vs Arm 1 , MD : -7.30 95% CI: (-9.52, -5.08) |
| Bokaeian, 2016[99](#_ENREF_99)Study design: RCTTrial name: NoneStudy Location: IranHealth care setting: NRSite size: NR | Total n = 28Age Range: 35-76Arm 1, Mean Age: 54.0 (3.9)Arm 2, Mean Age: 51.8 (8.3)Female: 93%Racial/Ethnic Distribution: NRLiving Situation: NRSubtype: Tibiofemoral 100%Diagnosis: K-L: mild to moderate chronic osteoarthritis of unilaterally or bilaterally tibiofe moral joint according to the method of Kellgren & LawrenceAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: >1 monthMinimum Age: >35Maximum Age:76AmbulatoryK-L: mild to moderate | Concomitant medical problems that prevent participationSurgery knee limb in prior 3 months month(s)Injected hyaluronic acid in the past or during the past 3 months month(s)Injected corticosteroids in the prior 3 months month(s)Other dis eases such as: diabetes, diseases of musculoskeletal, neuromuscular, cardiovascular, respiratory,Having an artificial hip or knee joints,MedicationHistory of trauma to knee joint during last weekPerforming regular professional exercise and extreme physical weakness | Arm 1: Strength training alonen = 13Placebo/Strength training aloneDose: approx.11 minFrequency: 3 times a weekDuration: 8 weeksMethod of Blinding: Single-blindArm 2: Whole body vibration + strength trainingn = 15Dose: 30-70s, 6-9 setsFrequency: 3 times a weekDuration: 8 weeksMethod of Blinding: Single-blindCo-Intervention: Strength training | VAS pain:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : 1.50 95% CI: (-0.80, 3.80)WOMAC quality of life:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : 0.80 95% CI: (-3.29, 4.89) |
| Brosseau, 2012[39](#_ENREF_39)Study design: RCTTrial name: NoneHealth care setting: Physical therapy outpatient clinicSingle Site | Total n = 222Mean Age(SD): Mean age 63.4(8.6)Arm 1, Mean Age: 62.3(6.8)BMI: 29.9(5.3)Arm 2, Mean Age: 63.9(10.3)BMI: 29.4(5.4)Female: 69%Racial/Ethnic Distribution: African American 2.3%, Asian 4.5%, Caucasian 88.7%, Hispanic 3.6%, 0.5% American Indian, 0.5% OtherLiving Situation: Community DwellingLocation of OA: bilateral 23%, unilateral 77%Subtype: NRDiagnosis: Mild to moderate according to ACR clinical and radiographic criteriaAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: pain for at least 3 monthsAmbulatoryExpected medications to change during study periodDemonstrated ability to walk for a minimum of 20 minutes with minimal pain (<=3/10 on VAS)Able to be treated as outpatientsAvailable 3 times a week for 12 monthsmild to moderate according to ACR clinical and radiographic criteria: NR | Injected hyaluronic acid in the past or during the past 12 months month(s)Injected corticosteroids in the prior 12 months month(s)Physical Therapy or Rehab or exercise in the previous regular activity program 2 or more times per week for more than 20 minutes per session during previous 6 months or rehab treatment within prior 12 months month(s)Severe OA of the knee or other weight bearing joints of the lower extremityPain at rest or at nightAny other treatment for knee OA besides analgesic for prior 12 monthsUncontrolled HTN or other condition, such as rheumatoid arthritis that would make participation difficultSignificant cognitive deficits, inability to communicate in English, intention to move within the year, unwillingness to sign consent | Arm 1: Controln = 74Placebo/Educational materials (pamphlet)Dose: NAFrequency: NADuration: 12 monthsMethod of Blinding: NAArm 2: Walkingn = 79Dose: 45 minutes walking and 20 minutes warm-up/cool down per sessionFrequency: 3 sessions per weekDuration: 12 monthsMethod of Blinding: NACo-Intervention:Arm 3: Walking +Co-Intervention: behavioral intervention adapted from Program for Arthritis Control through Education and Exercise program: education and behavioral counseling | 6 min walk (meter):Follow-Up Time: 18 months :Comparator: Arm 2 vs Arm 1 , MD : 47.44 95% CI: (4.45, 90.43)Comparator: Arm 3 vs Arm 1 , MD : 40.20 95% CI: (-1.29, 81.69)SF-36 pain:Follow-Up Time: 18 months :Comparator: Arm 2 vs Arm 1 , MD : 2.40 95% CI: (-5.89, 10.69)Comparator: Arm 3 vs Arm 1 , MD : 6.28 95% CI: (-1.94, 14.49)SF-36 physical function:Follow-Up Time: 18 months :Comparator: Arm 2 vs Arm 1 , MD : 7.54 95% CI: (-1.57, 16.64)Comparator: Arm 3 vs Arm 1 , MD : 12.44 95% CI: (2.30, 22.58)TUG (s):Follow-Up Time: 18 months :Comparator: Arm 2 vs Arm 1 , MD : 0.53 95% CI: (-0.35, 1.41)Comparator: Arm 3 vs Arm 1 , MD : 0.52 95% CI: (-0.23, 1.27)WOMAC function:Follow-Up Time: 18 months :Comparator: Arm 2 vs Arm 1 , MD : -1.20 95% CI: (-8.35, 5.95)Comparator: Arm 3 vs Arm 1 , MD : 4.75 95% CI: (-2.94, 12.44)WOMAC pain:Follow-Up Time: 18 months :Comparator: Arm 2 vs Arm 1 , MD : 0.10 95% CI: (-7.32, 7.52)Comparator: Arm 3 vs Arm 1 , MD : 2.66 95% CI: (-5.35, 10.67) |
| Brosseau, 2012[39](#_ENREF_39) -Continued |  |  |  |  | WOMAC total:Follow-Up Time: 18 months :Comparator: Arm 2 vs Arm 1 , MD : -0.60 95% CI: (-7.54, 6.34)Comparator: Arm 3 vs Arm 1 , MD : 4.68 95% CI: (-2.80, 12.16) |
| Bruce-Brand, 2012[44](#_ENREF_44)Study design: RCTTrial name: NoneStudy Location: IrelandHealth care setting: Academic orthopedic surgery clinic/departmentSingle Site | Total n = 26Mean Age: 64Arm 1, Mean Age: 65.2 ± 3.1BMI: 31.7 ± 4.1Arm 2, Mean Age: 63.4 ± 5.9BMI: 33.9 ± 8.3Arm 3, Mean Age: 63.9 ± 5.8BMI: 33.7 ± 5.6Female: 42%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: K-L: 3&4,Moderate-to-severe,Outerbridge Scale 3-4Analgesic Use: Yes,Subjects in all 3 groups were advised to maintain any pre-existing treatment of their OA such as pharmacologic therapy. | Diagnosis of osteoarthritis of the kneeMinimum Age: 55Maximum Age:74AmbulatoryWait list for arthroplastyK-L: 3&4Outerbridge scale: 3-4 | Surgery knee limb in prior 3 month(s)Pending surgeryPhysical Therapy or Rehab or exercise in the previous 6 months month(s)Prior experience with the intervention of interestMedical co-morbidities precluding participation in an exercise programImplanted electrical devicesNeurological disorders, inflammatory arthritisSignificant cognitive impairmentAnticoagulant therapy | Arm 1: Standard caren = 6Placebo/OA education, weight loss, pharmacologic therapy, and physical therapyDose: not applicableFrequency: not applicableDuration: 6 weeksArm 2: Strength/resistance trainingn = 10Dose: 30 minutesFrequency: 3 sessions per weekDuration: 6 weeksArm 3: NMESn = 10Dose: 20 minutes per sessionFrequency: 5 sessions per weekDuration: 6 weeks | SF-36 mental:Follow-Up Time: 14 weeks :Comparator: Arm 2 vs Arm 1 , MD : 5.20 95% CI: (-18.46, 28.86)Comparator: Arm 3 vs Arm 1 , MD : 5.10 95% CI: (-14.55, 24.75)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.64 95% CI: (-23.41, 20.13)Comparator: Arm 3 vs Arm 1 , MD : -5.67 95% CI: (-27.62, 16.28)SF-36 physical:Follow-Up Time: 14 weeks :Comparator: Arm 2 vs Arm 1 , MD : 14.63 95% CI: (-8.68, 37.94)Comparator: Arm 3 vs Arm 1 , MD : 20.23 95% CI: (1.63, 38.83)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : 6.00 95% CI: (-15.16, 27.16)Comparator: Arm 3 vs Arm 1 , MD : 5.50 95% CI: (-13.19, 24.19)WOMAC function:Follow-Up Time: 14 weeks :Comparator: Arm 2 vs Arm 1 , MD : 9.83 95% CI: (-7.73, 27.39)Comparator: Arm 3 vs Arm 1 , MD : 9.83 95% CI: (-7.20, 26.86)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : 7.80 95% CI: (-4.79, 20.39)Comparator: Arm 3 vs Arm 1 , MD : 7.77 95% CI: (-4.54, 20.08)WOMAC pain:Follow-Up Time: 14 weeks :Comparator: Arm 2 vs Arm 1 , MD : 1.27 95% CI: (-2.88, 5.42)Comparator: Arm 3 vs Arm 1 , MD : 0.17 95% CI: (-3.50, 3.84) |
| Bruce-Brand, 2012[44](#_ENREF_44) -Continued |  |  |  |  | Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : 2.45 95% CI: (-1.37, 6.27)Comparator: Arm 3 vs Arm 1 , MD : 0.55 95% CI: (-2.85, 3.95) |
| Bruyere, 2008[33](#_ENREF_33)Study design: Post-hoc analysisTrial name: NoneStudy Location: Belgium, Czech RepublicHealth care setting: Academic orthopedic surgery clinic/department, Institute of RheumatologyMultiple Sites: 2 | Total n = 275Age Range: 63.2Arm 1, Mean Age: 63.6BMI: 26.6Arm 2, Mean Age: 62.9BMI: 26.6Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: ACRAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeInclusion : NRACR | Exclusion : NR | Arm 1: Placebon = 131Placebo/Tablets packetsDose:Frequency: Once dailyDuration: 12 monthsArm 2: Glucosamine sulfate usen = 144Dose: 1500mgFrequency: Once dailyDuration: 12 months | Total knee replacement:Follow-Up Time: 5 years :Comparator: Arm 2 vs Arm 1 , RR : 0.43 95% CI: (0.20, 0.92) |
| Cakir, 2014[79](#_ENREF_79)Study design: RCTTrial name: NoneStudy Location: TurkeyHealth care setting: Department of Physical Medicine and RehabilitationSingle Site | Total n = 60Age Range: 40-80Arm 1, Mean Age: 57.1 (7.8)BMI: 29.5 (5.9)Arm 2, Mean Age: 56.9 (8.8)BMI: 27.9 (4.4)Arm 3, Mean Age: 58.2 (9.9)BMI: 30.9 (4.0)Female: 15.5%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: K-L: 2&3,ACRAnalgesic Use: Yes,Paracetamol up to 2000 mg/day | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: 6 monthsMinimum Age: 40Maximum Age:79K-L: 2&3 | Concomitant medical problems that prevent participationConcomitant or prior use of other medsInjected hyaluronic acid in the past or during the past 6 month(s)Injected corticosteroids in the prior 1 month(s)Physical Therapy or Rehab or exercise in the previous month(s)Prior experience with the intervention of interestJoint infection, neoplasm, diabetes mellitus, paresis, osteonecrosis, recent trauma, ascertained/suspected pregnancy or lactating and poor general health status | Arm 1: Controln = 20Placebo/Sham procedureFrequency: 5 times a weekDuration: 12 monthsCo-Intervention: Isometric exercise, strengthening, stretchingArm 2: Continuous Ultrasoundn = 20Dose: Frequency of 1 MHz with intensity of 1 W/cm2Frequency: 5 times a weekDuration: 12 monthsCo-Intervention: Isometric exercise, strengthening, stretchingArm 3: Pulse Ultrasoundn = 20Dose: Frequency of 1 MHz with intensity of 1 W/cm2Frequency: 5 times a weekDuration: 12 monthsCo-Intervention: Isometric exercise, strengthening, stretching | VAS pain at rest:Follow-Up Time: 6.5 months :Comparator: Arm 2 vs Arm 1 , MD : -0.90 95% CI: (-11.14, 9.34)Comparator: Arm 3 vs Arm 1 , MD : -2.10 95% CI: (-10.99, 6.79)VAS pain on movement:Follow-Up Time: 6.5 months :Comparator: Arm 2 vs Arm 1 , MD : 0.60 95% CI: (-13.56, 14.76)Comparator: Arm 3 vs Arm 1 , MD : -0.60 95% CI: (-16.69, 15.49)WOMAC function:Follow-Up Time: 6.5 months :Comparator: Arm 2 vs Arm 1 , MD : -2.90 95% CI: (-9.15, 3.35)Comparator: Arm 3 vs Arm 1 , MD : 1.60 95% CI: (-2.94, 6.14)WOMAC pain:Follow-Up Time: 6.5 months :Comparator: Arm 2 vs Arm 1 , MD : -1.60 95% CI: (-3.25, 0.05)Comparator: Arm 3 vs Arm 1 , MD : 0.20 95% CI: (-1.32, 1.72) |
| Callaghan, 2015[100](#_ENREF_100)Study design: RCTTrial name: NoneStudy Location: UKHealth care setting: NRSingle Site | Total n = 126Age Range: 40-70Arm 1, Mean Age: 56.4 (8.1)BMI: 30.5 (5.1)Arm 2, Mean Age: 54.5 (6.7)BMI: 31.4Female: 57.1Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: Patellofemora 100%Diagnosis: K-L: 2&3Analgesic Use: NR | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: 3 months; >=4 on VAS scaleTaking same medication for past 3 monthsK-L: 2&3Patellofemoral OA: PL OA is present and greater than tibiofemoral OA | Concomitant medical problems that prevent participationPrior surgery on one or both kneesInjected corticosteroids in the prior 1 month(s)Initiating new treatment | Arm 1: No bracen = 63Placebo/ControlDuration: 6 weeksMethod of Blinding: Single-blindArm 2: Bracen = 63Duration: 6 weeksMethod of Blinding: Single-blind | Koos pain subscale:Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : -5.70 95% CI: (-10.76, -0.64)VAS:Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.30 95% CI: (-2.01, -0.59) |
| Campos, 2015[106](#_ENREF_106)Study design: RCTTrial name: NoneStudy Location: BrazilHealth care setting: Hospital-outpatientSingle Site | Total n = 58Mean Age: 64.3Arm 1, Mean Age: 63.3 (7.5)BMI: 30.3 (5.1)Arm 2, Mean Age: 65.2 (9.6)BMI: 30.8 (6.1)Female: 63.8Racial/Ethnic Distribution: African American 10.3%, Asian 3.4%, Caucasian 74.1%, 12.1% MixedLiving Situation: NRLocation of OA: NRSubtype: Medial 100%Diagnosis: K-L: 1-4,ACRAnalgesic Use: Yes,Unlimited | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: 6 months of usual care treatmentAble to sign ConsentACR | Concomitant medical problems that prevent participationPending surgeryConcomitant or prior use of other meds | Arm 1: Neutral insolen = 29Placebo/ShamDose: 5-10 hrs/dayFrequency: DailyDuration: 6 monthsMethod of Blinding: UnblindedArm 2: Wedged insolen = 29Dose: 5-10 hrs/dayFrequency: DailyDuration: 6 monthsMethod of Blinding: Unblinded | Lequesne index:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : 1.10 95% CI: (-1.19, 3.39)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : 1.00 95% CI: (-1.02, 3.02)VAS:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.20 95% CI: (-14.34, 9.94)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.30 95% CI: (-11.99, 11.39)WOMAC pain:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.10 95% CI: (-2.30, 2.10)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.70 95% CI: (-2.64, 1.24)WOMAC total:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.70 95% CI: (-13.38, 7.98)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.00 95% CI: (-11.04, 9.04) |
| Carlos, 2012[80](#_ENREF_80)Study design: RCTTrial name: NoneStudy Location: BrazilHealth care setting: Physical therapy outpatient clinicSingle Site | Total n = 30Arm 1, Mean Age: 62.7(8.7)BMI: 31.1(3.2)Arm 2, Mean Age: 63.4(4.6)BMI: 27.8(3.8)Arm 3, Mean Age: 63.9(6.3)BMI: 31.8(4.1)Female: 70%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: bilateral 86.7%, unilateral 13.3%Subtype: NRDiagnosis: K-L: Grade I1-4 on at least one kneeAnalgesic Use: No | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: 3 monthsMinimum Age: 50Maximum Age:75K-L:-grade I1-4 | Concomitant medical problems that prevent participationContinued Use of AnalgesicsDiabetes, uncontrolled hypertension, morbid obesityDementiaOA of the hipUse of anti-inflammatory or anxiolytic drugs during the past 6 months | Arm 1: Exercisen = 10Dose: 45 minutes (2 sets of 30 reps)Frequency: 3 sessions per weekDuration: 8 weeksArm 2: Ultrasoundn = 10Dose: 2.5W/cm2, 20%, 100HzFrequency: 3 sessions per week for 4 weeksDuration: 8 weeks (4 weeks US, 4 weeks exercise)Co-Intervention: strength/resistance training 3 sessions per week for 4 weeksArm 3: Ultrasoundn = 10Dose:Frequency: 3 sessions per week for 4 weeksDuration: 8 weeks (4 weeks US, 4 weeks exercise)Co-Intervention: strength/resistance training 3 sessions per week for 4 weeks | VAS movement:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.05 95% CI: (-0.23, 0.14)Comparator: Arm 3 vs Arm 1 , MD : 0.03 95% CI: (-0.08, 0.14)VAS rest:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : 0.42 95% CI: (0.13, 0.71)Comparator: Arm 3 vs Arm 1 , MD : 0.17 95% CI: (-0.17, 0.50)WOMAC function:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : 0.38 95% CI: (0.16, 0.60)Comparator: Arm 3 vs Arm 1 , MD : 0.31 95% CI: (0.08, 0.54)WOMAC pain:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : 0.42 95% CI: (0.25, 0.59)Comparator: Arm 3 vs Arm 1 , MD : 0.32 95% CI: (0.09, 0.55)WOMAC total:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : 0.43 95% CI: (0.15, 0.71)Comparator: Arm 3 vs Arm 1 , MD : 0.28 95% CI: (-0.01, 0.57) |
| Cheawthamai, 2014[117](#_ENREF_117)Study design: RCTTrial name: NoneStudy Location: ThailandHealth care setting: Academic physical therapy departmentSingle Site | Total n = 43Age Range: 65.3Arm 1, Mean Age: 64.1(7.9)BMI: 27.1(3.6)Arm 2, Mean Age: 66.6(8.8)BMI: 27.0(4.6)Female: 100%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: bilateral 51%, unilateral 48%Subtype: NRDiagnosis: ACRAnalgesic Use: Yes,Participants were instructed to continue any current medication and not to start any new medication | Diagnosis of osteoarthritis of the kneeFemaleACR: NR | Surgery knee limb in prior 1.5 months month(s)Injected corticosteroids in the prior 1month month(s)Systemic joint disease, cerebrovascular disease, Parkinson'sBack and limb surgery in the prior 1.5 months | Arm 1: Home-exercise programn = 22Placebo/Home-exerciseDose: CustomizedFrequency: DailyDuration: 12 weeksArm 2: Manipulation/manual therapyn = 21Dose: CustomizedFrequency: DailyDuration: 12 weeksCo-Intervention: home-based exercise | 6 min walk (meter):Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : 5.00 95% CI: (NC, NC)Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : 10.00 95% CI: (NC, NC)VAS pain:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : 0.20 95% CI: (-1.29, 1.69)Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : 1.90 95% CI: (0.41, 3.39) |
| Cherian, 2015[101](#_ENREF_101)Study design: RCTTrial name: NoneStudy Location: USHealth care setting: NRSingle Site | Total n = 52Age Range: 41-80Arm 1, Mean Age: 54Arm 2, Mean Age: 59Female: 48.1%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: K-L: 3&4Analgesic Use: Yes,Both treatment and the matched cohorts were not prohibited from receiving previously prescribed NSAIDs. However, we instructed patients to remain taking the same dosage of NSAIDs medication throughout the study, and that if increase or change of dosage was needed, this would only occur after their three month follow-up appointment. In addition, no patients in the study were started on new pain medications at the time of enrollment and throughout the trial period by our institution. The rationale behind our choices for a corticosteroid injection/ physical therapy and to allow the use of NSAID as the matching cohort was to compare the use of the brace to the current initial standard of care at our institution. | Diagnosis of osteoarthritis of the kneeMinimum Age: 41Maximum Age:79Able to sign ConsentMedial or lateral OAPersistent pain beyond treatmentAbility to comply with treatmentK-L: 3&4 | Concomitant medical problems that prevent participationSurgery knee limb in prior 6 month(s)Injected corticosteroids in the prior 3 month(s)Equal medial/lateral OAHistory of traumatic onset of knee pain | Arm 1: Usual caren = 26Placebo/Usual careDose: 1 mL Kenalog 40 mg and 4 mL of 1% lidocaine (corticosteroids); unspecified length of time (physical therapy)Frequency: Unspecified (corticosteroids); gait training three times a week for six weeks, self-directed physical therapy every other day (physical therapy)Duration: 3 monthsMethod of Blinding: Single-blindedArm 2: Bracen = 26Dose: 3+ hrs per dayFrequency: DailyDuration: 3 monthsMethod of Blinding: Single-blinded | SF-36 mental:Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -2.30 95% CI: (NC, NC)SF-36 physical:Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : 5.90 95% CI: (NC, NC)TUG (s):Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -3.10 95% CI: (NC, NC)VAS:Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -2.30 95% CI: (-3.66, -0.94) |
| Cheung, 2014[71](#_ENREF_71)Study design: RCTTrial name: NoneStudy Location: USHealth care setting: Home, NRSite size: NR | Total n = 36Mean Age: 72Arm 1, Mean Age: 71.9 (69.3, 74.6) 95% CIBMI: 29.1 (26.7, 31.7) 95% CIArm 2, Mean Age: 71.9 (69.0, 75.0) 95% CIBMI: 28.8 (26.0, 31.7) 95% CIFemale: 100%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: ACRAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: 6 monthsMinimum Age: 65Maximum Age:89ACR | Concomitant medical problems that prevent participationSurgery knee limb in prior 24 month(s)Injected hyaluronic acid in the past or during the past 6 month(s)Injected corticosteroids in the prior 3 month(s)Prior experience with the intervention of interestNot currently participating in a supervised exercise programCognitive/mental impairmentSymptoms of joint locking; in stability indicated by chronic use of a knee brace, cane, walker, or wheelchairPrior joint replacement: a) uncontrolled high blood pressure or existing heart condition; and b) other comorbid condition with overlapping symptoms (i.e. fibromyalgia, rheumatoid arthritis) were also be excluded. | Arm 1: Wait list controln = 18Placebo/Wait listDuration: 8 weeksMethod of Blinding: Single-blindArm 2: Hatha yogan = 18Dose: 60 minutesFrequency: WeeklyDuration: 8 weeksMethod of Blinding: Single-blind | SF-12 mental component:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : 2.00 95% CI: (-1.33, 5.33)SF-12 physical component:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : 0.70 95% CI: (-2.04, 3.44)WOMAC function:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -4.20 95% CI: (-10.58, 2.18)WOMAC pain:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.50 95% CI: (-4.36, -0.64)WOMAC total:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -8.30 95% CI: (-16.62, 0.02) |
| Christensen, 2015[62](#_ENREF_62)Study design: RCTTrial name: CAROTStudy Location: DenmarkHealth care setting: Home, Hospital-outpatient, Dietary unitSite size: NR | Total n = 192Total # of knees = NRAge Range: NRArm 1, Mean Age: 61.7 (SD 6.8)BMI: NRArm 2, Mean Age: 63.0 (SD 6.5)BMI: NRArm 3, Mean Age: 62.9 (SD 5.8)BMI: NRFemale: 80.7%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: bilateral 89%, unilateral 11%Subtype: NRDiagnosis: Confirmed knee OA based on clinical symptoms, including pain, and on standing radiographs in at least 1 joint compartmentAnalgesic Use: Yes,Participants were asked not to change any medication or nutritional supplements during the study | Diagnosis of osteoarthritis of the kneeMinimum Age: 50BMI >= 30 kg/m2NR: Confirmed knee OA based on clinical symptoms, including pain, and on standing radiographs in at least 1 joint compartment | Pending surgeryLack of motivation to lose weightInability to speak DanishPlanned antiobesity surgery, total knee alloplasty (TKA), or receiving pharmacologic therapy for obesity | Arm 1: Controln = 64Placebo/ControlDose: NAFrequency: NADuration: 68 weeks (16 on co-intervention, 52 on control)Method of Blinding: NRCo-Intervention: Initial 16-week intensive dietary therapyArm 2: Weight lossn = 64Dose: 1 hour sessionsFrequency: Weekly sessions for 52 weeksDuration: 68 weeks (16 on co-intervention, 52 on additional weight loss intervention)Method of Blinding: NRCo-Intervention: Initial 16-week intensive dietary therapyArm 3: Home exercise program; strength/resistance trainingn = 64Dose: 60 minutes per sessionFrequency: 3 days per weekDuration: 68 weeks (16 on co-intervention, 52 on additional exercise intervention)Method of Blinding: NRCo-Intervention: Initial 16-week intensive dietary therapy | 6 min walk (meter):Follow-Up Time: 68 weeks :Comparator: Arm 2 vs Arm 1 , MD : -14.63 95% CI: (-35.67, 6.41)Comparator: Arm 3 vs Arm 1 , MD : -15.59 95% CI: (-36.63, 5.45)KOOS pain:Follow-Up Time: 68 weeks :Comparator: Arm 2 vs Arm 1 , MD : 1.10 95% CI: (-4.13, 6.33)Comparator: Arm 3 vs Arm 1 , MD : 1.90 95% CI: (-3.33, 7.13)SF-36 mental health:Follow-Up Time: 68 weeks :Comparator: Arm 2 vs Arm 1 , MD : 1.60 95% CI: (-1.09, 4.29)Comparator: Arm 3 vs Arm 1 , MD : 1.20 95% CI: (-1.49, 3.89)SF-36 physical component:Follow-Up Time: 68 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.10 95% CI: (-3.86, 1.66)Comparator: Arm 3 vs Arm 1 , MD : 0.60 95% CI: (-2.16, 3.36)VAS pain:Follow-Up Time: 68 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.60 95% CI: (-7.67, 6.47)Comparator: Arm 3 vs Arm 1 , MD : -0.10 95% CI: (-7.17, 6.97)Change in BMI:Follow-Up Time: 68 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.10 95% CI: (-2.09, -0.11)Comparator: Arm 3 vs Arm 1 , MD : 0.60 95% CI: (-0.39, 1.59) |
| Christensen, 2015[62](#_ENREF_62) -Continued |  |  |  |  | Weightloss, kg:Follow-Up Time: 68 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.73 95% CI: (-5.37, -0.09)Comparator: Arm 3 vs Arm 1 , MD : 1.99 95% CI: (-0.65, 4.63) |
| Claes, 2015[130](#_ENREF_130)Study design: Single arm trialTrial name: Osteoarthritis Chronic CAre Program (OACCP)Study Location: AustraliaHealth care setting: Hospital-outpatientMultiple Sites: 11 | Total n = 203Arm 1, Mean Age: 67.3(9.7)BMI: 31.3(6.6)Female: 64.5Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: VAS >=4/10 at initial assessment; waiting list for TKR or orthopaedic referral | VAS>=4/10 at recruitment visitPain associated with affected joint on most days of prior month | Exclusion : NR | Arm 1: Weight lossn = 203Placebo/NADose: NAFrequency: NADuration: 1 yearMethod of Blinding: NACo-Intervention: NA | 6-minute walk test (m):Follow-Up Time: 12 weeks :Comparator: post-pre , MD : 36.70 95% CI: (27.2, 46.2)Follow-Up Time: 26 weeks :Comparator: post-pre , MD : 44.00 95% CI: (31.5, 56.5)BMI:Follow-Up Time: 12 weeks :Comparator: pre-post , MD : 0.50 95% CI: (0.3, 0.7)Follow-Up Time: 26 weeks :Comparator: pre-post , MD : 0.80 95% CI: (0.5, 1.1)KOOS pain:Follow-Up Time: 12 weeks :Comparator: post-pre , MD : 5.00 95% CI: (2.0, 7.9)Follow-Up Time: 26 weeks :Comparator: post-pre , MD : 5.60 95% CI: (1.6, 9.6)TUG (s):Follow-Up Time: 12 weeks :Comparator: pre-post , MD : 1.40 95% CI: (1.1, 1.7)Follow-Up Time: 26 weeks :Comparator: pre-post , MD : 2.00 95% CI: (1.4, 2.6)VAS pain:Follow-Up Time: 12 weeks :Comparator: pre-post , MD : 1.00 95% CI: (0.7, 1.3)Follow-Up Time: 26 weeks :Comparator: pre-post , MD : 0.90 95% CI: (0.4, 1.4) |
| Claes, 2015[130](#_ENREF_130) -Continued |  |  |  |  | Weight (kg):Follow-Up Time: 12 weeks :Comparator: pre-post , MD : 1.40 95% CI: (0.8, 2.0)Follow-Up Time: 26 weeks :Comparator: pre-post , MD : 2.10 95% CI: (1.2, 3.0) |
| Coleman, 2012[133](#_ENREF_133)Study design: RCTTrial name: Osteoarthritis of the Knee Self Management ProgramStudy Location: AustraliaHealth care setting: Community venueSite size: NR | Total n = 146Total # of knees = NRMean Age(SD): 65 (SD 8)Arm 1, Mean Age: 65 (SD 8.7)BMI: NRArm 2, Mean Age: 65 (SD 7.9)BMI: NRFemale: 74.7%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: X-ray or clinical diagnosis of OAAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeMinimum Age: 18English-speakingReferral from general practitioner or specialistAble to meet program requirementsNR: X-ray or clinical diagnosis of OA | Concomitant medical problems that prevent participationSurgery knee limb in prior 6 month(s)Coexisting inflammatory arthritisSerious comorbidityKnee replacement scheduled in < 6 monthsCannot meet program time points | Arm 1: Control groupn = 75Placebo/ControlDose: NAFrequency: NADuration: 6 weeksMethod of Blinding: Patients were not blind, physiotherapists performing the assessments were blind to group allocationCo-Intervention: NRArm 2: Self-management programn = 71Dose: 2.5 hoursFrequency: Once per weekDuration: 6 weeksMethod of Blinding: Patients were not blind, physiotherapists performing the assessments were blind to group allocationCo-Intervention: NR | SF-36 body pain:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -6.00 95% CI: (-11.96, -0.04)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -7.20 95% CI: (-12.47, -1.93)SF-36 physical function:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -5.70 95% CI: (-10.97, -0.43)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -5.60 95% CI: (-9.48, -1.72)TUG (s):Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -1.00 95% CI: (-1.55, -0.45)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.00 95% CI: (-1.55, -0.45)WOMAC function:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -3.50 95% CI: (-6.14, -0.86)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -5.30 95% CI: (-7.24, -3.36)WOMAC pain:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -0.60 95% CI: (-1.43, 0.23)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.50 95% CI: (-2.33, -0.67)WOMAC total:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -4.10 95% CI: (-7.43, -0.77) |
| Coleman, 2012[133](#_ENREF_133) -Continued |  |  |  |  | Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -7.20 95% CI: (-9.97, -4.43)Number with MCII SF36 pain:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , RR : 0.81 95% CI: (0.54, 1.21)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , RR : 0.73 95% CI: (0.43, 1.24)Number with MCII SF36 physical function:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , RR : 0.73 95% CI: (0.52, 1.02)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , RR : 0.57 95% CI: (0.38, 0.84)Number with MCII TUG:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , RR : 0.68 95% CI: (0.47, 0.99)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , RR : 0.32 95% CI: (0.20, 0.52)Number with MCII VAS Pain:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , RR : 0.20 95% CI: (0.08, 0.49)Number with MCII WOMAC physical function:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , RR : 0.56 95% CI: (0.33, 0.95)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , RR : 0.24 95% CI: (0.11, 0.51) |
| Cortes, 2014[118](#_ENREF_118)Study design: RCTTrial name: NoneStudy Location: SpainHealth care setting: NRSite size: NR | Total n = 18Total # of knees = NRAge Range: 67-91Arm 1, Mean Age: NRBMI: NRFemale: NRRacial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: Radiologic evidence and/or clinical signs of knee OAAnalgesic Use: Yes,No changes in drug administration, including NSAIDs, during the study | Able to sign ConsentKnee pain most days within the last monthDisabling knee pain during at least one of the following activities: going down stairs or upstairs; walking at a pace of 0.4 km; and standing up or sitting down on the toilet or bedNo changes in drug administration, including NSAIDs, during the study | Concomitant medical problems that prevent participationSurgery knee limb in prior 12 month(s)Injected hyaluronic acid in the past or during the past 6 month(s)Injected corticosteroids in the prior 6 month(s)Rheumatoid arthritis or other inflammatory joint diseaseIntra-articular injection within the last 6 monthsCognitive impairment that may bias the research | Arm 1: Controln = 9Placebo/ControlDose: NAFrequency: NADuration: 6 weeksMethod of Blinding:Arm 2: Massage | TUG (s):Follow-Up Time: 1 month :Comparator: Arm 2 vs Arm 1 , MD : 3.94 95% CI: (-4.01, 11.89)Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : 2.84 95% CI: (-4.61, 10.29)VAS pain:Follow-Up Time: 1 month :Comparator: Arm 2 vs Arm 1 , MD : 3.10 95% CI: (0.76, 5.44)Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : 2.28 95% CI: (0.44, 4.12)WOMAC total:Follow-Up Time: 1 month :Comparator: Arm 2 vs Arm 1 , MD : 21.42 95% CI: (9.79, 33.05)Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : 14.04 95% CI: (4.71, 23.37) |
| da Silva, 2015[58](#_ENREF_58)Study design: RCTTrial name: NoneStudy Location: BrazilHealth care setting: Physical therapy outpatient clinicSingle Site | Total n = 30Mean Age: 59Arm 1, Mean Age: 60 ± 7.76BMI: 29.29 ± 5.00Arm 2, Mean Age: 57 ± 6.01BMI: 29.37 ± 4.10Female: 87%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: Lequesne,ACRAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeMinimum Age: 18Pain within the past year; on most days for at least 3 monthsStable doses of NSAIDsACR: NALequesne Index: 5-13 | Concomitant medical problems that prevent participationPrior experience with the intervention of interestOther cause of pain in the lower limbRefusal to continueTwo consecutive or 3 non-consecutive absences | Arm 1: Controln = 15Duration: 8 weeksCo-Intervention: Pre-randomization self-management programArm 2: Land-based exercise programn = 15Dose: 45 minutes per sessionFrequency: 2 sessions per weekDuration: 8 weeksCo-Intervention: Pre-randomization self-management program plus weekly educational sessions | 6 min walk:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -50.40 95% CI: (-94.26, -6.54)Lequesne Index Function:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.83 95% CI: (-1.84, 0.18)SF-36 bodily pain:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -14.80 95% CI: (-27.39, -2.21)SF-36 physical function:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -14.00 95% CI: (-26.24, -1.76)SF-36 role physical:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -53.33 95% CI: (-76.10, -30.56)TUG (s):Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.05 95% CI: (-3.12, -0.98) |
| de Rooij, 2016[66](#_ENREF_66)Study design: RCTTrial name: NoneStudy Location: NetherlandsHealth care setting: Secondary outpatient rehabilitation centerSingle Site | Total n = 126Arm 1, Mean Age: 63.9 (12.4)BMI: 35 (7.6)Arm 2, Mean Age: 63.2 (8.4)BMI: 36 (6.8)Female: 77% T, 73% CRacial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: bilateral 19%, unilateral 81%Subtype: NRDiagnosis: K-L: 0-IV,ACRAnalgesic Use: Yes,79.4% T/76.2% C use pain meds | Diagnosis of osteoarthritis of the kneePresence of coronary disease, HF, type 2 diabetes, COPD, or obesity,Primary treatment goal related to OAKACR: diagnosis of OAK | Concomitant medical problems that prevent participationPending surgeryPrior experience with the intervention of interestInsufficient knowledge of DutchPsych distress necessitating treatmentDementia; MMSE>25Expected to be lost at follow up (i.e. moving)Refusal to sign informed consent | Arm 1: Usual care / waitlistn = 63Placebo/Usual care / waitlistDuration: 32 weeks on waitlistArm 2: Exercise therapyn = 63Dose: 30-60 minFrequency: Twice a weekDuration: 20 weeks | 6MWT:Follow-Up Time: 10 weeks :Comparator: Arm 2 vs Arm 1 , MD : -17.20 95% CI: (-56.64, 22.24)Follow-Up Time: 20 weeks :Comparator: Arm 2 vs Arm 1 , MD : -31.50 95% CI: (-71.82, 8.82)Follow-Up Time: 32 weeks :Comparator: Arm 2 vs Arm 1 , MD : -42.30 95% CI: (-82.63, -1.97)NRS pain:Follow-Up Time: 10 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.40 95% CI: (-1.17, 0.37)Follow-Up Time: 20 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.50 95% CI: (-2.26, -0.74)Follow-Up Time: 32 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.50 95% CI: (-2.26, -0.74)SF-36 physical health:Follow-Up Time: 20 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.90 95% CI: (-3.62, -0.18)Follow-Up Time: 32 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.50 95% CI: (-4.26, -0.74)TUG:Follow-Up Time: 10 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.90 95% CI: (-2.32, 0.52)Follow-Up Time: 20 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.10 95% CI: (-2.57, 0.37)Follow-Up Time: 32 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.40 95% CI: (-2.69, -0.11) |
| de Rooij, 2016[66](#_ENREF_66) -Continued |  |  |  |  | WOMAC function:Follow-Up Time: 10 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.50 95% CI: (-6.67, 1.67)Follow-Up Time: 20 weeks :Comparator: Arm 2 vs Arm 1 , MD : -5.10 95% CI: (-9.81, -0.39)Follow-Up Time: 32 weeks :Comparator: Arm 2 vs Arm 1 , MD : -7.90 95% CI: (-12.78, -3.02)WOMAC pain:Follow-Up Time: 10 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.70 95% CI: (-1.92, 0.52)Follow-Up Time: 20 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.90 95% CI: (-3.28, -0.52)Follow-Up Time: 32 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.00 95% CI: (-3.37, -0.63) |
| Dundar, 2015[91](#_ENREF_91)Study design: RCTTrial name: NoneStudy Location: TurkeyHealth care setting: Academic Physical Medicine and Rehabilitation DepartmentSingle Site | Total n = 40Total # of knees = NRAge Range: NRArm 1, Mean Age: 57.6BMI: 31.2Arm 2, Mean Age: 56.8BMI: 31.7Female: 72.5%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: bilateral 100%Subtype: NRDiagnosis: K-L: 2&3,Bilateral knee OA diagnosis according to ACR criteriaAnalgesic Use: Yes,Patients were not allowed to change the dosage of their routine pain medication or begin a new pain medication during the study. | Inclusion : NR | Concomitant medical problems that prevent participationSurgery knee limb in prior 6 month(s)Injected hyaluronic acid in the past or during the past 6 month(s)Injected corticosteroids in the prior 6 month(s)PregnantNot allowed to change dosage of their routine pain medicationNot allowed to begin new pain medication | Arm 1: Sham Proceduren = 20Placebo/Sham ProcedureDose: NRFrequency: 5 times per weekDuration: 4 weeksMethod of Blinding: The WOMAC questionnaire and VAS for pain were performed by a physiatrist who was blind to the patient’s treatment protocol. Another clinician blinded to the patient’s clinical and treatment data, performed the ultrasound.Co-Intervention: Both groups received 20 sessions (5 sessions in a week, each lasting 60 min) of physical therapy, including hot pack, ultrasound, TENS and isometric knee exerciseArm 2: Neuromuscular electrical stimulationn = 20Dose: frequency of 50Hz, intensity 100 microT for 20 minutesFrequency: 5 times per weekDuration: 4 weeksMethod of Blinding: The WOMAC questionnaire and VAS for pain were performed by a physiatrist who was blind to the patient’s treatment protocol. Another clinician blinded to the patient’s clinical and treatment data, performed the ultrasound.Co-Intervention: Both groups received 20 sessions (5 sessions in a week, each lasting 60 min) of physical therapy, including hot pack, ultrasound, TENS and isometric knee exercise | Total WOMAC:Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : 7.00 95% CI: (NC, NC)VAS pain:Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : 0.00 95% CI: (-15.49, 15.49)WOMAC pain:Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : 7.00 95% CI: (NC, NC) |
| Dwyer, 2015[120](#_ENREF_120)Study design: RCTTrial name: NoneStudy Location: US, South AfricaHealth care setting: Chiropractic university-based outpatient teaching clinicsMultiple Sites: 2 | Total n = 78Total # of knees = 85Age Range: 38-80Arm 1, Mean Age: 60.9 (10.3)BMI: 28.6 (5.2)Arm 2, Mean Age: 63.5 (10.9)BMI: 28.6 (5.2)Arm 3, Mean Age: 62.2 (11.8)BMI: 30.6 (7.6)Female: 63Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: bilateral 91%, unilateral 9%Subtype: NRDiagnosis: K-L: 0-3, of three clinical criteria involving knee pain, crepitus, morning stiffness, and bony enlargementAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: >=1 yearMinimum Age: 38Maximum Age:79AmbulatoryK-L: 0-31 of three clinical criteria involving knee pain, crepitus, morning stiffness, and bony enlargement: 1 of 3 criteria | Surgery knee limb in prior 6 month(s)Prior experience with the intervention of interest>=720/2400 on WOMAC | Arm 1: Rehabilitationn = 26Placebo/Usual careDose: 20 minFrequency: 6 timesDuration: 4 weeksMethod of Blinding: UnblindedArm 2: Manual and manipulative therapy (MMT)n = 26Dose: 20 minutesFrequency: 12 timesDuration: 4 weeksMethod of Blinding: UnblindedArm 3: Rehabilitation + Manual and manipulative therapy (MMT)n = 26Dose: 20-40 minutesFrequency: 6 session ß- 3 with extra trainingDuration: 4 weeksMethod of Blinding: UnblindedCo-Intervention: Rehab or MMT | WOMAC function:Follow-Up Time: 5 weeks :Comparator: Arm 2 vs Arm 1 , MD : -22.00 95% CI: (-162.58, 118.58)Comparator: Arm 3 vs Arm 1 , MD : -32.80 95% CI: (-191.40, 125.80)WOMAC pain:Follow-Up Time: 5 weeks :Comparator: Arm 2 vs Arm 1 , MD : -26.90 95% CI: (-68.88, 15.08)Comparator: Arm 3 vs Arm 1 , MD : -31.50 95% CI: (-72.40, 9.40)WOMAC total:Follow-Up Time: 5 weeks :Comparator: Arm 2 vs Arm 1 , MD : -80.50 95% CI: (-281.64, 120.64)Comparator: Arm 3 vs Arm 1 , MD : -63.20 95% CI: (-273.72, 147.32) |
| Elboim-Gabyzon, 2013[85](#_ENREF_85)Study design: RCTTrial name: NoneStudy Location: IsraelHealth care setting: Physical therapy outpatient clinicSingle Site | Total n = 63Mean Age(SD): 68.9 (SD 7.7)Arm 1, Mean Age: NRBMI: NRArm 2, Mean Age: NRBMI: NRFemale: 82.5%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: K-L: >=2,Diagnosis of idiopathic knee OAAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: Knee pain at least 3 months, with pain presenting at least three days a week during the last monthMinimum Age: 51AmbulatoryAbility to follow instructionsK-L: >=2ACR: Compliance with the classification of ACRNR: Diagnosis of idiopathic knee OA | Concomitant medical problems that prevent participationPrior surgery on one or both kneesInjected hyaluronic acid in the past or during the past 6 month(s)Injected corticosteroids in the prior 6 month(s)Existence of a pacemakerHistory of cardiovascular, neurological or orthopedic problems that could affect functional performance or previous knee surgery other than arthroscopyInability to tolerate electrical stimulation at a level of current sufficient to elicit full knee extensionChange in pain medication in the previous monthInjections to the knee joint during the previous six months | Arm 1: Controln = 30, Placebo/Control, Dose: NA, Frequency: NA, Duration: NAMethod of Blinding: Assessor was blind to treatment allocation only at the initial assessment. Physical therapists leading group exercise program were familiar with the study protocol were not aware of treatment allocation.Co-Intervention: Group exercise program consisting of 12 45-minute sessions, biweekly for six weeks, with 6–8 subjects in each group led by one of 3 physical therapists. To be included in final analysis, subjects had to complete the 12 sessions within 8 weeks. The program included: range of motion exercises; knee and lower extremity muscle-strengthening exercises; functional activities; and balance training. Sessions also included patient education on self-management; activity and exercise planning, and discussion of pain-coping strategies.Arm 2: Neuromuscular electrical stimulationn = 33, Dose: 75 Hz frequency; 2s ramp-up time; 10s on time; 2s off time; amplitude to tolerance (max 100mA); 10 contractions, Frequency: Biweekly, Duration: 6 weeksMethod of Blinding: Assessor was blind to treatment allocation only at the initial assessment. Physical therapists leading group exercise program were familiar with the study protocol were not aware of treatment allocation.Co-Intervention: Group exercise program consisting of 12 45-minute sessions, biweekly for six weeks, with 6–8 subjects in each group led by one of 3 physical therapists. To be included in final analysis, subjects had to complete the 12 sessions within 8 weeks. | TUG (s):Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : 0.20 95% CI: (-1.60, 2.00)VAS pain:Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.70 95% CI: (-2.98, -0.42)WOMAC total:Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : -23.20 95% CI: (-49.20, 2.80) |
| Elboim-Gabyzon, 2013[85](#_ENREF_85) -Continued |  |  |  | The program included: range of motion exercises; knee and lower extremity muscle-strengthening exercises; functional activities; and balance training. Sessions also included patient education on self-management; activity and exercise planning, and discussion of pain-coping strategies. |  |
| Erhart, 2010[113](#_ENREF_113)Study design: RCTTrial name: NoneStudy Location: USHealth care setting: NRSite size: NR | Total n = 79Total # of knees = NRAge Range: >=60.2Arm 1, Mean Age: 62.1BMI: 27.4Arm 2, Mean Age: 61.4BMI: 27.6Female: 51.39%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: Medial 100%Diagnosis: Osteoarthritic changes based on MRI (cartilage thinning and/or osteophytes)Analgesic Use: NR | Minimum Age: 40Maximum Age:79AmbulatoryAble to sign Consent | Concomitant medical problems that prevent participationPrior surgery on one or both kneesConcomitant or prior use of other medsPrior acute injury to the kneeBMI >35 kg/m2Use of shoe insert or hinged knee braceNarcotic pain medication useIntraarticular joint injection in previous 2 monthsNerve or muscle disease associated with walking difficulty, Gout or recurrent pseudogout, and Diagnosed or symptomatic osteoarthritis in other lower extremity joints, and Serious injury to foot, ankle, back, or hips | Arm 1: Controln = 26Placebo/Control shoesDose: NAFrequency: Suggested minimum wear time 4hr/day, average monthly reports 7.9-9.5h/dayDuration: 6 monthsMethod of Blinding: Subjects were blinded to the shoe type, researcher was not blindedCo-Intervention: NRArm 2: Variable-stiffness shoesn = 34Dose: NAFrequency: Suggested minimum wear time 4hr/day, average monthly reports 6.9-8.0h/dayDuration: 6 monthsMethod of Blinding: Subjects were blinded to the shoe type, researcher was not blindedCo-Intervention: NR | WOMAC pain:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -3.70 95% CI: (-10.08, 2.68)WOMAC total:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -10.00 95% CI: (-36.46, 16.46)Clinically significant on WOMAC pain:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , RR : 0.49 95% CI: (0.31, 0.79) |
| Erhart-Hledik, 2012[114](#_ENREF_114)Study design: RCTTrial name: NoneStudy Location: NRHealth care setting: NRSite size: NR | Total n = 79Total # of knees = NRMean Age(SD): 60.2 (SD 9.8)Arm 1, Mean Age: 61.0 (SD 12.0)BMI: NRArm 2, Mean Age: 57.3 (SD 8.5)BMI: NRFemale: 46.8%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: Medial 100%Diagnosis: Symptomatic medial compartment knee OA, osteoarthritic changes based on MRI/radiographAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: Persistent medial compartment knee joint painMinimum Age: 40Maximum Age:80AmbulatoryAble to sign ConsentNR: Symptomatic medial compartment knee OANR: Osteoarthritic changes based on MRI/radiograph | Concomitant medical problems that prevent participationPrior surgery on one or both kneesConcomitant or prior use of other medsInjected hyaluronic acid in the past or during the past 2 month(s)Injected corticosteroids in the prior 2 month(s)Prior acute injury to the kneeBMI > 35 kg/m2Total knee replacementIntraarticular joint injection in previous 2 monthsUse of shoe insert or hinged knee brace or narcotic pain medicationNerve or muscle disease associated with walking difficulty; serious injury to foot, ankle, back, or hips; gout or recurrent pseudogout; or OA in other lower extremity joint | Arm 1: Controln = 39Placebo/Control, constant-stiffness shoeDose: Instructed to use their assigned shoes as their main walking shoes, a minimum 4 h of wear per dayFrequency: DailyDuration: 12 monthsMethod of Blinding: Patients were blinded to their shoe type. The researcher performing the gait analysis was not blinded to shoe type.Co-Intervention: NRArm 2: Orthotics/shoesn = 40Dose: Instructed to use their assigned shoes as their main walking shoes, a minimum 4 h of wear per dayFrequency: DailyDuration: 12 monthsMethod of Blinding: Patients were blinded to their shoe type. The researcher performing the gait analysis was not blinded to shoe type.Co-Intervention: NR | WOMAC pain:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : -1.00 95% CI: (NC, NC) |
| Fioravanti, 2012[72](#_ENREF_72)Study design: RCTTrial name: NoneStudy Location: ItalyHealth care setting: Academic rheumatology clinic/department, health spaSingle Site | Total n = 60Mean Age: 70.5Arm 1, Mean Age: 72.45±7.14BMI: 26.53±4Arm 2, Mean Age: 69.33±7.63BMI: 27.52±3Female: 50%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: bilateral 100%Subtype: NRDiagnosis: ACRAnalgesic Use: Yes,Patients in both groups were advised to continue their established pharmacological and non-pharmacological treatments, with the exception of analgesic drugs (500 mg acetaminophen tablets) and NSAIDs (150 mg Diclofenac tablets, 20 mg Piroxicam tablets, 750 mg Naproxen tablets, 200 mg Aceclofenac), which were to be consumed as required and noted daily in a diary. | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: >+3 monthsMinimum Age: 50Maximum Age:75ACR: NAVAS: >30mmK-L: 1-3 | Concomitant medical problems that prevent participationInjected hyaluronic acid in the past or during the past 6 months month(s)Injected corticosteroids in the prior 3 months month(s)Physical Therapy or Rehab or exercise in the previous thermal treatments in the previous 6 months month(s)Severe comorbidity of the heart, lungs, liver, cerebrum or kidney, varices, systemic blood disease, neoplasmAcute illnessType 1 diabetesPregnancy or nursingArthroscopy with or without joint lavage in the previous 6 months, chondroprotective agents in the previous 6 months | Arm 1: Controln = 30Duration: NAArm 2: Balneotherapyn = 30Dose: 20 minutes per treatmentFrequency: 12 treatments per 2 weeksDuration: 2 weeks | Lequesne index:Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -7.50 95% CI: (-9.57, -5.43)SF-36 mental component:Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -17.00 95% CI: (-25.14, -8.86)SF-36 physical component:Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -32.60 95% CI: (-49.62, -15.58)VAS pain:Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -42.50 95% CI: (-53.67, -31.33)WOMAC total function score:Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -37.47 95% CI: (-46.61, -28.33)WOMAC total pain score:Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -25.70 95% CI: (-34.06, -17.34) |
| Fioravanti, 2015[75](#_ENREF_75)Study design: RCTTrial name: NoneStudy Location: ItalyHealth care setting: Spa resortSingle Site | Total n = 103Age Range: 40-80Arm 1, Mean Age: 69.66 (11.1)BMI: 28.01 (4.18)Arm 2, Mean Age: 68.49 (9.01)BMI: 28.58 (4.01)Female: 72Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: bilateral 100%Subtype: NRDiagnosis: K-L: 1-3,ACRAnalgesic Use: Yes,Allowed but washout of concomitant acetaminophen or NSAIDs was required for an entire week before randomization and 24 h before every assessment. | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: 6Minimum Age: 40Maximum Age:79VAS: >=30mm in last 3 monthsK-L: 1-3 | Concomitant medical problems that prevent participationInjected hyaluronic acid in the past or during the past 3 month(s)Injected corticosteroids in the prior 3 month(s)Prior experience with the intervention of interestSymptomatic Slow Acting Drugs for OA (SYSADOA) in last 3 months | Arm 1: Usual caren = 50Duration: 2 weeksMethod of Blinding: UnblindedArm 2: Mud-bath therapyn = 53Dose: 35 minutesFrequency: 12 sessionsDuration: 2 weeksMethod of Blinding: Unblinded | EQ-5D:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : -0.10 95% CI: (NC, NC)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -0.24 95% CI: (NC, NC)EQ-5D-VAS:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : -22.09 95% CI: (-31.75, -12.43)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -14.35 95% CI: (-24.01, -4.69)SF-12 mental component:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : 2.71 95% CI: (-6.95, 12.37)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : 1.92 95% CI: (-7.74, 11.58)SF-12 physical component:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : -11.85 95% CI: (-21.51, -2.19)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -12.46 95% CI: (-22.12, -2.80)VAS:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : -10.00 95% CI: (-21.31, 1.31)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -15.00 95% CI: (-25.63, -4.37) |
| Fioravanti, 2015[75](#_ENREF_75) -Continued |  |  |  |  | WOMAC function:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : -5.50 95% CI: (-10.81, -0.19)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -10.00 95% CI: (-15.00, -5.00) |
| Fitzgerald, 2011[55](#_ENREF_55)Study design: RCTTrial name: NoneStudy Location: USHealth care setting: NRSingle Site | Total n = 183Mean Age(SD): 64.5 (8.7)Arm 1, Mean Age: 65 (8.6)BMI: 30 (6.1)Arm 2, Mean Age: 63.8 (8.9)BMI: 29.8 (6.3)Female: 65%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: TibiofemoralDiagnosis: K-L: >=2,ACRAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeMinimum Age: 40ACR: meet criteria for OAKK-L: >=2 | Concomitant medical problems that prevent participationPrior surgery on one or both knees | Arm 1: Strength training; agility training; aerobic exercisen = 84Placebo/ControlDose: N/AFrequency: Twice a weekDuration: 6 weeksMethod of Blinding: UnblindedArm 2: Standard exercise + agility and perturbation trainingn = 75Dose: N/AFrequency: Twice a weekDuration: 6 weeksMethod of Blinding: Unblinded | WOMAC physical function score:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : 0.30 95% CI: (-3.59, 4.19)Follow-Up Time: 2 months :Comparator: Arm 2 vs Arm 1 , MD : -2.40 95% CI: (-5.87, 1.07)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -3.50 95% CI: (-7.32, 0.32)WOMAC total:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : 0.40 95% CI: (-4.98, 5.78)Follow-Up Time: 2 months :Comparator: Arm 2 vs Arm 1 , MD : -3.00 95% CI: (-7.74, 1.74)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -4.50 95% CI: (-9.61, 0.61)Get up and go test score (s):Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : 1.40 95% CI: (-0.13, 2.93)Follow-Up Time: 2 months :Comparator: Arm 2 vs Arm 1 , MD : -0.30 95% CI: (-0.94, 0.34)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -0.30 95% CI: (-0.75, 0.15)Knee pain:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : 0.10 95% CI: (-0.89, 1.09)Follow-Up Time: 2 months :Comparator: Arm 2 vs Arm 1 , MD : -0.60 95% CI: (-1.38, 0.18)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -0.60 95% CI: (-1.45, 0.25) |
| Fitzgerald, 2016[67](#_ENREF_67)Study design: RCTTrial name: NoneStudy Location: USHealth care setting: Hospital-outpatient, Academic physical therapy department, private hospital and military hospitalMultiple Sites: 3 | Total n = 300Age Range: >=40Arm 1, Mean Age: 58.3 (10.0)BMI: 30.1 (6.5)Arm 2, Mean Age: 58.4 (8.7)BMI: 31.4 (7.2)Arm 3, Mean Age: 58 (9.8)BMI: 31.1 (5.7)Arm 4, Mean Age: 58.5 (9.4)BMI: 31.7 (5.6)Female: 66%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: bilateral 60%Subtype: NRDiagnosis: ACRAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeMinimum Age: >= 40 yearsACR: diagnosis of OAK | Concomitant medical problems that prevent participationPrior surgery on one or both kneesPrior TKAPrior total arthoplasty of any lower extremity jointHave back or leg pain in other areas besides your knee that affects your ability to perform physical activitiesHistory of neurological disorders that would affect lower extremity function (stroke, peripheral neuropathy, Parkinson's disease, multiple sclerosis) | Arm 1: Exercise therapy + no boostern = 75Placebo/Usual careDose: 45-60 minFrequency: 12 sessionsDuration: 9 weeksMethod of Blinding: Single-blindArm 2: Exercise therapy + boostern = 76Dose: 45-60 minFrequency: Participants receiving booster sessions completed eight sessions in the first 9 weeks, two booster sessions at 5 months, and one booster session at 8 and 11 months.Duration: 11 monthsMethod of Blinding: Single-blindCo-Intervention: BoosterArm 3: Manual therapy + exercise therapy + no boostern = 75Dose: 45-60 minFrequency: 9 sessionsDuration: 12 weeksMethod of Blinding: Single-blindCo-Intervention: Exercise therapyArm 4: Manual therapy + exercise therapy + boostern = 74Dose: 45-60 minFrequency: Participants receiving booster sessions completed eight sessions in the first 9 weeks, two booster sessions at 5 months, and one booster session at 8 and 11 months.Duration: 11 monthsMethod of Blinding: Single-blindCo-Intervention: Exercise therapy + booster | Knee pain rating:Follow-Up Time: 1 year :Comparator: Arm 2 vs Arm 1 , MD : -0.60 95% CI: (-0.78, -0.42)Comparator: Arm 3 vs Arm 1 , MD : -0.20 95% CI: (-0.36, -0.04)Comparator: Arm 4 vs Arm 1 , MD : -0.70 95% CI: (-0.90, -0.50)Follow-Up Time: 9 week :Comparator: Arm 2 vs Arm 1 , MD : 0.60 95% CI: (0.42, 0.78)Comparator: Arm 3 vs Arm 1 , MD : 0.10 95% CI: (-0.06, 0.26)Comparator: Arm 4 vs Arm 1 , MD : 0.00 95% CI: (-0.20, 0.20)TUG:Follow-Up Time: 1 year :Comparator: Arm 2 vs Arm 1 , MD : -0.60 95% CI: (-0.78, -0.42)Comparator: Arm 3 vs Arm 1 , MD : -0.30 95% CI: (-0.46, -0.14)Comparator: Arm 4 vs Arm 1 , MD : 0.00 95% CI: (-0.21, 0.21)Follow-Up Time: 9 week :Comparator: Arm 2 vs Arm 1 , MD : -0.30 95% CI: (-0.48, -0.12)Comparator: Arm 3 vs Arm 1 , MD : -0.20 95% CI: (-0.36, -0.04)Comparator: Arm 4 vs Arm 1 , MD : -0.30 95% CI: (-0.51, -0.09)WOMAC total:Follow-Up Time: 1 year :Comparator: Arm 2 vs Arm 1 , MD : -3.40 95% CI: (-7.74, 0.94)Comparator: Arm 3 vs Arm 1 , MD : 2.00 95% CI: (-2.16, 6.16)Comparator: Arm 4 vs Arm 1 , MD : -5.80 95% CI: (-10.76, -0.84)Follow-Up Time: 9 week :Comparator: Arm 2 vs Arm 1 , MD : 6.60 95% CI: (2.26, 10.94)Comparator: Arm 3 vs Arm 1 , MD : -4.50 95% CI: (-8.66, -0.34)Comparator: Arm 4 vs Arm 1 , MD : -6.00 95% CI: (-10.96, -1.04) |
| Foroughi, 2011[52](#_ENREF_52)Study design: RCTTrial name: NoneStudy Location: AustraliaHealth care setting: NRSingle Site | Total n = 54Age Range: >=40Arm 1, Mean Age: 64 (8)BMI: 33.2 (8.1)Arm 2, Mean Age: 64 (7)BMI: 31.9 (5.2)Female: 100%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: Medial 74%, Lateral 26%Diagnosis: ACRAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeMinimum Age: >40ACR | Concomitant medical problems that prevent participationSurgery knee limb in prior 6 month(s)Injected hyaluronic acid in the past or during the past 6 month(s)Injected corticosteroids in the prior 6 month(s)Prior acute injury to the kneeSecondary OAMen | Arm 1: Sham exercisen = 28Placebo/ShamDose: approx.40 minutes ( )Frequency: DailyDuration: 6 monthsMethod of Blinding: Single-blindedArm 2: Progressive resistance training (PRT)n = 26Dose: approx.60 minutesFrequency: DailyDuration: 6 monthsMethod of Blinding: Single-blinded | WOMAC function:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -7.49 95% CI: (-15.08, 0.10)WOMAC pain:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -1.67 95% CI: (-3.71, 0.37)WOMAC total:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -10.40 95% CI: (-20.56, -0.24) |
| Fransen, 2014[31](#_ENREF_31)Study design: RCTTrial name: LEGSStudy Location: AustraliaHealth care setting: NRSite size: NR | Total n = 605Age Range: 45-75Arm 1, Mean Age: 60.6 (8.1)BMI: 29.1 (5.8)Arm 2, Mean Age: 61.2 (7.7)BMI: 28.4 (4.7)Arm 3, Mean Age: 60.7 (8.4)BMI: 28.8 (6.0)Arm 4, Mean Age: 59.5 (8.0)BMI: 29.6 (5.4)Female: 56%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: Medial 100%Diagnosis: K-L: <2Analgesic Use: Yes,Not restricted | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: 6 monthsPain >=4/10Radiographs: Reduced joint space in medial tibial-femoral compartment but > 2mm | Concomitant medical problems that prevent participationSurgery knee limb in prior 6 month(s)Pending surgeryInjected hyaluronic acid in the past or during the past 3 month(s)Injected corticosteroids in the prior 3 month(s)Rheumatoid arthritisUnstable diabetesAllergy to shellfishBilateral knee replacement | Arm 1: Placebon = 151Placebo/CapsulesFrequency: Once dailyDuration: 2 yearsMethod of Blinding: Double dummyArm 2: Glucosaminen = 152Dose: 1500 mgFrequency: Once dailyDuration: 2 yearsMethod of Blinding: Double dummyArm 3: Glucosamine–chondroitinn = 151Dose: 1500mg Glucosamine+ 800 mg ChondroitinFrequency: Once dailyDuration: 2 yearsMethod of Blinding: Double dummyArm 4: Chondroitinn = 151Dose: 800 mgFrequency: Once dailyDuration: 2 yearsMethod of Blinding: Double dummy | SF-12 mental:Follow-Up Time: 2 years :Comparator: Arm 2 vs Arm 1 , MD : -1.50 95% CI: (-3.99, 0.99)Comparator: Arm 3 vs Arm 1 , MD : -3.00 95% CI: (-5.19, -0.81)Comparator: Arm 4 vs Arm 1 , MD : -2.00 95% CI: (-4.45, 0.45)SF-12 physical:Follow-Up Time: 2 years :Comparator: Arm 2 vs Arm 1 , MD : 0.30 95% CI: (-2.04, 2.64)Comparator: Arm 3 vs Arm 1 , MD : 1.60 95% CI: (-0.83, 4.03)Comparator: Arm 4 vs Arm 1 , MD : 0.10 95% CI: (-2.27, 2.47)WOMAC function:Follow-Up Time: 2 years :Comparator: Arm 2 vs Arm 1 , MD : 0.00 95% CI: (-3.23, 3.23)Comparator: Arm 3 vs Arm 1 , MD : 0.00 95% CI: (-3.29, 3.29)Comparator: Arm 4 vs Arm 1 , MD : -0.40 95% CI: (-3.62, 2.82)WOMAC pain:Follow-Up Time: 2 years :Comparator: Arm 2 vs Arm 1 , MD : -0.10 95% CI: (-0.98, 0.78)Comparator: Arm 3 vs Arm 1 , MD : 0.10 95% CI: (-0.79, 0.99)Comparator: Arm 4 vs Arm 1 , MD : -0.20 95% CI: (-1.08, 0.68)Pain:Follow-Up Time: 2 years :Comparator: Arm 2 vs Arm 1 , MD : -0.17 95% CI: (-0.80, 0.46)Comparator: Arm 3 vs Arm 1 , MD : -0.45 95% CI: (-1.09, 0.19)Comparator: Arm 4 vs Arm 1 , MD : -0.27 95% CI: (-0.92, 0.38) |
| Ghroubi, 2008[123](#_ENREF_123)Study design: RCTTrial name: NoneStudy Location: TunisiaHealth care setting: Physical therapy outpatient clinicSingle Site | Total n = 56Mean Age: 41Arm 1, Mean Age: 42.4(9.8)BMI: 39.2 (3.7)Arm 2, Mean Age: 39.8(13.1)BMI: 37.1(5.7)Arm 3, Mean Age: 41.4(3.9)BMI: 37.45(3.68)Arm 4, Mean Age: 41.5(11.7)BMI: 38.74(6.15)Female: NRRacial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: K-L: mean 2.25,Mild to moderateAnalgesic Use: Yes,Patients who changed their medication use during the study were excluded. | Diagnosis of osteoarthritis of the kneeMinimum Age: 18BMI>=35 or 30-35 with at least one chronic health risk factorPain in the knee several days per week and having functional difficulties due to the OA, such as walking>1km, climbing stairs, housework, doing errands, lifting heavy loadK-L: I=III | Prior surgery on one or both kneesPrior acute injury to the kneeAn orthopedic problem that would prevent walking on a treadmillTreatment for another form of arthritisContraindication to exercisingPrecursors to CVD or prior recent MISerious psychiatric disorders | Arm 1: Controln = 14Placebo/No diet or exerciseDose: NAFrequency: NADuration: 2 monthsArm 2: Land-based exercisen = 13Dose: 60 minutes aerobic and strength training per sessionFrequency: 3 sessions per weekDuration: 2 monthsArm 3: Diet and exercisen = 15Dose: 60 minutes per sessionFrequency: 3 sessions per weekDuration: 2 monthsArm 4: Diet onlyn = 14Dose: NAFrequency: NADuration: 2 months | 6 min walk:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -39.00 95% CI: (-46.47, -31.53)Comparator: Arm 3 vs Arm 1 , MD : -53.00 95% CI: (-59.33, -46.67)Comparator: Arm 4 vs Arm 1 , MD : 2.00 95% CI: (-6.51, 10.51)Lequesne Index:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.41 95% CI: (-3.52, -1.30)Comparator: Arm 3 vs Arm 1 , MD : -3.73 95% CI: (-4.65, -2.81)Comparator: Arm 4 vs Arm 1 , MD : -2.23 95% CI: (-3.30, -1.16)VAS:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.90 95% CI: (-4.52, -1.28)Comparator: Arm 3 vs Arm 1 , MD : -4.56 95% CI: (-5.82, -3.30)Comparator: Arm 4 vs Arm 1 , MD : -2.10 95% CI: (-3.32, -0.88)WOMAC function:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -3.09 95% CI: (-4.46, -1.72)Comparator: Arm 3 vs Arm 1 , MD : -4.01 95% CI: (-5.56, -2.46)Comparator: Arm 4 vs Arm 1 , MD : -2.34 95% CI: (-3.71, -0.97)Number with significant improvement in WOMAC:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , RR : 0.23 95% CI: (0.02, 2.23)Comparator: Arm 3 vs Arm 1 , RR : 0.16 95% CI: (0.02, 1.39)Comparator: Arm 4 vs Arm 1 , RR : 0.33 95% CI: (0.03, 3.43) |
| Gormeli, 2015[24](#_ENREF_24)Study design: RCTTrial name: NoneStudy Location: TurkeyHealth care setting: NRSite size: NR | Total n = 182Age Range: 53.5Arm 1, Mean Age: 52.8 (12.8)BMI: 29.5 (3.2)Arm 2, Mean Age: 53.8 (13.4)BMI: 28.4 (4.4)Arm 3, Mean Age: 53.7 (13.1)BMI: 28.7 (4.8)Arm 4, Mean Age: 53.5 (14)BMI: 29.7 (3.7)Female: 55.6%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: Tibiofemoral 100%Diagnosis: K-L: 1-4Analgesic Use: Yes,Paracetamol was prescribed for discomfort. | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: > 4 monthsK-L: 1-4 | Surgery knee limb in prior month(s)Systemic disorders (diabetes, rheumatic diseases, severe cardiovascular diseases, haematological diseases, infections)Generalized OA,Undergoing anticoagulant or antiaggregant therapyUse of NSAIDs in the 5 days before injectionHemoglobin values < 11 g/dL and platelet values < 150,000/mm3 | Arm 1: Controln = 40Frequency: One time treatmentArm 2: PRP1n = 44Frequency: One time treatmentArm 3: PRP3n = 39Frequency: One time treatmentArm 4: HAn = 39Frequency: One time treatment | EQ-VAS:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : 14.00 95% CI: (11.56, 16.44)Comparator: Arm 3 vs Arm 1 , MD : 23.40 95% CI: (19.66, 27.14)Comparator: Arm 4 vs Arm 1 , MD : 12.80 95% CI: (10.04, 15.56)EuroQol-VAS:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -14.00 95% CI: (-16.44, -11.56)Comparator: Arm 3 vs Arm 1 , MD : -23.40 95% CI: (-27.14, -19.66)Comparator: Arm 4 vs Arm 1 , MD : -12.80 95% CI: (-15.56, -10.04) |
| Gschiel, 2010[86](#_ENREF_86)Study design: RCTTrial name: NoneStudy Location: GermanyHealth care setting: Academic pain clinicSingle Site | Total n = 45Mean Age: 58Arm 1, Mean Age: 57.7(3.5)BMI: 29.6Arm 2, Mean Age: 58.4(2.4)BMI: 27Female: 75%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: NRAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeMinimum Age: 18Maximum Age:79Body weight 50-100kgChronic pain (at least 4/11 NRS)radiologically verified diagnosis: NR | Concomitant medical problems that prevent participationPrior experience with the intervention of interestCVDPermanent pacemakerNeurologic diseaseInflammatory joint diseaseCancer | Arm 1: Placebon = 20Dose: 30 minutes per treatment sessionFrequency: two sessions per dayDuration: 3 weeksArm 2: TENSn = 25Dose: 30 minutes per treatment sessionFrequency: two sessions per dayDuration: 3 weeks | WOMAC Pain:Follow-Up Time: 5 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.00 95% CI: (-2.85, 0.85)WOMAC total:Follow-Up Time: 5 weeks :Comparator: Arm 2 vs Arm 1 , MD : -4.20 95% CI: (-18.43, 10.03) |
| Hatef, 2014[105](#_ENREF_105)Study design: RCTTrial name: NoneStudy Location: IranHealth care setting: NRSite size: NR | Total n = 150Arm 1, Mean Age: 48.6 (10) at end lineArm 2, Mean Age: 48.21 (12) at end lineRacial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: Medial 100%, Tibiofemoral 100%Diagnosis: Mild-to-moderate,ACRAnalgesic Use: Yes,Unrestricted? Not detailed | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: Pain on a daily basis for at least 1 month during the previous 3 monthsK-L: >2Clinical diagnosis: Medial femoro-tibial OA | Concomitant medical problems that prevent participationInjected corticosteroids in the prior 1 month(s)Knee joint lavage within the previous 3 monthsTibial osteotomy within the previous 5 yearsDrug treatment for OA within the previous weekGreater or similar reduction in lateral than medial femoro-tibial joint space widthSecondary knee or hip OA | Arm 1: Neutral insolesn = 75Placebo/ShamDuration: 2 monthsMethod of Blinding: Double-blindedArm 2: Lateral wedged insolesn = 75Duration: 2 monthsMethod of Blinding: Double-blinded | VAS:Follow-Up Time: 2 months :Comparator: Arm 2 vs Arm 1 , MD : -23.05 95% CI: (-28.34, -17.76)VAS - number pain mild (21-40):Follow-Up Time: 2 months :Comparator: Arm 2 vs Arm 1 , RR : 0.13 95% CI: (0.05, 0.36)VAS - number pain none to scant (0-20):Follow-Up Time: 2 months :Comparator: Arm 2 vs Arm 1 , RR : 0.23 95% CI: (0.03, 2.03) |
| Henriksen, 2014[56](#_ENREF_56)Study design: RCTTrial name: NoneStudy Location: DenmarkHealth care setting: Hospital-outpatientSingle Site | Total n = 60Age Range: >=40Arm 1, Mean Age: 62.3 (7.1)BMI: 28.2 (4.6)Arm 2, Mean Age: 65 (8.9)BMI: 28.9 (4.1)Female: 80%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: Tibiofemoral 100%Diagnosis: Diagnosis of tibiofemoral OA confirmed by radiographyAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeMinimum Age: >=40Body mass index between 20 and 35clinical diagnosis of tibiofemoral OA confirmed by radiography | Concomitant medical problems that prevent participationPhysical Therapy or Rehab or exercise in the previous 3 month(s)Systemic inflammatory and autoimmune diseaseSignificant cardiovascular, neurologic, or psychiatric disease, cervical or lumbar nerve root compression syndromes, and wide spread or regional pain syndromes (e.g., fibromyalgia)Lower extremity joint replacement | Arm 1: Controln = 23Placebo/ControlDuration: 12 weeksArm 2: Exercise therapyn = 25Dose: 1 hourFrequency: 3 times a weekDuration: 12 weeks | KOOS function:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.80 95% CI: (-9.02, 3.42)KOOS pain:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : -6.80 95% CI: (-12.18, -1.42)KOOS quality of life:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : -6.10 95% CI: (-14.16, 1.96) |
| Herrero-Beaumont, 2016[32](#_ENREF_32)Study design: RCTTrial name: NoneStudy Location: SpainHealth care setting: Academic orthopedic surgery clinic/department, Academic rheumatology clinic/departmentMultiple Sites: 9 | Total n = 158Arm 1, Mean Age: 65 (8)BMI: 28.5 (3.4)Arm 2, Mean Age: 67 (8)BMI: 27.9 (3.2)Female: 85% T, 81% CRacial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: K-L: 2&3,ACRAnalgesic Use: Yes,Another confounding factor is the analgesic effect due to pain killer rescue medication allowed in all OA clinical trials. | Diagnosis of osteoarthritis of the kneeWere required to complain of moderate-severe pain as defined by a score of 40 80 mm in Visual Analog Scale (VAS)ACR: primary symptomatic OAKK-L: 2&3 | Concomitant medical problems that prevent participation. Exclusion criteria included obesity [body mass index (BMI) \_ 35 kg/m2], concurrent arthritic conditions, or any coexisting disease that could preclude successful completion of the stud | Arm 1: Chondroitin sulfate + glucosamine sulfaten = 80Placebo/PlaceboDose: 1200mg CS + 1500mg GSFrequency: Once dailyDuration: 6 monthsMethod of Blinding: Double blindArm 2: Placebon = 78Frequency: Once dailyDuration: 6 monthsMethod of Blinding: Double blind | VAS pain:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : 8.70 95% CI: (7.95, 9.45)WOMAC function:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : 5.30 95% CI: (4.68, 5.92)WOMAC pain:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : 6.90 95% CI: (6.21, 7.59)WOMAC total:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : 5.90 95% CI: (5.28, 6.52) |
| Hochberg, 2008[134](#_ENREF_134)Study design: RCTTrial name: GAITStudy Location: USHealth care setting: Academic rheumatology clinic/departmentMultiple Sites: 16 | Total n = 1583Total # of knees = NRAge Range: NRArm 1, Mean Age: 58(10)BMI: 31.9(7.3)Arm 2, Mean Age: 59(10)BMI: 31.8(6.8)Arm 3, Mean Age: 58(10)BMI: 32.0(7.6)Arm 4, Mean Age: 59(11)BMI: 31.5(6.6)Arm 5, Mean Age: 59(11)BMI: 31.5(7.1)Female: 64%Racial/Ethnic Distribution: African American 14%, Asian NR, Caucasian 78%, NRLiving Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: K-L: 2&3,WOMAC pain scores 125-400 out of 500,Functional class I, II, or IIIAnalgesic Use: Yes,Patients were allowed to take up to 4000 mg of acetaminophen (Tylenol, McNeil) daily, except during the 24 hours before a clinical evaluation for joint pain. Otheranalgesics, including narcotics and NSAIDs, were not permitted. | Diagnosis of osteoarthritis of the kneeMinimum Age: 40AmbulatoryKnee pain for at least six months and on the majority of days during the preceding monthK-L: 2&3ACR: 1, II, or IIIWOMAC: 125-400mm | Concomitant medical problems that prevent participationPrior surgery on one or both kneesPrior acute injury to the kneeConcurrent medical or arthritic conditions that could confound evaluation of the index jointConcurrent use of analgesics other than acetominophen, including NSAIDs or narcoticsPredominant patellofemoral diseaseA history of clinically significant trauma or surgery to the index knee | Arm 1: Placebon = 313Dose: NA (not applicable)Frequency: 3 times a dayDuration: 24 weeksMethod of Blinding: NRArm 2: Glucosaminen = 317Dose: 500mgFrequency: three times a dayDuration: 24 weeksMethod of Blinding: NAArm 3: Chondroitin sulfaten = 318Dose: 400 mgFrequency: three times a dayDuration: 24 weeksMethod of Blinding: NAArm 4: Glucosamine+chondroitin sulfaten = 317Dose: 500 mg G + 400 mg CSFrequency: three times a dayDuration: 24 weeksMethod of Blinding: NAArm 5: Celecoxibn = 318Dose: 200 mgFrequency: once a dayDuration: 24 weeksMethod of Blinding: NA | WOMAC pain (% with 20% or better improvement in pain:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , RR : 0.94 95% CI: (0.83, 1.06)Comparator: Arm 3 vs Arm 1 , RR : 0.92 95% CI: (0.81, 1.04)Comparator: Arm 4 vs Arm 1 , RR : 0.90 95% CI: (0.80, 1.02)Comparator: Arm 5 vs Arm 1 , RR : 0.86 95% CI: (0.76, 0.96) |
| Hochberg, 2015[29](#_ENREF_29)Study design: RCTTrial name: MOVESStudy Location: France, Germany, Poland and SpainHealth care setting: NRMultiple Sites: 42 | Total n = 606Age Range: >=40Arm 1, Mean Age: 63.2 (9.0)BMI: 30.9 (18.0)Arm 2, Mean Age: 62.2 (8.8)BMI: 31.1 (5.8)Female: 83.9%Racial/Ethnic Distribution: Caucasian 98.7%, 1.3%Living Situation: NRLocation of OA: NRSubtype: NRDiagnosis: K-L: 2&3,ACRAnalgesic Use: Yes,Up to 3 g/day of acetaminophen except during the 48 h before clinical evaluation | Diagnosis of osteoarthritis of the knee:ACRDuration of Symptoms: 1 monthMinimum Age: 40Otherwise HealthyAble to sign ConsentNo clinical or significant laboratory abnormalitiesNegative pregnancy test and use of birth controlNot participating in another clinical trialAgree to attend all study-related visitsK-L: 2&3WOMAC: >301 | Concomitant medical problems that prevent participationPrior surgery on one or both kneesSurgery knee limb in prior 6 month(s)Pending surgeryConcomitant or prior use of other medsKnown allergy to chondroitin, glucosamine, celecoxib, sulphonamides, aspirin, lactose, NSAIDs, Allergy to shellfish Intolerance to acetaminophenHistory of systemic diseases (heart attack or stroke, DM, hypertension, chronic liver/kidney diseases, infections); history of psychiatric disorders, alcohol/drug abuseActive malignancy or history of a malignancy within the past 5 yearsConcurrent arthritic disease, pain in other parts of the body, fibromyalgia | Arm 1: Celecoxibn = 282Dose: 200mgFrequency: Once dailyDuration: 6 monthsMethod of Blinding: Matching capsulesArm 2: Glucosamine-chondroitinn = 286Dose: 500 mg Glucosamine+400 mg ChondroitinFrequency: Three time dailyDuration: 6 months | % clinically significant on WOMAC pain:Follow-Up Time: 180 days :Comparator: Arm 2 vs Arm 1 , RR : 1.00 95% CI: (0.85, 1.17)EuroQol-5D mobility:Follow-Up Time: 180 days :Comparator: Arm 2 vs Arm 1 , MD : 0.00 95% CI: (-0.00, 0.00)EuroQol-5D pain/discomfort:Follow-Up Time: 180 days :Comparator: Arm 2 vs Arm 1 , MD : 0.10 95% CI: (0.10, 0.10)WOMAC function:Follow-Up Time: 180 days :Comparator: Arm 2 vs Arm 1 , MD : 21.20 95% CI: (-44.99, 87.39)Follow-Up Time: 60 days :Comparator: Arm 2 vs Arm 1 , MD : 71.50 95% CI: (NC, NC)WOMAC pain:Follow-Up Time: 180 days :Comparator: Arm 2 vs Arm 1 , MD : 1.10 95% CI: (-19.76, 21.96)Follow-Up Time: 60 days :Comparator: Arm 2 vs Arm 1 , MD : 25.00 95% CI: (5.05, 44.95)Clinically significant on WOMAC function:Follow-Up Time: 180 days :Comparator: Arm 2 vs Arm 1 , RR : 1.02 95% CI: (0.86, 1.21) |
| Hsieh, 2012[78](#_ENREF_78)Study design: RCTTrial name: NoneStudy Location: TaiwanHealth care setting: NRSingle Site | Total n = 72Mean Age(SD): Mean: 60.3 (10.4)Arm 1, Mean Age: 61.3 (12)BMI: 26 (4.5)Arm 2, Mean Age: 61.1 (9.4)BMI: 26.4 (5.0)Female: 86%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: K-L: II+ in both knees,ACTAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeK-L: II+ in both kneesACR | Concomitant medical problems that prevent participationSurgery knee limb in prior Ever month(s)Pregnant or planning to become pregnant, and those who had a self-reported history of malignancy, vertigo, or stroke. | Arm 1: Sham monochromatic infrared energy (MIRE)n = 35Placebo/ShamDose: 40 minutesFrequency: 3 times a weekDuration: 2 weeksMethod of Blinding: Double-blindArm 2: Monochromatic infrared energy (MIRE)n = 37Dose: 40 minutesFrequency: 3 times a weekDuration: 2 weeksMethod of Blinding: Double-blind | KOOS pain:Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.70 95% CI: (-7.74, 4.34)KOOS quality of life:Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : 0.10 95% CI: (-6.39, 6.59)OAQOL:Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.30 95% CI: (-2.70, 2.10)WHOQOL-BREF physical:Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.80 95% CI: (-8.48, 4.88)WHOQOL-BREF psychological:Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : -4.40 95% CI: (-11.19, 2.39) |
| Imoto, 2012[48](#_ENREF_48)Study design: RCTTrial name: NoneStudy Location: BrazilHealth care setting: Academic rheumatology clinic/departmentSingle Site | Arm 1, Mean Age: 58.78 (9.60)BMI: 30.00 (5.05)Arm 2, Mean Age: 61.50 (6.94)BMI: 29.72 (4.11)Female: 92%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: bilateral 26%, unilateral 74%Subtype: NRDiagnosis: K-L: 92% Grade II, 5% Grade III, 3% Grade IV,NRS pain 7.2Analgesic Use: Yes,Patients were allowed to continue their medications, but paracetamol, diacerein, and chloroquin were used | Diagnosis of osteoarthritis of the kneeMinimum Age: 50Maximum Age:75Knee painLess than 30 minutes morning stiffness and crepitation in active movement and osteophytesACRK-L: 2 or above in past 12 months | Physical therapy more than twice a weekInability to pedal a bikeUnstable heart conditionFibromyalgiaPrior knee arthroplasty | Arm 1: Controln = 50Placebo/Educational manual and 2 phone callsDose: NAFrequency: NADuration: 8 weeksMethod of Blinding: NRArm 2: Land-based strength trainingn = 50Dose: 30-40 minutes per sessionFrequency: two sessions per weekDuration: 8 weeksMethod of Blinding: NRCo-Intervention: Orientation manual | Numerical Rating Scale for pain:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.47 95% CI: (-2.71, -0.23)SF-36 functional capacity:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -7.83 95% CI: (-18.92, 3.26)SF-36 pain:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.98 95% CI: (-13.94, 7.98)SF-36 physical aspects:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -13.47 95% CI: (-33.97, 7.03)TUG (s):Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.80 95% CI: (-2.97, -0.63) |
| Imoto, 2013[84](#_ENREF_84)Study design: RCTTrial name: NoneStudy Location: BrazilHealth care setting: Hospital-outpatientSingle Site | Total n = 100Mean Age: 59.7Arm 1, Mean Age: 58.8 (9.6)BMI: 30 (5)Arm 2, Mean Age: 60.6 (6.7)BMI: 30 (4)Female: 93%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: bilateral 72% (96% for NMES group)Subtype: NRDiagnosis: K-L: 93% grade II, 4% grade III, 3% grade IVAnalgesic Use: Yes,Patients' continued medications during intervention but paracetamol, diacerein, and chloroquine were prescribed | Diagnosis of osteoarthritis of the kneeMinimum Age: 50Maximum Age:75ACR: NAK-L: Grade 2 or more in the prior 12 months | Use of pacemaker, unstable cardiac status,Attendance in a physical activity program more than twice a weekInability to ride a stationary bike, or to walkPrevious arthroplasty | Arm 1: Control groupn = 50Placebo/Educational materialsDose: NAFrequency: NADuration: 8 weeksMethod of Blinding: NRArm 2: NMESn = 50Dose: 40 minutes per sessionFrequency: NRDuration: 8 weeksMethod of Blinding: NRCo-Intervention: Educational guide | Lequesne Index:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.81 95% CI: (-4.53, -1.09)NRS:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.44 95% CI: (-2.65, -0.23)TUG (s):Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.45 95% CI: (-3.42, -1.48) |
| Inal, 2016[89](#_ENREF_89)Study design: RCTTrial name: NoneStudy Location: TurkeyHealth care setting: NRSite size: NR | Total n = 93Arm 1, Mean Age: 64.6 (1.88)BMI: 33.6 (0.77)Arm 2, Mean Age: 64.4 (1.7)BMI: 34.2 (0.87)Arm 3, Mean Age: 64.1 (0.99)BMI: 31.7 (0.92)Female: 100%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: K-L: I1-4,ACRAnalgesic Use: No | Diagnosis of osteoarthritis of the kneeACR: symptomatic knee OA | Concomitant medical problems that prevent participationPrior surgery on one or both kneesConcomitant or prior use of other medsInjected hyaluronic acid in the past or during the past 3 month(s)Injected corticosteroids in the prior 3 month(s)Prior acute injury to the kneeHad received TENS in the previous six months and had cardiac pace-maker,Complaints linked to lower extremities such as radiculopathy or pain on ankleUsed non-steroidal anti-inflammatory drugs and chondroprotective agents in the last monthUncontrolled co-morbid chronic disease such as diabetes mellitus and hypertension, a poor general health status, definite/suspected pregnancy, dementia or cognitive impairment, neurological disorders such as multiple sclerosis, Parkinson’s and Alzheimer’s diseases, major trauma in last 6 months | Arm 1: Sham TENS + physical therapyn = 30Placebo/ShamDose: 20 minutesFrequency: 5 times per weekDuration: 2 weeks (TENS) / 4 weeks (home exercise)Method of Blinding: Double blindArm 2: Low frequency TENS + physical therapyn = 30Dose: 20 minutesFrequency: 5 times per weekDuration: 2 weeks (TENS) / 4 weeks (home exercise)Method of Blinding: Double blindArm 3: High frequency TENS + physical therapyn = 30Dose: 20 minutesFrequency: 5 times per weekDuration: 2 weeks (TENS) / 4 weeks (home exercise)Method of Blinding: Double blind | VAS pain in motion:Follow-Up Time: 6 weeks :Comparator: Arm 3 vs Arm 1 , MD : 0.02 95% CI: (-1.82, 1.86)VAS pain in rest:Follow-Up Time: 6 weeks :Comparator: Arm 3 vs Arm 1 , MD : 0.26 95% CI: (-1.62, 2.14)WOMAC function:Follow-Up Time: 6 weeks :Comparator: Arm 3 vs Arm 1 , MD : -0.95 95% CI: (-8.46, 6.55)WOMAC pain:Follow-Up Time: 6 weeks :Comparator: Arm 3 vs Arm 1 , MD : -0.62 95% CI: (-3.01, 1.78)WOMAC total:Follow-Up Time: 6 weeks :Comparator: Arm 3 vs Arm 1 , MD : -1.73 95% CI: (-10.83, 7.37) |
| Inoshi, 2016[128](#_ENREF_128)Study design: Single arm trialTrial name: Healthy weight for lifeStudy Location: AustraliaHealth care setting: internet and phone-based programMultiple Sites: NR (internet-based) | Total n = 1383Mean Age(SD): Mean age 64.0(8.7)Arm 1, Mean Age: 64(8.7)BMI: 34.4(5.2)Female: 70.9%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: K-L: not specified,Mean KOOS pain 56.3(6.8)Analgesic Use: NR | Diagnosis of osteoarthritis of the kneeBMI>28Referral to orthopedist for KREnrollment in OAHWFL programRadiographic or arthroscopy: NR | Exclusion : NR | Arm 1: Weight loss and exercisen = 1383Dose: NAFrequency: NADuration: 18 weeks | KOOS function:Follow-Up Time: 18 weeks :Comparator: >10% weight change (post-pre) , MD : 17.40 95% CI: (15.9, 18.9)Comparator: 7.6-10% weight change (post-pre) , MD : 13.60 95% CI: (11.9, 15.3)Comparator: 5.1-7.5% weight change (post-pre) , MD : 12.00 95% CI: (10.2, 13.8)Comparator: 2.5-5% weight change (post-pre) , MD : 8.90 95% CI: (7.0, 10.8)Comparator: <2.5% weight change (post-pre) , MD : 7.80 95% CI: (4.8, 10.8)KOOS pain:Follow-Up Time: 18 weeks :Comparator: >10% weight change (post-pre) , MD : 16.70 95% CI: (15.2, 18.2)Comparator: 7.6-10% weight change (post-pre) , MD : 13.30 95% CI: (11.6, 15.0)Comparator: 5.1-7.5% weight change (post-pre) , MD : 12.00 95% CI: (10.2, 13.8)Comparator: 2.5-5% weight change (post-pre) , MD : 9.90 95% CI: (7.7, 12.1)Comparator: <2.5% weight change (post-pre) , MD : 6.10 95% CI: (3.2, 9.0) |
| Jones, 2012[115](#_ENREF_115)Study design: RCTTrial name: NoneStudy Location: BrazilHealth care setting: Academic rheumatology clinic/departmentSingle Site | Total n = 64Arm 1, Mean Age: 62.56 (5.88)BMI: 29.54 (3.42)Arm 2, Mean Age: 61.75 (5.92)BMI: 29.01 (2.83)Living Situation: Community DwellingDiagnosis: VAS 5.56/10, WOMAC 51.0/96Analgesic Use: Yes,Stable use of analgesics | Diagnosis of osteoarthritis of the kneeStable doses of anti-inflammatory drugsNo regular physical exercise in the month before the studyACR: NAVAS: 3-7/10 | Injected hyaluronic acid in the past or during the past 3 months month(s)Injected corticosteroids in the prior 3 months month(s)Physical Therapy or Rehab or exercise in the previous physical therapy in the previous 6 months or rehab in the previous 3 months month(s)Prior experience with the intervention of interestSymptomatic heart diseaseSymptomatic disease of the lower limbs (other than knee osteoarthritis) or upper limb that would secure the caneSymptomatic lung disease; severe systemic disease; severe psychiatric illnessRegular physical exercise; (three or more times per week for at least 3 months)Inability to walk; geographic inaccessibility | Arm 1: Controln = 32Duration: 2 monthsArm 2: Braces or Canesn = 32Dose: NAFrequency: NADuration: 2 monthsCo-Intervention: usual therapy | 6 min walk with cane (m):Follow-Up Time: 60 days :Comparator: Arm 2 vs Arm 1 , MD : 83.28 95% CI: (62.38, 104.18)6 min walk without cane (m):Follow-Up Time: 60 days :Comparator: Arm 2 vs Arm 1 , MD : -6.50 95% CI: (-24.86, 11.86)Lequesne:Follow-Up Time: 60 days :Comparator: Arm 2 vs Arm 1 , MD : -2.53 95% CI: (-4.34, -0.72)SF-36 bodily pain:Follow-Up Time: 60 days :Comparator: Arm 2 vs Arm 1 , MD : -14.16 95% CI: (-24.30, -4.02)SF-36 physical function:Follow-Up Time: 60 days :Comparator: Arm 2 vs Arm 1 , MD : -9.06 95% CI: (-17.81, -0.31)SF-36 role physical:Follow-Up Time: 60 days :Comparator: Arm 2 vs Arm 1 , MD : -16.75 95% CI: (-31.69, -1.81)VAS pain:Follow-Up Time: 60 days :Comparator: Arm 2 vs Arm 1 , MD : -2.11 95% CI: (-2.83, -1.39)WOMAC total:Follow-Up Time: 60 days :Comparator: Arm 2 vs Arm 1 , MD : -1.06 95% CI: (-8.87, 6.75) |
| Jorge, 2015[49](#_ENREF_49)Study design: RCTTrial name: NoneStudy Location: BrazilHealth care setting: NRSite size: NR | Total n = 60Age Range: 40-70Arm 1, Mean Age: 59.9 (7.5)BMI: 31.4 (4.42)Arm 2, Mean Age: 61.7 (6.4)BMI: 30.6 (5.75)Female: 100Racial/Ethnic Distribution: Caucasian 69% T, 71% CLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: ACRAnalgesic Use: Yes,All subjects were instructed to take 750 mg of acetaminophen every eight hours when experiencing pain. When pain exceeded a 7 on the visual analog scale, the subject could take 50 mg of diclofenac every eight hours. Both groups received a chart to record the doses of drugs taken during the study period for the purposes of analysis. | Diagnosis of osteoarthritis of the kneeMinimum Age: >=40Maximum Age:69Pain at rest between 3 and 8 out of 10 on the visual analog scale for one or both kneesACR: meets criteria | Concomitant medical problems that prevent participationInjected hyaluronic acid in the past or during the past 3 month(s)Injected corticosteroids in the prior 3 month(s)Inflammatory conditions or any medical condition that prevented physical activityTravel plans for the subsequent 12 weeksRegular physical activity at the time | Arm 1: Waitlistn = 31Placebo/WaitlistDuration: 12 weeksMethod of Blinding: Single-blindArm 2: Progressive resistance exercisen = 29Dose: 2 set of 8 reps w/ 1 min rest period between setsFrequency: Twice a weekDuration: 12 weeksMethod of Blinding: Single-blind | 6MWT:Follow-Up Time: 45 days :Comparator: Arm 2 vs Arm 1 , MD : -15.60 95% CI: (-45.14, 13.94)Follow-Up Time: 90 days :Comparator: Arm 2 vs Arm 1 , MD : -26.40 95% CI: (-55.73, 2.93)SF-36 mental health:Follow-Up Time: 45 days :Comparator: Arm 2 vs Arm 1 , MD : -16.10 95% CI: (-26.66, -5.54)Follow-Up Time: 90 days :Comparator: Arm 2 vs Arm 1 , MD : -16.90 95% CI: (-27.00, -6.80)SF-36 physical health:Follow-Up Time: 45 days :Comparator: Arm 2 vs Arm 1 , MD : -8.80 95% CI: (-17.26, -0.34)Follow-Up Time: 90 days :Comparator: Arm 2 vs Arm 1 , MD : -19.00 95% CI: (-28.93, -9.07)VAS pain:Follow-Up Time: 45 days :Comparator: Arm 2 vs Arm 1 , MD : -1.10 95% CI: (-2.02, -0.18)Follow-Up Time: 90 days :Comparator: Arm 2 vs Arm 1 , MD : -2.30 95% CI: (-3.55, -1.05)WOMAC function:Follow-Up Time: 45 days :Comparator: Arm 2 vs Arm 1 , MD : -4.00 95% CI: (-9.04, 1.04)Follow-Up Time: 90 days :Comparator: Arm 2 vs Arm 1 , MD : -9.40 95% CI: (-15.17, -3.63) |
| Jorge, 2015[49](#_ENREF_49) -Continued |  |  |  |  | WOMAC pain:Follow-Up Time: 45 days :Comparator: Arm 2 vs Arm 1 , MD : -3.40 95% CI: (-5.10, -1.70)Follow-Up Time: 90 days :Comparator: Arm 2 vs Arm 1 , MD : -4.60 95% CI: (-6.50, -2.70)WOMAC total:Follow-Up Time: 45 days :Comparator: Arm 2 vs Arm 1 , MD : -8.20 95% CI: (-14.78, -1.62)Follow-Up Time: 90 days :Comparator: Arm 2 vs Arm 1 , MD : -14.20 95% CI: (-22.03, -6.37) |
| Ju, 2015[57](#_ENREF_57)Study design: RCTTrial name: NoneStudy Location: KoreaHealth care setting: NRSite size: NR | Total n = 14Age Range: NRArm 1, Mean Age: 65.1 ± 2.9BMI: Average weight: 60.6 ± 7.69 kg, average height 153.1 ± 4.5 cm andArm 2, Mean Age: 65.7 ± 3.5BMI: average weight of 64.7 ± 2.3 kg, height 152.4 ± 5.1 cm and anFemale: 100%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: ACRAnalgesic Use: NR | Minimum Age: 60 | Exclusion : NR | Arm 1: Controln = 7Duration: NRArm 2: Agility-type exercisen = 7Dose: 20 minutes (3 sets of 10 repetitions per exercise) per sessionFrequency: 3 sessions per weekDuration: 8 weeks | VAS pain:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -4.00 95% CI: (-5.32, -2.68) |
| Kahan, 2009[38](#_ENREF_38)Study design: RCTTrial name: NoneStudy Location: US, France, Belgium, Switzerland, AustriaHealth care setting: Hospital-outpatientMultiple Sites: 35 | Total n = 622Age Range: 45-80Arm 1, Mean Age: 61.8(0.5)BMI: 28.8Arm 2, Mean Age: 62.9(0.5)BMI: 28.5Female: 68.5%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: Medial 100%Diagnosis: ACRAnalgesic Use: Yes,Acetaminophen in 500-mg tablets (maximum dosage 4 gm/day); NSAIDs were allowed in cases of acute pain. | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: 3 monthsMinimum Age: 45Maximum Age:79ACRVAS: >= 30 mmJSW: >= 1 mm | Concomitant medical problems that prevent participationPrior surgery on one or both kneesConcomitant or prior use of other medsInjected hyaluronic acid in the past or during the past 3 month(s)Injected corticosteroids in the prior 3 month(s)Prior acute injury to the kneeK-L: 4Isolated lateral tibiofemoral OA; isolated patellofemoral OAA history or the active presence of other rheumatic diseases that could be responsible for secondary OAA history of hip OA or hip surgery | Arm 1: Placebon = 313Placebo/SachetFrequency: Once dailyArm 2: Chondroitins sulfaten = 309Dose: 800 mgFrequency: Once daily | VAS pain last 48 hours:Follow-Up Time: 24 months :Comparator: Arm 2 vs Arm 1 , MD : 0.50 95% CI: (-2.27, 3.27)Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -4.00 95% CI: (-8.16, 0.16)WOMAC pain score last 48 hours:Follow-Up Time: 24 months :Comparator: Arm 2 vs Arm 1 , MD : -2.00 95% CI: (-6.16, 2.16)Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -3.50 95% CI: (-7.66, 0.66)Responder: reduction in pain score of at least 40% WOMAC:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , RR : 0.83 95% CI: (0.68, 1.02)Responder: reduction in pain score of at least 40mm:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , RR : 0.68 95% CI: (0.51, 0.91)Responder: reduction in pain score of at least 60mm:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , RR : 0.44 95% CI: (0.23, 0.85) |
| Kapci, 2015[81](#_ENREF_81)Study design: RCTTrial name: NoneStudy Location: TurkeyHealth care setting: NRSite size: NR | Total n = 90Age Range: 40-65Arm 1, Mean Age: 57.76 (7.15)BMI: 30.91 (4.33)Arm 2, Mean Age: 56.13 (6.61)BMI: 32.31 (5.23)Arm 3, Mean Age: 54.63 (6.53)BMI: 31.15 (4.68)Female: 83%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: bilateral 100%Subtype: NRDiagnosis: K-L: 2&3Analgesic Use: NR |  | Concomitant medical problems that prevent participationPrior surgery on one or both kneesInjected hyaluronic acid in the past or during the past 6 month(s)Injected corticosteroids in the prior 6 month(s)Secondary knee OA; active synovitis; symptomatic hip, foot, and ankle disease; neurologic deficits in a lower extremity; recent knee traumaApplication of physical treatment to the knee in the last 3 months | Arm 1: Sham ultrasoundn = 30Placebo/ShamDose: 5 minFrequency: 5 days a weekDuration: 2 weeks US / 8 weeks exerciseMethod of Blinding: Double blindArm 2: Continuous ultrasoundn = 30Dose: 5 minFrequency: 5 days a weekDuration: 2 weeks US / 8 weeks exerciseMethod of Blinding: Double blindArm 3: Pulsed ultrasoundn = 30Dose: 5 minFrequency: 5 days a weekDuration: 2 weeks US / 8 weeks exerciseMethod of Blinding: Double blind | Lequesne index:Follow-Up Time: 2 months :Comparator: Arm 2 vs Arm 1 , MD : -2.35 95% CI: (-4.11, -0.59)Comparator: Arm 3 vs Arm 1 , MD : -2.65 95% CI: (-4.27, -1.03)Follow-Up Time: 4 months :Comparator: Arm 2 vs Arm 1 , MD : -6.28 95% CI: (-8.31, -4.25)Comparator: Arm 3 vs Arm 1 , MD : -5.71 95% CI: (-7.68, -3.74)VAS pain:Follow-Up Time: 2 months :Comparator: Arm 2 vs Arm 1 , MD : -1.33 95% CI: (-2.55, -0.11)Comparator: Arm 3 vs Arm 1 , MD : -1.56 95% CI: (-2.82, -0.30)Follow-Up Time: 4 months :Comparator: Arm 2 vs Arm 1 , MD : -3.30 95% CI: (-4.62, -1.98)Comparator: Arm 3 vs Arm 1 , MD : -3.37 95% CI: (-4.70, -2.04) |
| Knoop, 2013[61](#_ENREF_61)Study design: RCTTrial name: NoneStudy Location: NetherlandsHealth care setting: Physical therapy outpatient clinicSingle Site | Total n = 159Mean Age: 62Arm 1, Mean Age: 61.8 \_x0006\_ (6.6)BMI: 28.3(4.5)Arm 2, Mean Age: 62.1(7.6)BMI: 28.8(4.8)Female: 66% intervention; 56% controlRacial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: bilateral 75%, unilateral 25%Subtype: NRDiagnosis: K-L: 35% K-L: I; 28% K-L: II; 26% K-L: III; 12% K-L: IVAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeMinimum Age: 40Maximum Age:75AmbulatorySelf-reported or bio-assessed knee instabilityACR: NA | Concomitant medical problems that prevent participationPending surgeryOther diagnosed forms of arthritisSevere knee pain (NRS>8)Inability to comprehend Dutch, be scheduled for therapy or provide consent | Arm 1: Land-based exercisen = 79Dose: 60 minutes per sessionFrequency: 2 sessions per week plus home exercises 5 days per weekDuration: 12 weeksMethod of Blinding: NRArm 2: Agility type trainingn = 80Dose: 60 minutes per sessionFrequency: 2 sessions per week plus home exercises 5 days per weekDuration: 12 weeksMethod of Blinding: NR | NRS:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.50 95% CI: (-1.16, 0.16)Follow-Up Time: 38 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.60 95% CI: (-1.37, 0.17)Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.20 95% CI: (-0.83, 0.43)TUG (s):Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : 0.40 95% CI: (-0.16, 0.96)Follow-Up Time: 38 weeks :Comparator: Arm 2 vs Arm 1 , MD : 0.10 95% CI: (-0.47, 0.67)Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : 0.10 95% CI: (-0.63, 0.83)WOMAC physical function:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.90 95% CI: (-5.53, 1.73)Follow-Up Time: 38 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.30 95% CI: (-4.49, 3.89)Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : 4.10 95% CI: (0.62, 7.58) |
| Koca, 2009[104](#_ENREF_104)Study design: RCTTrial name: NoneStudy Location: TurkeyHealth care setting: Physical therapy outpatient clinicSingle Site | Total n = 37Total # of knees = 37Arm 1, Mean Age: 54.83 (9.27)BMI: 29.64Arm 2, Mean Age: 55.36 (11.50)BMI: 31.33Female: 100%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: K-L: 2&3,ACRAnalgesic Use: Yes,Parecetamol 1500 mg/day | Diagnosis of osteoarthritis of the kneeK-L: 2&3ACR | Concomitant medical problems that prevent participationPrior surgery on one or both kneesInjected hyaluronic acid in the past or during the past 6 month(s)Injected corticosteroids in the prior 6 month(s)Prior acute injury to the kneePhysical Therapy or Rehab or exercise in the previous 12 month(s)Involvement of the lateral compartment of the kneeMeniscopathyInfective or inflammatory pathologies of knee | Arm 1: Controln = 18Dose: Paracetamol 1500 mg; quadriceps strengthening exercisesFrequency: Paracetamol once daily;Duration: 3 monthsCo-Intervention: Parecetamol and exerciseArm 2: Insolen = 19Dose: 6 mm wedgeFrequency: All day longDuration: 3 monthsCo-Intervention: Parecetamol and exercise | VAS at rest:Follow-Up Time: 1 month :Comparator: Arm 2 vs Arm 1 , MD : -1.22 95% CI: (-2.89, 0.45)Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -1.28 95% CI: (-2.84, 0.28)VAS at standing:Follow-Up Time: 1 month :Comparator: Arm 2 vs Arm 1 , MD : -0.93 95% CI: (-2.25, 0.39)Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -1.16 95% CI: (-2.55, 0.23)VAS at walking:Follow-Up Time: 1 month :Comparator: Arm 2 vs Arm 1 , MD : -0.62 95% CI: (-2.01, 0.77)Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -1.68 95% CI: (-3.16, -0.20)WOMAC function score:Follow-Up Time: 1 month :Comparator: Arm 2 vs Arm 1 , MD : -10.06 95% CI: (-19.68, -0.44)Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -11.78 95% CI: (-21.18, -2.38)WOMAC pain score:Follow-Up Time: 1 month :Comparator: Arm 2 vs Arm 1 , MD : -3.14 95% CI: (-5.96, -0.32)Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -4.02 95% CI: (-6.79, -1.25) |
| Koca, 2009[104](#_ENREF_104) -Continued |  |  |  |  | WOMAC total:Follow-Up Time: 1 month :Comparator: Arm 2 vs Arm 1 , MD : -15.16 95% CI: (-28.42, -1.90)Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -17.68 95% CI: (-30.37, -4.99) |
| Koli, 2015[41](#_ENREF_41)Study design: RCTTrial name: NoneStudy Location: FinlandHealth care setting: NRSite size: NR | Total n = 80Age Range: 50-65Arm 1, Mean Age: 59 (4)BMI: 69.4 (11.7)Arm 2, Mean Age: 58 (4)BMI: 73.4 (9.4)Female: 100%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: Patellofemora 50%, Tibiofemoral 100%Diagnosis: K-L: I-IIAnalgesic Use: Yes,Table 1: 63% T, 42% C | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: Knee pain on most daysMinimum Age: >=50Maximum Age:64K-L: I-II radiographic tibiofemoral joint OA | Concomitant medical problems that prevent participationInjected corticosteroids in the prior 12 month(s)Intensive exercise more than twice a weekFemoral neck bone and lumbar spine bone mineral density (gIcmj2) T-score lower than j2.5 (i.e., indicating osteoporosis), measured with dual-energy x-ray absorptiometryBMI<=35Knee instability or surgery of the knee caused by traumaInflammatory joint disease; contraindications to MRI (allergies to contrast agents or renal insufficiency) | Arm 1: Usual care + education / stretchingn = 40Placebo/Usual careFrequency: Every 3 monthsDuration: 12 monthsArm 2: Aerobic exercisen = 38Dose: 55 minFrequency: 3 times a weekDuration: 12 months | KOOS function:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : -1.20 95% CI: (-3.53, 1.13)KOOS pain:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : -2.60 95% CI: (-6.82, 1.62)KOOS quality of life:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : -3.00 95% CI: (-9.40, 3.40) |
| Kulisch, 2014[73](#_ENREF_73)Study design: RCTTrial name: NoneStudy Location: HungaryHealth care setting: Academic rheumatology clinic/department, mineral spaSingle Site | Total n = 77Mean Age: 65.6Arm 1, Mean Age: 65.5(7.7)BMI: NRArm 2, Mean Age: 65.6(6.4)BMI: NRFemale: 78%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: bilateral 100%Subtype: NRDiagnosis: Mild to moderateAnalgesic Use: Yes,Any change in NSAID or chondroprotective therapy during the study was not allowed. | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: at least 3 monthsMinimum Age: 45Maximum Age:75ACR: NARadiographic imaging: NR | Concomitant medical problems that prevent participationSurgery knee limb in prior 6 months month(s)Injected hyaluronic acid in the past or during the past 6 months month(s)Injected corticosteroids in the prior 1 month month(s)Prior acute injury to the kneePhysical Therapy or Rehab or exercise in the previous month(s)Severe internal, rheumatic, urogenital, or skin diseases, radiculopathyConditions for which warm baths were contraindicatedInflammatory rheumatic diseasesEffusionKnee fracture or injury in prior 6 months or plate in knee, hip or spine surgery within previous year | Arm 1: Controln = 39Dose: 30 minutes per sessionFrequency: 5 days per weekDuration: 3 weeksArm 2: Balneotherapyn = 38Dose: 30 minutes per sessionFrequency: 5 days per weekDuration: 3 weeks | VAS pain at rest:Follow-Up Time: 15 weeks :Comparator: Arm 2 vs Arm 1 , MD : -16.00 95% CI: (-26.68, -5.32)VAS pain on exertion:Follow-Up Time: 15 weeks :Comparator: Arm 2 vs Arm 1 , MD : -16.60 95% CI: (-25.79, -7.41)WOMAC function:Follow-Up Time: 15 weeks :Comparator: Arm 2 vs Arm 1 , MD : -8.10 95% CI: (-15.82, -0.38)WOMAC pain:Follow-Up Time: 15 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.40 95% CI: (-9.45, 4.65) |
| Laufer, 2014[82](#_ENREF_82)Study design: RCTTrial name: NoneStudy Location: IsraelHealth care setting: Physical therapy outpatient clinicSingle Site | Total n = 63Total # of knees = NRMean Age(SD): 68.9 (SD 7.7)Arm 1, Mean Age: 69.4 (SD 7.7)BMI: 30.5 (SD 5.3)Arm 2, Mean Age: 68.3 (SD 7.7)BMI: 31.4 (SD 6.7)Female: 82.5%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: K-L: >=2Analgesic Use: NR | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: knee pain for at least 3 monthsMinimum Age: 51AmbulatoryK-L: >=2 | Concomitant medical problems that prevent participationPrior surgery on one or both kneesInjected hyaluronic acid in the past or during the past 6 month(s)Injected corticosteroids in the prior 6 month(s)Physical Therapy or Rehab or exercise in the previous 3 month(s)Pacemaker or medical condition that could affect functional performanceInjections to the knee joint during the previous six monthsCardiovascular, neurological problems or other orthopedic problemsInability to follow instructions, difficulties with communication and cooperation or schedule inconvenient for themMedical conditions with contraindications for electrical stimulation | Arm 1: Controln = 25Placebo/ControlDose: NAFrequency: NADuration: NAMethod of Blinding: The person conducting the exercise program was blinded to treatment allocation, blindness of the assessor was not maintained in the posttreatment and follow-up assessmentsCo-Intervention: Group exercise program delivered biweeklyArm 2: Neuromuscular electrical stimulationn = 25Dose: Ten contractions were delivered at each session, at maximal tolerated intensityFrequency: BiweeklyDuration: 6 weeksMethod of Blinding: The person conducting the exercise program was blinded to treatment allocation, blindness of the assessor was not maintained in the posttreatment and follow-up assessmentsCo-Intervention: Group exercise program delivered biweekly | TUG (s):Follow-Up Time: 18 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.20 95% CI: (-2.32, 1.92)Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : 0.20 95% CI: (-1.21, 1.61)VAS pain:Follow-Up Time: 18 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.90 95% CI: (-3.25, -0.55)Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.70 95% CI: (-2.70, -0.70)WOMAC total:Follow-Up Time: 18 weeks :Comparator: Arm 2 vs Arm 1 , MD : -14.70 95% CI: (-44.05, 14.65)Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : -23.20 95% CI: (-43.20, -3.20) |
| Lim, 2010[63](#_ENREF_63)Study design: RCTTrial name: NoneStudy Location: KoreaHealth care setting: NRSingle Site | Total n = 75Age Range: >=50Arm 1, Mean Age: 63.3 (5.3)BMI: 27.7 (2.0)Arm 2, Mean Age: 67.7 (7.7)BMI: 27.6 (1.7)Arm 3, Mean Age: 65.7 (8.9)BMI: 27.9 (1.5)Female: 87%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: K-L: II+Analgesic Use: NR | Diagnosis of osteoarthritis of the kneeMinimum Age: >=50AmbulatoryBMI >=25Abdominal circumferences of more than 90 cm for men and 85 cm for womenK-L: II+ | Concomitant medical problems that prevent participationProgressive inflammatory or ankylosing states, or had coexisting central nervous system lesions or in adequate cardiac functionsInfectious or skin diseases | Arm 1: Controln = 24Placebo/EducationDuration: 8 weeksMethod of Blinding: Single-blindArm 2: Land-based exercisen = 25Dose: 40 minFrequency: 3 times per weekDuration: 8 weeksMethod of Blinding: Single-blindArm 3: Aquatic exercisen = 26Dose: 40 minFrequency: 3 times per weekDuration: 8 weeksMethod of Blinding: Single-blind | SF-36 MCS:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -4.50 95% CI: (-11.66, 2.66)Comparator: Arm 3 vs Arm 1 , MD : -6.40 95% CI: (-13.59, 0.79)SF-36 PCS:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -3.50 95% CI: (-8.85, 1.85)Comparator: Arm 3 vs Arm 1 , MD : -1.90 95% CI: (-7.11, 3.31)WOMAC total:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -4.00 95% CI: (-13.64, 5.64)Comparator: Arm 3 vs Arm 1 , MD : -6.70 95% CI: (-15.64, 2.24) |
| Mahboob, 2009[74](#_ENREF_74)Study design: RCTTrial name: NoneStudy Location: IranHealth care setting: Hospital-outpatientSingle Site | Total n = 50Age Range: 44-79Arm 1, Mean Age: NRBMI: NRArm 2, Mean Age: NRBMI: NRFemale: 100%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingSubtype: NRDiagnosis: ACR, severity not reportedAnalgesic Use: Yes,During the therapy program, if needed, patients were allowed to take paracetamol in a dose of less than 1500 mg per day(and drug use was assessed at followup). | Diagnosis of osteoarthritis of the kneeACR: not applicable | Prior surgery on one or both kneesInjected hyaluronic acid in the past or during the past 6 months month(s)Injected corticosteroids in the prior 6 months month(s)Physical Therapy or Rehab or exercise in the previous 6 months month(s)EffusionSevere CVD and PVD | Arm 1: Placebon = 25Placebo/Placebo gel (lacking only mud)Dose: 20 minutes per treatment, each kneeFrequency: once per dayDuration: 30 daysArm 2: Mudpacksn = 25Dose: 20 minutes per treatment, each kneeFrequency: one treatment per dayDuration: 30 days | WOMAC function:Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : -13.76 95% CI: (-31.63, 4.11)WOMAC pain:Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : -5.44 95% CI: (-11.34, 0.46) |
| Makovey, 2015[129](#_ENREF_129)Study design: Conference abstractTrial name: Healthy weight for lifeStudy Location: NRHealth care setting: Remotely deliveredSite size: NR | Total n = 2175Total # of knees = NRMean Age(SD): 64 (SD 8.6)Arm 1, Mean Age: 64 (SD 8.6)BMI: 34.4 (SD 5.2)Female: 71%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRAnalgesic Use: NR | Inclusion : NR | Exclusion : NR | Arm 1: Weight lossn = 2175Dose: Phase 1 - motivational weight loss utilizing low calorie diet meal replacement, with controlled portions, and free foods for 6 weeks; phase 2 - consolidation weight loss for 6 weeks and phase 3 - short term weight maintenanceFrequency: NRDuration: 18 weeksMethod of Blinding: NACo-Intervention: NR | SF-12 Mental Health Composite Score (PCS):Follow-Up Time: 18 weeks :Comparator: <2.5% weight change (post-pre) , MD : 3.58 95% CI: (1.8, 5.4)Comparator: 2.5-5% weight change (post-pre) , MD : 2.38 95% CI: (1.3, 3.5)Comparator: 5.1-7.5% weight change (post-pre) , MD : 5.11 95% CI: (4.2, 6.0)Comparator: 7.6-10% weight change (post-pre) , MD : 5.89 95% CI: (5.0, 6.8)Comparator: >10% weight change (post-pre) , MD : 6.66 95% CI: (5.8, 7.5)SF-12 Physical Health Composite Score (PCS):Follow-Up Time: 18 weeks :Comparator: <2.5% weight change (post-pre) , MD : 3.16 95% CI: (1.7, 4.6)Comparator: 2.5-5% weight change (post-pre) , MD : 4.07 95% CI: (3.2, 5.0)Comparator: 5.1-7.5% weight change (post-pre) , MD : 6.73 95% CI: (6.0, 7.4)Comparator: 7.6-10% weight change (post-pre) , MD : 6.65 95% CI: (5.8, 7.5)Comparator: >10% weight change (post-pre) , MD : 8.60 95% CI: (7.9, 9.3) |
| Messier, 2013[125](#_ENREF_125)Study design: RCTTrial name: IDEAStudy Location: USHealth care setting:Single Site | Total n = 454Mean Age(SD): 66(6)Arm 1, Mean Age: 66(6)BMI: 33.6(3.7)Arm 2, Mean Age: 66(6)BMI: 33.7(3.8)Arm 3, Mean Age: 65(6)BMI: 33.6(3.7)Female: 72%Racial/Ethnic Distribution: Caucasian 81%, Nonwhite 19%Living Situation: Community DwellingLocation of OA: bilateral, unilateralSubtype: Patellofemora, TibiofemoralDiagnosis: K-L: 2&3,Mild or moderateAnalgesic Use: Yes,Patients were allowed to continue using any medications they were taking prior to the study, | Diagnosis of osteoarthritis of the knee:K-L:Minimum Age: 55AmbulatoryAble to sign ConsentBMI 27-41Pain on most daysSedentary lifestyleK-L: 2&3 | Concomitant medical problems that prevent participationPrior surgery on one or both kneesKnee or hip replacementHeart problems or cancerInjected knee medicationsDifficulty with ADLs, other knee-related activities>=21 drinks per week | Arm 1: Land-based Exercisen = 150Placebo/ExerciseDose: 1 hourFrequency: 3 times per weekDuration: 18 monthsMethod of Blinding: NRArm 2: Weight lossn = 152Dose: 800-1000 calorie deficit per dayFrequency: Not applicableDuration: 18 monthsMethod of Blinding: NRArm 3: Weight loss + land-based exercisen = 152Dose: 1 hour exercise, 800-1000 calorie deficitFrequency: Exercise 3 times per weekDuration: 18 monthsMethod of Blinding: NR | 6 min walk (meter):Follow-Up Time: 18 months :Comparator: Arm 2 vs Arm 1 , MD : 23.00 95% CI: (3.15, 42.85)Comparator: Arm 3 vs Arm 1 , MD : -12.00 95% CI: (-33.93, 9.93)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : 28.00 95% CI: (8.90, 47.10)Comparator: Arm 3 vs Arm 1 , MD : -4.00 95% CI: (-24.52, 16.52)SF-36 mental:Follow-Up Time: 18 months :Comparator: Arm 2 vs Arm 1 , MD : 0.50 95% CI: (-1.34, 2.34)Comparator: Arm 3 vs Arm 1 , MD : -0.70 95% CI: (-2.48, 1.08)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : 1.10 95% CI: (-0.88, 3.08)Comparator: Arm 3 vs Arm 1 , MD : -0.80 95% CI: (-2.71, 1.11)SF-36 physical:Follow-Up Time: 18 months :Comparator: Arm 2 vs Arm 1 , MD : 0.00 95% CI: (-2.33, 2.33)Comparator: Arm 3 vs Arm 1 , MD : -2.70 95% CI: (-4.89, -0.51)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -0.30 95% CI: (-2.56, 1.96)Comparator: Arm 3 vs Arm 1 , MD : -2.00 95% CI: (-4.19, 0.19)WOMAC function:Follow-Up Time: 18 months :Comparator: Arm 2 vs Arm 1 , MD : 0.10 95% CI: (-2.67, 2.87)Comparator: Arm 3 vs Arm 1 , MD : -3.40 95% CI: (-6.02, -0.78) |
| Messier, 2013[125](#_ENREF_125) -Continued |  |  |  |  | Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : 0.60 95% CI: (-1.88, 3.08)Comparator: Arm 3 vs Arm 1 , MD : -1.20 95% CI: (-3.75, 1.35)WOMAC pain:Follow-Up Time: 18 months :Comparator: Arm 2 vs Arm 1 , MD : 0.40 95% CI: (-0.31, 1.11)Comparator: Arm 3 vs Arm 1 , MD : -0.70 95% CI: (-1.41, 0.01)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : 0.40 95% CI: (-0.32, 1.12)Comparator: Arm 3 vs Arm 1 , MD : 0.10 95% CI: (-0.68, 0.88)Weight (kg):Follow-Up Time: 18 months :Comparator: Arm 2 vs Arm 1 , MD : -6.00 95% CI: (-9.75, -2.25)Comparator: Arm 3 vs Arm 1 , MD : -8.10 95% CI: (-11.92, -4.28)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -6.90 95% CI: (-10.72, -3.08)Comparator: Arm 3 vs Arm 1 , MD : -8.10 95% CI: (-11.85, -4.35) |
| Miller, 2006[124](#_ENREF_124)Study design: RCTTrial name: NoneStudy Location: USHealth care setting: Academic exercise science departmentSingle Site | Total n = 87Mean Age: 69Arm 1, Mean Age: 69.3(0.9)BMI: 34.3 (3.9)Arm 2, Mean Age: 69.7 (0.9)BMI: 34.9 (4.9)Female: 62%Racial/Ethnic Distribution: African American 11%, Asian 0%, Caucasian 84%, Hispanic 0%, Native American 2%Living Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: Symptomatic knee OAAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeMinimum Age: 60BMI>=30Self-reported difficulty in performing ADLs attributed to knee painsymptomatic knee OA | Unstable medical condition or condition where rapid weight loss or exercise contraindicatedUnwillingness to modify diet or physical activity or inability to comply because of food allergyExcessive alcohol consumption | Arm 1: Controln = 43Placebo/Educational sessionsDose: NAFrequency: two sessions per monthDuration: 6 monthsMethod of Blinding: NRArm 2: Weight lossn = 44Dose: 60 minutes per sessionFrequency: 1 session per weekDuration: 6 monthsMethod of Blinding: NRCo-Intervention: educational and behavioral sessions | 6 min walk (meter):Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -51.00 95% CI: (-96.03, -5.97)BMI:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -2.40 95% CI: (-4.48, -0.32)WOMAC function:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -8.60 95% CI: (-13.50, -3.70)WOMAC pain:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -2.00 95% CI: (-3.25, -0.75)WOMAC total:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -10.70 95% CI: (-17.01, -4.39)Weight (kg):Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -9.10 95% CI: (-16.87, -1.33) |
| Mizusaki, 2013[83](#_ENREF_83)Study design: RCTTrial name: NoneStudy Location: BrazilHealth care setting: Academic rheumatology clinic/departmentSingle Site | Total n = 100Mean Age: 61Arm 1, Mean Age: 61.50 ± 6.94BMI: 29.72 ± 4.11Arm 2, Mean Age: 60.60 ± 6.72BMI: 30.08 ± 3.80Female: 86%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: bilateral 52%, unilateral 48%, NRSubtype: NRDiagnosis: K-L,ACRAnalgesic Use: Yes,Patient medication was standardized and not modified during the study period. Paracetamol was prescribed for pain, and diacerein and chloroquine for OA control. | Diagnosis of osteoarthritis of the kneeMinimum Age: 50Maximum Age:74K-L: >=2ACR | Physical Therapy or Rehab or exercise in the previous current month(s)Use of a pacemaker, unstable heart conditionsInability to exercise on a stationary bicycle ergometer, inability to walkDiagnosis of fibromyalgia, epilepsy, and skin tumor or lesion at the NMES application sitePrevious hip or knee arthroplasty | Arm 1: Exercisen = 50Dose: 40 minutes per sessionFrequency: two sessions per weekDuration: 8 weeksCo-Intervention: a manual including guidelines on how not to overload the knee during daily activities and instructions on the use of ice packs in case of pain and inflammation and warm compresses in case of pain without inflammationArm 2: NMESn = 50Dose: 40 minutes per sessionFrequency: two sessions per weekDuration: 8 weeksCo-Intervention: Exercise and a manual including guidelines on how not to overload the knee during daily activities and instructions on the use of ice packs in case of pain and inflammation and warm compresses in case of pain without inflammation | NRS pain score:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : 0.03 95% CI: (-1.12, 1.18)TUG (s):Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.65 95% CI: (-1.25, -0.05)WOMAC function:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.92 95% CI: (-9.14, 3.30)WOMAC pain:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.65 95% CI: (-2.39, 1.09) |
| Nam, 2014[51](#_ENREF_51)Study design: RCTTrial name: NoneStudy Location: NRHealth care setting: Academic orthopedic surgery clinic/departmentSingle Site | Total n = 30Total # of knees = NRAge Range: NRArm 1, Mean Age: 63.7 (SD 5.6)BMI: NRArm 2, Mean Age: 64.9 (SD 6.8)BMI: NRFemale: 60%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: K-L: > 2Analgesic Use: NR | Diagnosis of osteoarthritis of the kneeMinimum Age: 61Able to sign ConsentNot currently exercisingAbility to understand the exerciseK-L: >2 | Prior surgery on one or both knees | Arm 1: Controln = 15Placebo/ControlDose: 3 1-min sets, with 1-min breaks between sets for each exerciseFrequency: 3 times per weekDuration: 6 weeksMethod of Blinding: NRCo-Intervention: NRArm 2: Land-based exercise: Strength/Othern = 15Dose: 3 times per weekFrequency: 3 1-min sets, with 1-min breaks between sets for each exerciseDuration: 6 weeksMethod of Blinding: NRCo-Intervention: NR | WOMAC total:Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.99 95% CI: (-5.48, -0.50) |
| Nelson, 2013[90](#_ENREF_90)Study design: RCTTrial name: NoneStudy Location: USHealth care setting: NRSingle Site | Total n = 34Mean Age(SD): 55.5 (2.5) Active; 58.4 (2Arm 1, Mean Age: 58.4BMI: 34.7Arm 2, Mean Age: 55.5BMI: 33.5Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRAnalgesic Use: Yes,Unrestricted use of NSAIDs | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: 3 months>= 2 h of daily standing activity in a physical occupationImaging study: Confirmed articular cartilage lossVAS: >=4 | Concomitant medical problems that prevent participationSurgery knee limb in prior 6 month(s)Injected hyaluronic acid in the past or during the past 6 month(s)Injected corticosteroids in the prior 6 month(s)Implanted electronic devicesOn disability or with third party claims | Arm 1: Heat/ultrasound/diathermyn = 19Placebo/ShamDose: 15 minutesFrequency: Twice a dayDuration: 6 weeksMethod of Blinding: Double-blindArm 2: Heat/ultrasound/diathermyn = 15Dose: 15 minutesFrequency: Twice a dayDuration: 6 weeksMethod of Blinding: Double-blind | VAS:Follow-Up Time: 42 days :Comparator: Arm 2 vs Arm 1 , MD : -1.92 95% CI: (-2.35, -1.49) |
| Oliveira, 2012[47](#_ENREF_47)Study design: RCTTrial name: NoneStudy Location: BrazilHealth care setting: Academic rheumatology clinic/departmentSingle Site | Total n = 100Mean Age: 60Arm 1, Mean Age: 58.78 (9.60)BMI: 30.00 ± 5.05Arm 2, Mean Age: 61.50 (6.94)BMI: 29.72 ± 4.11Female: 92%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: bilateral 25%, unilateral 75%Subtype: NRDiagnosis: K-L: mean: 2Analgesic Use: Yes,The patients’ medication was standardized and not modified during the study. | Diagnosis of osteoarthritis of the kneeMinimum Age: 50Maximum Age:75K-L: >=2ACR: NA | Concomitant medical problems that prevent participationPacemaker use; unstable heart conditionsParticipation in another exercise programInability to pedal a stationary bike; inability to walkPrevious knee or hip arthroplastyDiagnosis of fibromyalgia; epilepsy; and presence of a tumor or cutaneous lesion that could interfere with the procedure | Arm 1: Controln = 50Duration: 8 weeksArm 2: Land-based exercisen = 50Dose: NRFrequency: two sessions per weekDuration: 8 weeks | Lequesne Index:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.98 95% CI: (-3.75, -0.21)TUG:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.80 95% CI: (-2.83, -0.77)WOMAC function:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -5.61 95% CI: (-11.67, 0.45)WOMAC pain:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.77 95% CI: (-2.38, 0.84) |
| Palmer, 2014[88](#_ENREF_88)Study design: RCTTrial name: NoneStudy Location: UKHealth care setting: NRSite size: NR | Total n = 224Age Range: >=18Arm 1, Mean Age: 60.9 (10.8)BMI: 29.1 (9.0)Arm 2, Mean Age: 61.2 (11.4)BMI: 29.7 (11.1)Arm 3, Mean Age: 62 (9.4)BMI: 29.8 (7.4)Female: 37%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: ACRAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeMinimum Age: >=18ACR: 3 of 6 signs and symptoms | Concomitant medical problems that prevent participationPrior experience with the intervention of interestContraindications to TENS | Arm 1: Sham TENSn = 74Placebo/ShamDose: As needed; 30 minutes instructional programFrequency: As neededDuration: 6 weeksMethod of Blinding: Single-blindedArm 2: TENSn = 73Dose: As needed; 30 minutes instructional programFrequency: As neededDuration: 6 weeksMethod of Blinding: Single-blindedCo-Intervention: Exercise programArm 3: Exercise programn = 77Dose: 1 hourFrequency: WeeklyDuration: 6 weeksMethod of Blinding: Single-blindedCo-Intervention: | WOMAC function:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 3 , MD : 0.50 95% CI: (-4.16, 5.16)Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 3 , MD : 1.30 95% CI: (-3.38, 5.98)WOMAC pain:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 3 , MD : 1.00 95% CI: (-0.92, 2.92)Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 3 , MD : -2.00 95% CI: (-3.46, -0.54)WOMAC total:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 3 , MD : 1.00 95% CI: (-5.48, 7.48)Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 3 , MD : 1.60 95% CI: (-4.76, 7.96)Clinically significant on WOMAC function:Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 3 , RR : 1.08 95% CI: (0.69, 1.69) |
| Park, 2013[98](#_ENREF_98)Study design: RCTTrial name: NoneStudy Location: KoreaHealth care setting: NRSingle Site | Total n = 44Arm 1, Mean Age: 60 (6.22)BMI: 24.8 (1.76)Arm 2, Mean Age: 62.5 (5.66)BMI: 25.3 (2.92)Female: 100Racial/Ethnic Distribution: NRLiving Situation: Community DwellingSubtype: NRDiagnosis: K-L: 2&3,ACRAnalgesic Use: Yes,One control group patient took NSAIDs for a heart condition. | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: >= 6 monthsMinimum Age: >=40ACRK-L: 2&3 | Concomitant medical problems that prevent participationSurgery knee limb in prior 6 month(s)Injected hyaluronic acid in the past or during the past 6 month(s)Injected corticosteroids in the prior 6 month(s)No serious knee trauma in last six monthsNo acute symptomatic OA, comorbidities such as any peripheral or central neuro logic disorders in last 6 monthsK-L IV | Arm 1: Home-based exercise (HBE)n = 19Placebo/ControlDose: 10 repetitions of each exerciseFrequency: Daily; 3 instructional sessions/week for 8 weeksDuration: 8 weeksArm 2: Whole body vibration (WBV)n = 17Dose: 20 minutesFrequency: 3 times a weekDuration: 8 weeks | NRS:Follow-Up Time: 2 months :Comparator: Arm 2 vs Arm 1 , MD : -2.00 95% CI: (-3.77, -0.23)WOMAC total:Follow-Up Time: 2 months :Comparator: Arm 2 vs Arm 1 , MD : -3.36 95% CI: (-10.01, 3.29) |
| Patel, 2013[23](#_ENREF_23)Study design: RCTTrial name: NoneStudy Location: IndiaHealth care setting: Academic orthopedic surgery clinic/departmentSingle Site | Total n = 78Total # of knees = 156Age Range: 33-80Arm 1, Mean Age: 53.65 (8.17)BMI: 26.21 (2.93)Arm 2, Mean Age: 53.11 (11.55)BMI: 26.28 (3.23)Arm 3, Mean Age: 51.64 (9.22)BMI: 25.81 (3.31)Female: 70.7%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: bilateral 100%Subtype: NRDiagnosis: Ahlback grade 1-2,ACRAnalgesic Use: Yes,Paracetamol 500mg if discomfort | Diagnosis of osteoarthritis of the knee:ACRAhlback grade: 1-2 | Surgery knee limb in prior 12 month(s)Injected hyaluronic acid in the past or during the past 3 month(s)Injected corticosteroids in the prior 3 month(s)Secondary OA due to joint inflammatory diseases, Generalized OA, Advanced stages of OAMetabolic diseases of the boneCoexisting backacheReceiving anticoagulant therapyHemoglobin level less than 10 gm% or associated comorbidities, infection, tumor, crystal arthropathies, or tense joint effusion | Arm 1: Controln = 23Placebo/Normal saline injectionDose: 8 mLFrequency: Single injectionArm 2: Single PRP Injectionn = 27Dose: 8 mLFrequency: Single injectionCo-Intervention: 1 mL of CaCl2 (M/40) was injected in a ratio of 1:4 for every 4 mL of PRPArm 3: 2 PRP Injectionsn = 25Dose: 8 mLFrequency: 2 injections 3 weeks apartCo-Intervention: 1 mL of CaCl2 (M/40) was injected in a ratio of 1:4 for every 4 mL of PRP | VAS:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -2.45 95% CI: (-2.92, -1.98)Comparator: Arm 3 vs Arm 1 , MD : -2.07 95% CI: (-2.59, -1.55)WOMAC function:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -19.38 95% CI: (NC, NC)Comparator: Arm 3 vs Arm 1 , MD : -17.06 95% CI: (NC, NC)Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : -15.56 95% CI: (NC, NC)Comparator: Arm 3 vs Arm 1 , MD : -16.24 95% CI: (NC, NC)WOMAC pain:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -5.87 95% CI: (NC, NC)Comparator: Arm 3 vs Arm 1 , MD : -4.69 95% CI: (NC, NC)Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : -5.22 95% CI: (NC, NC)Comparator: Arm 3 vs Arm 1 , MD : -5.10 95% CI: (NC, NC)WOMAC total:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -25.91 95% CI: (NC, NC)Comparator: Arm 3 vs Arm 1 , MD : -22.61 95% CI: (NC, NC)Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : -21.42 95% CI: (NC, NC)Comparator: Arm 3 vs Arm 1 , MD : -21.82 95% CI: (NC, NC) |
| Perlman, 2012[121](#_ENREF_121)Study design: RCTTrial name: NoneStudy Location: USHealth care setting: Hospital-outpatientMultiple Sites: 2 | Total n = 125Total # of knees = NRAge Range: NRArm 1, Mean Age: 63.6 (SD 10.2)BMI: 31.7 (SD 6.5)Arm 2, Mean Age: 69.9 (SD 8.6)BMI: 31.0 (SD 7.5)Arm 3, Mean Age: 61.9 (SD 9.5)BMI: 32.1 (SD 6.8)Arm 4, Mean Age: 62.6 (SD 10.6)BMI: 31.8 (SD 6.7)Arm 5, Mean Age: 63.6 (SD 13.0)BMI: 31.3 (SD 7.1)Female: 70.4%Racial/Ethnic Distribution: African American 11.2%, Asian 0.8%, Caucasian 84.8%, Hispanic 0.8%, 0.8% White/Asian, 1.6% UnknownLocation of OA: NRSubtype: NRDiagnosis: Met the ACR criteria for knee OAAnalgesic Use: Yes,Subjects using NSAIDS or other medications to control pain were included if their doses remained stable 3 months prior to starting the intervention | Minimum Age: 35Pre-randomization score of 40-90 on the visual analog pain scaleSubjects using NSAIDS or other medications to control pain were included if their doses remained stable 3 months prior to starting the intervention | Concomitant medical problems that prevent participationPrior surgery on one or both kneesConcomitant or prior use of other medsInjected hyaluronic acid in the past or during the past 1-12 months prior to enrollment month(s)Injected corticosteroids in the prior 1-12 months prior to enrollment month(s)Rheumatoid arthritis, fibromyalgia, recurrent or active pseudogout, cancer, or other serious medical conditionsA rash or open wound over the knee and regular use of massage therapy (greater than once a month)Signs or history of kidney or liver failure; unstable asthma; knee replacement of both knees; reported recent use (4 weeks–1 year prior to enrollment) of oral or intra-articular corticosteroids or intra-articular hyaluronate; or knee arthroscopy or significant knee injury one year prior to enrollment | Arm 1: Control (usual care)n = 25, Dose: NR, Frequency: NR, Duration: 8 weeksMethod of Blinding: Single-blind, measurements were assessed by separate personnel blinded to treatment assignmentsCo-Intervention: NRArm 2: Massagen = 25, Dose: 30 minutes, Frequency: Once per week, Duration: 8 weeksMethod of Blinding: Single-blind, measurements were assessed by separate personnel blinded to treatment assignmentsCo-Intervention: NRArm 3: Massagen = 25, Dose: 30 minutes, Frequency: 2 times per week for 4 weeks, followed by once per week for 4 weeks, Duration: 8 weeksMethod of Blinding: Single-blind, measurements were assessed by separate personnel blinded to treatment assignmentsCo-Intervention: NRArm 4: Massagen = 25, Dose: 60 minutes, Frequency: Once per week, Duration: 8 weeksMethod of Blinding: Single-blind, measurements were assessed by separate personnel blinded to treatment assignmentsCo-Intervention: NRArm 5: Massagen = 25, Dose: 60 minutes, Frequency: 2 times per week for 4 weeks, followed by once per week for 4 weeks | VAS pain:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.90 95% CI: (-17.89, 12.09)Comparator: Arm 3 vs Arm 1 , MD : -2.50 95% CI: (-16.81, 11.81)Comparator: Arm 4 vs Arm 1 , MD : -7.00 95% CI: (-21.09, 7.09)Comparator: Arm 5 vs Arm 1 , MD : -11.30 95% CI: (-27.16, 4.56)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -4.40 95% CI: (-18.27, 9.47)Comparator: Arm 3 vs Arm 1 , MD : -16.30 95% CI: (-30.17, -2.43)Comparator: Arm 4 vs Arm 1 , MD : -30.00 95% CI: (-42.09, -17.91)Comparator: Arm 5 vs Arm 1 , MD : -21.40 95% CI: (-33.42, -9.38)WOMAC function:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -11.10 95% CI: (-22.60, 0.40)Comparator: Arm 3 vs Arm 1 , MD : -3.20 95% CI: (-13.32, 6.92)Comparator: Arm 4 vs Arm 1 , MD : -7.90 95% CI: (-20.05, 4.25)Comparator: Arm 5 vs Arm 1 , MD : -10.20 95% CI: (-21.54, 1.14)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -11.40 95% CI: (-20.90, -1.90)Comparator: Arm 3 vs Arm 1 , MD : -10.60 95% CI: (-21.76, 0.56)Comparator: Arm 4 vs Arm 1 , MD : -14.60 95% CI: (-24.50, -4.70)Comparator: Arm 5 vs Arm 1 , MD : -15.40 95% CI: (-26.48, -4.32) |
| Perlman, 2012[121](#_ENREF_121) -Continued |  |  |  | Duration: 8 weeksMethod of Blinding: Single-blind, measurements were assessed by separate personnel blinded to treatment assignmentsCo-Intervention: NR | WOMAC global:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -8.30 95% CI: (-19.08, 2.48)Comparator: Arm 3 vs Arm 1 , MD : -1.00 95% CI: (-11.78, 9.78)Comparator: Arm 4 vs Arm 1 , MD : -8.20 95% CI: (-19.46, 3.06)Comparator: Arm 5 vs Arm 1 , MD : -9.10 95% CI: (-21.03, 2.83)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -11.10 95% CI: (-21.34, -0.86)Comparator: Arm 3 vs Arm 1 , MD : -12.10 95% CI: (-23.31, -0.89)Comparator: Arm 4 vs Arm 1 , MD : -17.70 95% CI: (-28.02, -7.38)Comparator: Arm 5 vs Arm 1 , MD : -17.70 95% CI: (-28.50, -6.90)WOMAC pain:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -4.70 95% CI: (-18.04, 8.64)Comparator: Arm 3 vs Arm 1 , MD : 3.60 95% CI: (-8.70, 15.90)Comparator: Arm 4 vs Arm 1 , MD : -6.20 95% CI: (-19.16, 6.76)Comparator: Arm 5 vs Arm 1 , MD : -6.70 95% CI: (-20.19, 6.79)Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -9.50 95% CI: (-20.69, 1.69)Comparator: Arm 3 vs Arm 1 , MD : -8.80 95% CI: (-20.75, 3.15)Comparator: Arm 4 vs Arm 1 , MD : -21.60 95% CI: (-33.47, -9.73)Comparator: Arm 5 vs Arm 1 , MD : -22.10 95% CI: (-33.89, -10.31) |
| Rabini, 2015[94](#_ENREF_94)Study design: RCTTrial name: NoneStudy Location: ItalyHealth care setting: Hospital-outpatientSingle Site | Total n = 50Total # of knees = NRMean Age(SD): 73.72 (SD 5.24) 75.08 (SDArm 1, Mean Age: 75.08 (SD 5.74)BMI: NRArm 2, Mean Age: 73.72 (SD 5.24)BMI: NRFemale: 78%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: K-L: 2&3Analgesic Use: Yes,Allowed rescue dose the use of 3 g of paracetamol for a maximum of 2 consecutive days. | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: chronic knee pain, for at least 3 monthsMinimum Age: 60Able to sign ConsentK-L: 2&3 | Concomitant medical problems that prevent participationPrior surgery on one or both kneesSurgery knee limb in prior 24 month(s)BMI > 30 kg/m2Neurological diseases involving the lower limbs or causing balance problems, systemic inflammatory diseases; severe heart disease; acute infections or bone tuberculosisArthroprosthesis of lower limbsHistory of surgery on the affected knee in the last two yearsActive cancer or anticancer treatment | Arm 1: Sham proceduren = 25Placebo/Sham procedureDose: NRFrequency: 10 minutesDuration: NRMethod of Blinding: Patients and the researcher responsible of the outcome assessments were unaware of patients’ allocationCo-Intervention: Allowed rescue dose of 3g of paracetamol for a maximum of 2 consecutive days and the application of ice packageArm 2: Vibrating platform (whole body vibration)n = 25Dose: Frequency of 100 Hz and an amplitude of approximately 0.2-0.5 mm for 10 minutesFrequency: 3 doses per day, for 3 consecutive daysDuration: NRMethod of Blinding: patients and the researcher responsible of the outcome assessments were unaware of patients’ allocationCo-Intervention: Allowed rescue dose of 3g of paracetamol for a maximum of 2 consecutive days and the application of ice package | WOMAC total:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -19.04 95% CI: (-27.43, -10.65) |
| Rayegani, 2014[25](#_ENREF_25)Study design: RCTTrial name: NoneStudy Location: IranHealth care setting: Hospital-outpatientSingle Site | Total n = 62Mean Age(SD): 56.19 (10)Arm 1, Mean Age: 54.68 (10.83)BMI: 27.30 (3.27)Arm 2, Mean Age: 58.07 (8.95)BMI: 28.23 (4.1)Arm 3, Mean Age:BMI:Female: 93.5%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: K-L: 1-4,ACRAnalgesic Use: Yes,Acetaminophen 500 mg without codeine (up to 2g/day); a single dose of acetaminophen-codeine2 hours before injection | Diagnosis of osteoarthritis of the knee:ACRDuration of Symptoms: 3 monthsK-L: 1-4 | Concomitant or prior use of other medsAnalgesics use in the previous3 days month(s)Injected corticosteroids in the prior 3 weeks (systemic in prior 2 weeks) month(s)Prior acute injury to the kneeAge > 75Diabetes mellitus, immunosuppressive and collagen vascular disorders, history of vasovagal shock, history or presence of cancer or malignant disorders, infection or active wound of the knee, Autoimmune and platelet disorders, treatment with anticoagulant and anti-platelet medications 10 days before injection, Hb < 12 g/dL platelet counts < 150,000/mLPregnancy or breastfeedingGenu valgum/varum greater than 20 degrees | Arm 1: Controln = 31Method of Blinding: No blindingCo-Intervention: Exercise and acetaminophen 500 mg without codeineArm 2: Platelet Rich Plasman = 31Dose: 4-6 mLFrequency: 2 doses 4 weeks apartDuration: 4 weeksMethod of Blinding: No blindingCo-Intervention: Exercise and acetaminophen 500 mg without codeineArm 3:n =Dose:Frequency:Duration:Method of Blinding:Co-Intervention: | SF-36 mental health:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : 1.00 95% CI: (NC, NC)SF-36 physical health:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : 1.00 95% CI: (NC, NC)WOMAC function:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : 0.17 95% CI: (-5.54, 5.88)WOMAC pain:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -0.96 95% CI: (-2.88, 0.96) |
| Richette, 2011[131](#_ENREF_131)Study design: Single arm trialTrial name: NoneStudy Location: FranceHealth care setting: Department of Nutrition, Center of Reference for Medical and Surgical Care of ObesitySingle Site | Total n = 44Mean Age(SD): 44 (10.3)Arm 1, Mean Age: 44 (10.3)BMI: 50.7 (7.2)Female: 82%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: K-L: 2-4Analgesic Use: NR | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: 1 monthK-L: 2-4VAS: >= 30 mm | Concomitant medical problems that prevent participationConcomitant or prior use of other medsInjected hyaluronic acid in the past or during the past 6 month(s)Injected corticosteroids in the prior 1 month(s)K-L: stage 1Inflammatory joint disease, chondrocalcinosis of the kneeCurrent use of symptomatic slow-acting drugs, viscosupplementation within the past 6 month | Arm 1: Bariatric surgeryn = 44Duration: 6 months | BMI:Follow-Up Time: 6 months :Comparator: pre-post , MD : 10.30 95% CI: (7.4, 13.2)VAS pain:Follow-Up Time: 6 months :Comparator: pre-post , MD : 25.50 95% CI: (15.5, 35.5)WOMAC function:Follow-Up Time: 6 months :Comparator: pre-post , MD : 371.30 95% CI: (219.6, 523.0)WOMAC pain:Follow-Up Time: 6 months :Comparator: pre-post , MD : 93.20 95% CI: (47.1, 139.3)WOMAC stiffness:Follow-Up Time: 6 months :Comparator: pre-post , MD : 31.80 95% CI: (11.7, 51.9)Weight (kg):Follow-Up Time: 6 months :Comparator: pre-post , MD : 28.60 95% CI: (19.4, 37.8) |
| Rodrigues, 2008[103](#_ENREF_103)Study design: RCTTrial name: NoneStudy Location: BrazilHealth care setting: Academic rheumatology clinic/departmentSingle Site | Total n = 30Age Range: 45-86Arm 1, Mean Age: 61.9 (11.3)BMI: 30.6 (3.1)Arm 2, Mean Age: 61.6 (11.4)BMI: 28.9 (3.5)Female: 100%Racial/Ethnic Distribution: Caucasian 50%Living Situation: NRLocation of OA: bilateral 100%Subtype: Lateral 100%Diagnosis: K-L: 2-4Analgesic Use: Yes,If prescribed at least 4 weeks and 8 weeks, respectively, before entry and remained unchanged throughout the study. | Diagnosis of osteoarthritis of the kneeK-L: >=2 at lateral compartmentK-L: 0&1 at medial compartmentVAS on movement: >=2 | Prior surgery on one or both kneesInjected hyaluronic acid in the past or during the past 6 month(s)Injected corticosteroids in the prior 3 month(s)BMI>=40Difference in lower limb length > \_x0001\_1 cmHallux rigidusHistory of rheumatologic disease (rheumatoid arthritis, connective tissue disease, microcrystalline arthropathy, and seronegative arthropathy)Soft tissue involvement (anserine, patellar, and calcaneal tendinopathy); foot/lower leg symptoms | Arm 1: Controln = 14Dose: 3– 6 hours dailyDuration: 8 weeksMethod of Blinding: Received new shoes with insolesArm 2: Medial insolen = 16Dose: 3– 6 hours dailyDuration: 8 weeksMethod of Blinding: Received new shoes with insoles | Lequesne index:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.40 95% CI: (-5.28, 0.48)VAS movement:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.20 95% CI: (-4.04, -0.36)VAS night:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.50 95% CI: (-3.12, 0.12)VAS rest:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.40 95% CI: (-2.16, 1.36)WOMAC total:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -6.70 95% CI: (-17.09, 3.69)Clinically significant on Lequesne index:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , RR : 0.79 95% CI: (0.59, 1.06) |
| Rogers, 2012[46](#_ENREF_46)Study design: RCTTrial name: NoneStudy Location: USHealth care setting: HomeSingle Site | Total n = 33Mean Age: 70Arm 1, Mean Age: 71.2(10.9)BMI: 30.8Arm 2, Mean Age: 70.7(10.7)BMI: 28.9Arm 3, Mean Age: 70.8(6.5)BMI: 28.2Arm 4, Mean Age: 68.8(10.1)BMI: 29.2Female: 60%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: bilateral 70%, unilateral 30%Subtype: NRDiagnosis: ACRAnalgesic Use: Yes,All participants were advised to continue usual care as prescribed by their physicians, including any use of pain medication, but not to take up any lower extremity exercise program other than the prescribed intervention | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: >=1 monthMinimum Age: 50AmbulatoryACR: NAWOMAC function: >=17 | Concomitant medical problems that prevent participationPrior surgery on one or both kneesInjected hyaluronic acid in the past or during the past prior 4 weeks month(s)Injected corticosteroids in the prior 4 weeks month(s)Physical Therapy or Rehab or exercise in the previous 6 months month(s)Rheumatic disease other than OAUnresolved balance or neurological disorderMajor knee trauma, hip or knee arthroplasty, hip or ankly instability or excessive weakness | Arm 1: Controln = 8Duration: 8 weeksCo-Intervention: Application of intert skin lotion to knees once dailyArm 2: Agility-type exercisen = 8Dose: 30-40 minutesFrequency: 3 times per weekDuration: 8 weeksCo-Intervention: 30-second stic stretches per sessionArm 3: Strength/resistancen = 8Dose: 15 repetitionsFrequency: 3 times per weekDuration: 8 weeksCo-Intervention: 30-second stic stretches per sessionArm 4: Agility- type plus strength/resistancen = 9Dose: Comparable to individual intervention groupsFrequency: 3 times per weekDuration: 8 weeks | WOMAC function:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -5.87 95% CI: (-13.22, 1.48)Comparator: Arm 3 vs Arm 1 , MD : -9.62 95% CI: (-19.04, -0.20)Comparator: Arm 4 vs Arm 1 , MD : -11.98 95% CI: (-19.15, -4.81)WOMAC pain:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -3.13 95% CI: (-5.86, -0.40)Comparator: Arm 3 vs Arm 1 , MD : -3.75 95% CI: (-6.39, -1.11)Comparator: Arm 4 vs Arm 1 , MD : -3.00 95% CI: (-5.45, -0.55)WOMAC total:Follow-Up Time: 8 weeks :Comparator: Arm 2 vs Arm 1 , MD : -9.00 95% CI: (-19.79, 1.79)Comparator: Arm 3 vs Arm 1 , MD : -13.62 95% CI: (-26.37, -0.87)Comparator: Arm 4 vs Arm 1 , MD : -15.26 95% CI: (-25.16, -5.36) |
| Rosedale, 2014[64](#_ENREF_64)Study design: RCTTrial name: NoneHealth care setting: Academic physical therapy clinic/departmentSingle Site | Total n = 158Mean Age: 65Arm 1, Mean Age: 64(11)BMI: 30.7(5.3)Arm 2, Mean Age: 64(9)BMI: 32(8.9)Arm 3, Mean Age: 68(10)BMI: 30.6(5.4)Female: 56%Living Situation: Community DwellingSubtype: NRDiagnosis: Radiological confirmation, not otherwise describedAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: > 4 monthsOn knee replacement waiting listsradiologic: NR | Inability to attend exercise-based physiotherapy 2&3 times/weekNeurological conditions affecting lower extremitiesUnable to understand English or provide informed consent | Arm 1: Controln = 59Duration: NAArm 2: Land-based exercise, genericn = 59Dose: 20 minutesFrequency: 4-6 sessions per 2 weeksDuration: 2 weeksArm 3: Land-based exercise, patient-tailoredn = 40Dose: 20 minutesFrequency: 4-6 sessions per 2 weeksDuration: 2 weeks | KOOS function:Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -9.00 95% CI: (-14.28, -3.72)KOOS pain:Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -10.00 95% CI: (-15.28, -4.72)P4 pain scale:Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -3.00 95% CI: (-5.84, -0.16)Number with improvements in KOOS function score greater than MDC:Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , RR : 0.71 95% CI: (0.39, 1.30)Number with improvements in KOOS pain score greater than MDC:Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , RR : 0.77 95% CI: (0.45, 1.33) |
| Salacinski, 2012[43](#_ENREF_43)Study design: RCTTrial name: NoneStudy Location: USHealth care setting: NRSite size: NR | Total n = 41Age Range: 37-74Arm 1, Mean Age: 60.6 (8.4)BMI: 25.7 (6.3)Arm 2, Mean Age: 55.1 (10.5)BMI: 22.4 (3.3)Female: 73%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: K-L: 1-3,Mild to moderateAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: 1 month+>= 90d degree knee range of motionStable baseline BPK-L: 1-3radiographic evidence: of OAK | Concomitant medical problems that prevent participationPersonal physician sign off to participateKnee swelling | Arm 1: Usual exercisen = 18Placebo/Usual careDuration: 12 weeksArm 2: Cyclingn = 19Dose: 40-60 minFrequency: Twice a week (at least)Duration: 12 weeks | WOMAC function:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : 13.10 95% CI: (3.35, 22.85)WOMAC pain:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : 15.70 95% CI: (6.20, 25.20)WOMAC total:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : 13.20 95% CI: (3.64, 22.76)Knee related qol:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : -12.50 95% CI: (-25.60, 0.60) |
| Samut, 2015[40](#_ENREF_40)Study design: RCTTrial name: NoneStudy Location: TurkeyHealth care setting: Academic physical medicine/rehab departmentSingle Site | Total n = 42Age Range: >=50Arm 1, Mean Age: 60.92 (8.85)BMI: 30.36 (5.67)Arm 2, Mean Age: 62.46 (7.71)BMI: 30.54 (4.45)Arm 3, Mean Age: 57.57 (5.79)BMI: 33.94 (7.33)Female: 100%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: K-L: 2&3,ACRAnalgesic Use: Yes,All three groups were allowed to take acetaminophen whenever needed. | Diagnosis of osteoarthritis of the kneeSedentary lifestyle (less than 60 min of moderate to high-intensity activity per week)ACR: diagnosis of knee OAK-L: 2&3 | Concomitant medical problems that prevent participationInjected hyaluronic acid in the past or during the past 3 month(s)Injected corticosteroids in the prior 3 month(s)Physical Therapy or Rehab or exercise in the previous 3 month(s)Cooperation problems, depression, cognitive impairment, neurologic impairment/disease, orthopedic problems, inflammatory arthritis, cardiovascular problems, end-stage disease, immunosuppressive drug usage, and having an infection or inflammatory condition, pregnancy, and malignant disease.Regular exercise habits | Arm 1: Controln = 13Placebo/ControlDuration: 6 weeksArm 2: Isokinetic exercisen = 15Frequency: 3 days weekDuration: 6 weeksArm 3: Aerobic exercisen = 14Frequency: 3 days a weekDuration: 6 weeks | 6-min walking test:Follow-Up Time: 6 weeks :Comparator: Arm 3 vs Arm 1 , MD : -45.83 95% CI: (-115.76, 24.10)WOMAC function:Follow-Up Time: 6 weeks :Comparator: Arm 3 vs Arm 1 , MD : -15.35 95% CI: (-24.02, -6.68)WOMAC pain:Follow-Up Time: 6 weeks :Comparator: Arm 3 vs Arm 1 , MD : -4.02 95% CI: (-6.01, -2.03)WOMAC total:Follow-Up Time: 6 weeks :Comparator: Arm 3 vs Arm 1 , MD : -18.58 95% CI: (-29.65, -7.51) |
| Sattari, 2011[102](#_ENREF_102)Study design: RCTTrial name: NoneStudy Location: IranHealth care setting: Hospital-outpatientMultiple Sites: 3 | Total n = 60Total # of knees = NRMean Age: 48 yearsArm 1, Mean Age: NRBMI: NRArm 2, Mean Age: NRBMI: NRArm 3, Mean Age: NRBMI: NRFemale: 63%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: Medial 100%Diagnosis: K-L: 3&4Analgesic Use: Yes,When needed | Diagnosis of osteoarthritis of the kneeMinimum Age: 35Maximum Age:65Genu varum based on radiographic evidenceComplaint of knee painK-L: 3&4 | Prior surgery on one or both kneesSurgery knee limb in prior NR month(s)Whole knee degenerative joint diseaseSymptomatic patellofemoral pain syndromeRheumatoid arthritisBMI greater than 30Any superimposed hip or ankle problems | Arm 1: Control groupn = 20Placebo/Control with co-intervention (see below)Dose: NAFrequency: NADuration: 9 monthsMethod of Blinding: Evaluated by a blind examinerCo-Intervention: Conservative management included activity modification, heating agents at home, straight leg rising and isometric quadriceps home exercises and analgesics when neededArm 2: Orthotics/orthoses/shoe insertsn = 20Dose: all the timeFrequency: all the timeDuration: 9 monthsMethod of Blinding: Evaluated by a blind examinerCo-Intervention: Conservative management included activity modification, heating agents at home, straight leg rising and isometric quadriceps home exercises and analgesics when neededArm 3: Knee bracen = 20Dose: Wear it on and off every 2&3 hours for the first week and then put it on as long as possible during the day and take it off at nightsFrequency: DailyDuration: 9 monthsMethod of Blinding: Evaluated by a blind examinerCo-Intervention: Conservative management included activity modification, heating agents at home, straight leg rising and isometric quadriceps home exercises and analgesics when needed | VAS pain:Follow-Up Time: 9 months :Comparator: Arm 2 vs Arm 1 , MD : -1.60 95% CI: (-2.31, -0.89)Comparator: Arm 3 vs Arm 1 , MD : -2.80 95% CI: (-3.58, -2.02) |
| Sawitzke, 2010[28](#_ENREF_28)Study design: RCTTrial name: GAITStudy Location: USHealth care setting: NRMultiple Sites: 9 | Total n = 662Age Range: >=40Arm 1, Mean Age: 56.9 (9.8)BMI: 25.5Arm 2, Mean Age: 56.7 (10.5)BMI: 27.6Arm 3, Mean Age: 56.3 (8.8)BMI: 30.2Arm 4, Mean Age: 56.7 (10.7)BMI: 27.1Arm 5, Mean Age: 57.6 (10.6)BMI: 25.4Female: 67.5%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: Tibiofemoral 100%Diagnosis: K-L: 2&3Analgesic Use: Yes,<= 4000 mg of acetaminophen (Tylenol, McNeil) daily | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: 6 monthsMinimum Age: 40K-L: 2&3WOMAC: 125 to 400 mmAmerican Rheumatism Association functional class: 1-3 | Concomitant medical problems that prevent participationPrior surgery on one or both kneesPrior acute injury to the kneePredominant patellofemoral disease | Arm 1: Placebon = 131Placebo/CapsulesFrequency: Once dailyDuration: 24 monthsMethod of Blinding: Double placeboArm 2: Glucosaminen = 134Dose: 500 mgFrequency: 3 times dailyDuration: 24 monthsMethod of Blinding: Double dummyArm 3: Chondroitinn = 126Dose: 400 mgFrequency: 3 times dailyDuration: 24 monthsMethod of Blinding: Double dummyArm 4: Glucosamine and Chondroitinn = 129Dose: 500mg and 400 mgFrequency: 3 times dailyDuration: 24 monthsMethod of Blinding: Double dummyArm 5: Celecoxibn = 142Dose: 200 mgFrequency: Once dailyDuration: 24 monthsMethod of Blinding: Double dummy | WOMAC function:Follow-Up Time: 24 months :Comparator: Arm 2 vs Arm 1 , MD : 9.56 95% CI: (-79.79, 98.91)Comparator: Arm 3 vs Arm 1 , MD : 36.64 95% CI: (-64.57, 137.86)Comparator: Arm 4 vs Arm 1 , MD : 54.41 95% CI: (-37.59, 146.41)Comparator: Arm 5 vs Arm 1 , MD : -15.82 95% CI: (-102.31, 70.67)WOMAC pain:Follow-Up Time: 24 months :Comparator: Arm 2 vs Arm 1 , MD : -4.84 95% CI: (-28.29, 18.61)Comparator: Arm 3 vs Arm 1 , MD : 11.50 95% CI: (-15.40, 38.40)Comparator: Arm 4 vs Arm 1 , MD : 1.04 95% CI: (-21.44, 23.51)Comparator: Arm 5 vs Arm 1 , MD : -13.54 95% CI: (-35.92, 8.84) |
| Schlenk, 2011[42](#_ENREF_42)Study design: RCTTrial name: NoneStudy Location: USHealth care setting: Hospital-outpatientSingle Site | Total n = 26Arm 1, Mean Age: 63.2 (9.8)BMI: 33.3(6)Arm 2, Mean Age: 63.2 (9.8)BMI: 33.3(6)Female: 96Racial/Ethnic Distribution: Caucasian 83%, NR 16%Living Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: Physician reportedAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeMinimum Age: 50Overweightphysician confirmation | Concomitant medical problems that prevent participationPending surgeryPrior acute injury to the kneePhysical Therapy or Rehab or exercise in the previous currently month(s)Self report of current regular lower extremity exercise program or fitness walkingOA of the hipCurrent participation in a drug trialContraindications to exerciseInability to use phone, lack of English proficiency, inabiolity to manage own treatment | Arm 1: Controln = 13Placebo/Usual careDose: NAFrequency: NADuration: 6 monthsMethod of Blinding: NRArm 2: Staying Active with Arthritis (STAR)n = 13Dose: Initial 1 hour per week sessions of strengthening and flexibility exercise followed by fitness walkingFrequency: 150 minutes per weekDuration: 6 monthsMethod of Blinding: NR | 6-minute walk:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : 22.30 95% CI: (-63.28, 107.88)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : 38.30 95% CI: (-50.86, 127.46)WOMAC function:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : -2.70 95% CI: (-12.78, 7.38)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -5.60 95% CI: (-17.65, 6.45) |
| Segal, 2015[60](#_ENREF_60)Study design: RCTTrial name: NoneStudy Location: USHealth care setting: NRSite size: NR | Total n = 58Age Range: >=60Arm 1, Mean Age: 69.1 (7.3)Arm 2, Mean Age: 69.6 (6.4)Female: 66%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: K-L: I1-4Analgesic Use: NR | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: >=30 daysMinimum Age: 60AmbulatoryMobility disability (LLFDI advanced lower limb function score below 32 pointsdefined using a definite osteophyte or joint space narrowing in either tibiofemoral compartment on posteroanterior knee radiographs16 and an affirmative response to BHave you had pain or stiffness in one or both knees on most of the past 30 days?[ on both the telephone screen and screening visit | Concomitant medical problems that prevent participationInjected corticosteroids in the prior 3 month(s)Conditions other than knee OA, which could affect walking, were exclusionary (e.g., amputation, severe back pain, severe peripheral vascular or heart disease and neurological or develop mental disease including multiple sclerosis, Parkinson disease, myositis, rickets, or lower limb musculoskeletal surgery in the past 6 mos).Other prospective exclusion criteria that no volunteers met were as follows: medical conditions that may preclude safe participation in the study protocol, including but not limited to acute or terminal illness or unstable cardiovascular condition (e.g., New York Heart Association class 3&4 congestive heart failure, clinically significant aortic stenosis, history of cardiac arrest, use of a cardiac defibrillator, uncontrolled angina); report of medical conditions that may impair ability to participate including but not limited to pulmInability or unwillingness to comply with the study protocol or be randomized | Arm 1: Physical therapist directed gait trainingn = 36Placebo/Usual careDose: 45 minFrequency: Twice a weekDuration: 3 monthsArm 2: Usual care / symptom diaryn = 22Frequency: 1-2 times a weekDuration: 3-12 months: To provide a similar frequency of study contact as was provided to the gait-training participants, the control participants were given an Arthritis Foundation symptom diary and instructed to record twice each week for the first 3 mos (Sunday and Wednesday) and once a week Sunday) for the following 9 months: their knee symptoms, healthcare appointments related to their knee OA, or any changes in the way in which they treated their knee OA. The researchers contacted the control participants by telephone at 1, 2, 4, 5, 8, and 10 mos in addition to meeting with them at 3, 6, | KOOS pain:Follow-Up Time: 12 months :Comparator: Arm 2 vs Arm 1 , MD : -7.30 95% CI: (-16.56, 1.96)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -3.70 95% CI: (-12.09, 4.69) |
| Segal, 2015[60](#_ENREF_60) -Continued |  |  | Inability to obtain written clearance for participation in the study by a physicianConcurrent participation in another observational or interventional research study; current consumption of more than 14 alcoholic drinks per week; and/or judgment of the principal investigator that participation would endanger the safety of an individual. |  |  |
| Simao, 2012[97](#_ENREF_97)Study design: RCTTrial name: NoneStudy Location: BrazilHealth care setting: Academic exercise physiology labSingle Site | Total n = 31Mean Age: 72Arm 1, Mean Age: 71(5.3)BMI: 26.7(2.4)Arm 2, Mean Age: 75(7.4)BMI: 27.4(9.7)Arm 3, Mean Age: 69(3.7)BMI: 29.8(2.53)Female: 86%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: ACR | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: most days of previous monthMinimum Age: 60OsteophytesSynovial fluid typical of OACrepitusMorning stiffness 30 minutes or lessACR: NAK-L: 2 | Injected corticosteroids in the prior at least 2 months month(s)Prior acute injury to the kneePhysical Therapy or Rehab or exercise in the previous 3 months month(s)Use of any assistive walking deviceThe absence of the minimum clinical and cognitive conditions for performing physical activitiesOrthopedic disease; neurologic, respiratory, or acute cardiac issues that prevented the performance of the required exercises; vestibular disorders; immunosuppression or immunodeficiency; lack of sphincter control (anal and bladder); or cognitive deficits | Arm 1: Controln = 11Dose: NAFrequency: NADuration: NAArm 2: Vibrating platformn = 10Dose: NRFrequency: 3 sessions per weekDuration: 12 weeksArm 3: Strength trainingn = 10Dose: NRFrequency: 3 sessions per weekDuration: 12 weeks | 6 min walk:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 3 , MD : -27.40 95% CI: (-84.05, 29.25)WOMAC function:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 3 , MD : -122.50 95% CI: (-551.90, 306.90)WOMAC pain:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 3 , MD : 25.00 95% CI: (-93.83, 143.83) |
| Simental-Mendia, 2016[27](#_ENREF_27)Study design: RCTTrial name: NoneStudy Location: MexicoHealth care setting:Site size: NR | Total n = 75Age Range: >=18Arm 1, Mean Age: 55.6 (11.4)BMI: 29.5 (3.8)Arm 2, Mean Age: 57.2 (8.1)BMI: 32.2 (6.2)Female: 65%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: >=3 monthsMinimum Age: >=18Multiple: degenerative OA based on a detailed clinical history of knee pain, a complete physical examination and radiologic findingsK-L: I-II | Concomitant medical problems that prevent participationPrior surgery on one or both kneesAnalgesics use in the previouscurrent month(s)Any surgical intervention of the knee, pregnancy, rheumatic disease, hepatological disease, liver disease, severe cardiovascular disease, diabetes, coagulopathy, infection, immunodepression, anticoagulant therapy, and an Hb value \11 g/dL and platelet value \150,000/lLNo use of NSAIDs | Arm 1: Acetaminophenn = 32Placebo/Usual careDose: 500mgFrequency: Every 8 hrsDuration: 6 weeksArm 2: Autologous leukocyte-poor platelet-rich plasman = 33Frequency: Every 2 weeksDuration: 6 weeks | SF-12 mental component:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.30 95% CI: (-6.10, 1.50)Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : -7.40 95% CI: (-11.96, -2.84)SF-12 physical component:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -9.90 95% CI: (-14.07, -5.73)Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : -7.60 95% CI: (-11.72, -3.48)VAS pain:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.20 95% CI: (-3.25, -1.15)WOMAC total:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -12.30 95% CI: (-19.59, -5.01)Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : -13.40 95% CI: (-20.09, -6.71) |
| Singh, 2016[50](#_ENREF_50)Study design: RCTTrial name: NoneStudy Location: IndiaHealth care setting: NRSite size: NR | Total n = 30Age Range: >=50Arm 1, Mean Age: 54.86 (4.35)Arm 2, Mean Age: 55.33 (3.99)Female: 53%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: Medial 100%Diagnosis: K-L: 2&3,ACR, 30mm+ of pain on WOMACAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: >=6 monthsMinimum Age: >=50AmbulatoryMedial knee OAKACR: symptomatic OAKWOMAC: >=30mm of pain while walkingK-L: 2&3 | Concomitant medical problems that prevent participationSurgery knee limb in prior 6 month(s)Injected corticosteroids in the prior 6 month(s)Lateral tibiofemoral joint space width less than medialHip OA / hip traumaSystemic arthritic conditionsOther lower limb muscular/joint/neurological conditions | Arm 1: Conventional strength trainingn = 15Placebo/Usual careFrequency: 5 times a weekDuration: 6 weeksArm 2: Hip adductor exercisen = 15Frequency: 5 times a weekDuration: 6 weeks | 6MWT:Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : -58.30 95% CI: (-85.68, -30.92)WOMAC function:Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : -23.27 95% CI: (-32.73, -13.81) |
| Somers, 2012[127](#_ENREF_127)Study design: RCTTrial name: OA LifeStudy Location: USHealth care setting: NRSingle Site | Total n = 232Age Range: >=18Arm 1, Mean Age: 57.94 (10.09)BMI: 34.1 (32.8–35.4)Arm 2, Mean Age: 58.13 (11.25)BMI: 34.4 (33.3–35.5)Arm 3, Mean Age: 58.27 (11.02)BMI: 33.5 (32.4–34.7)Arm 4, Mean Age: 57.47 (9.43)BMI: 34.1 (33.0–35.2)Female: 79Racial/Ethnic Distribution: 38% Nonwhite, 62% WhiteLiving Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: K-L: 1-4,ACRAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: >=6 monthsMinimum Age: 18No other joints affected by OABMI>=25, =<42Provider considers OAK a condition that most contributes to limitationsAbility to read/speak EnglishACRK-L: 1-4 | Concomitant medical problems that prevent participationConcomitant or prior use of other medsCurrent use of exercise/weight loss programOther arthritic disorder | Arm 1: Standard caren = 51Placebo/Standard careDuration: 6 monthsMethod of Blinding: UnblindedArm 2: Pain coping skills training (PCST)n = 60Dose: 60 minutes per sessionFrequency: Weekly / biweekly (first/last 12 weeks)Duration: 6 monthsMethod of Blinding: UnblindedArm 3: Behavioral weight management (BWM)n = 59Dose: 60 minutes per session + 3 90 minute exercise sessions per week for first 12 weeksFrequency: Weekly / biweekly (first/last 12 weeks)Duration: 6 monthsMethod of Blinding: UnblindedArm 4: PCST + BWMn = 62Dose: 120 minutes per session + 3 90 minutes exercise sessions per weekFrequency: Weekly / biweekly (first/last 12 weeks)Duration: 6 monthsMethod of Blinding: UnblindedCo-Intervention: PCST or BWM | BMI:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -0.20 95% CI: (-0.91, 0.51)Comparator: Arm 3 vs Arm 1 , MD : -0.60 95% CI: (-1.24, 0.04)Comparator: Arm 4 vs Arm 1 , MD : -1.80 95% CI: (-2.44, -1.16)WOMAC activity:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -2.30 95% CI: (-7.32, 2.72)Comparator: Arm 3 vs Arm 1 , MD : -1.50 95% CI: (-6.46, 3.46)Comparator: Arm 4 vs Arm 1 , MD : -12.40 95% CI: (-17.29, -7.51)WOMAC pain:Follow-Up Time: 24 months :Comparator: Arm 2 vs Arm 1 , MD : -9.00 95% CI: (-20.25, 2.25)Comparator: Arm 3 vs Arm 1 , MD : -2.00 95% CI: (-13.18, 9.18)Comparator: Arm 4 vs Arm 1 , MD : -14.00 95% CI: (-24.77, -3.23)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -3.50 95% CI: (-8.80, 1.80)Comparator: Arm 3 vs Arm 1 , MD : -2.50 95% CI: (-7.67, 2.67)Comparator: Arm 4 vs Arm 1 , MD : -10.80 95% CI: (-15.77, -5.83)Weight (lbs):Follow-Up Time: 24 months :Comparator: Arm 2 vs Arm 1 , MD : -1.00 95% CI: (NC, NC)Comparator: Arm 3 vs Arm 1 , MD : -5.00 95% CI: (NC, NC)Comparator: Arm 4 vs Arm 1 , MD : -8.00 95% CI: (NC, NC) |
| Somers, 2012[127](#_ENREF_127) -Continued |  |  |  |  | Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : 0.30 95% CI: (-3.59, 4.19)Comparator: Arm 3 vs Arm 1 , MD : -4.20 95% CI: (-7.95, -0.45)Comparator: Arm 4 vs Arm 1 , MD : -10.30 95% CI: (-13.92, -6.68) |
| Stambolova, 2015[34](#_ENREF_34)Study design: RCTTrial name: NoneStudy Location: BulgariaHealth care setting: NRSite size: NR | Total n = 191Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRAnalgesic Use: NR | Inclusion : NR | Exclusion : NR | Arm 1: Placebon = 98Placebo/Not otherwise describedFrequency: Placebo once daily + physiotherapy 30 days a yearDuration: 3 yearsCo-Intervention: PhysiotherapyArm 2: Glucosaminen = 93Dose: 1500 mgFrequency: GS once daily, 4 months a year; Physiotherapy 30 days a yearDuration: 3 yearsCo-Intervention: Physiotherapy | Change in VAS pain:Follow-Up Time: 3 years :Comparator: Arm 2 vs Arm 1 , MD : -4.60 95% CI: (NC, NC) |
| Stefanik, 2015[132](#_ENREF_132)Study design: Single arm trialTrial name: NoneStudy Location: USHealth care setting: NRSite size: NR | Total n = 23Age Range: 25-60Arm 1, Mean Age: 45.7 (8.2)BMI: 41.6 (3.4)Female: 86%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRAnalgesic Use: NR | Duration of Symptoms: Most days of the monthMinimum Age: 25Maximum Age:59BMI >=35Approved for bariatric surgery | Exclusion : NR | Arm 1: Weight lossn = 23 | VAS Pain:Follow-Up Time: post surgery :Comparator: pre-post , MD : 5.10 95% CI: (NC, NC)WOMAC Pain:Follow-Up Time: post surgery :Comparator: pre-post , MD : 27.80 95% CI: (NC, NC) |
| Toda, 2006[108](#_ENREF_108)Study design: RCTTrial name: NoneStudy Location: JapanHealth care setting: Orthopedic Rheumatology ClinicSingle Site | Total n = 61Age Range: 63.1-66.4Arm 1, Mean Age: 66.4BMI: 25.00Arm 2, Mean Age: 63.1BMI: 24.58Female: 100%Racial/Ethnic Distribution: Asian 100%Living Situation: NRLocation of OA: NRSubtype: Medial 100%Diagnosis: ACRAnalgesic Use: Yes,Lornoxicam (NSAID) 4mg twice daily | Diagnosis of osteoarthritis of the kneeACRStanding FTA: >176 degrees | Surgery knee limb in prior month(s)Injected corticosteroids in the prior 1 month(s)Prior acute injury to the kneePrior experience with the intervention of interestSteinbrocker 4Greater or similar reduction in the lateral than the medial femorotibial joint space widthBilateral OA, hip OA, ankle OAHallux rigidus, valgus deformity of the midfoot, other symptomatic deformities of the foot, advanced arthroplasty of the hindfoot | Arm 1: Traditional shoe insertn = 32Placebo/Traditional shoe insertsDuration: 6 monthsArm 2: Wedge strapped insolen = 29Duration: 6 months | Lequesne index:Follow-Up Time: 2 years :Comparator: Arm 2 vs Arm 1 , MD : -2.30 95% CI: (-5.45, 0.85)Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -1.50 95% CI: (-4.23, 1.23) |
| Trombini-Souza, 2013[111](#_ENREF_111)Study design: Conference abstractTrial name: NoneStudy Location: NRHealth care setting: NRSite size: NR | Total n = 28Total # of knees = NRAge Range: NRArm 1, Mean Age: NRBMI: NRArm 2, Mean Age: NRBMI: NRFemale: 100%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: K-L: 2&3Analgesic Use: Yes,Paracetamol was permitted, dose unclear | Diagnosis of osteoarthritis of the knee:K-L: 2&3 | Physical therapy during the study duration | Arm 1: Controln = 12Placebo/Control, did not wear similar shoesDose: NRFrequency: NRDuration: 6 monthsMethod of Blinding: NRCo-Intervention: NRArm 2: Orthotics/orthoses/shoe insertsn = 16Dose: NAFrequency: At least 6 hours dailyDuration: 6 monthsMethod of Blinding: NRCo-Intervention: NR | WOMAC function:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -37.00 95% CI: (NC, NC)WOMAC pain:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -44.00 95% CI: (NC, NC)WOMAC total:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -37.00 95% CI: (NC, NC) |
| Trombini-Souza, 2015[112](#_ENREF_112)Study design: RCTTrial name: NoneStudy Location: BrazilHealth care setting: Academic rheumatology clinic/department, Physical Therapy DepartmentSingle Site | Total n = 56Age Range: 60-80Arm 1, Mean Age: 66 (4)Arm 2, Mean Age: 66 (5)Female: 100Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: Medial 100%Diagnosis: K-L: 2&3,ACRAnalgesic Use: Yes | Diagnosis of osteoarthritis of the kneeMinimum Age: 60Maximum Age:79AmbulatoryAble to sign ConsentACRK-L: 2&3VAS: 3-8 | Concomitant medical problems that prevent participationSurgery knee limb in prior 6 month(s)Concomitant or prior use of other medsInjected hyaluronic acid in the past or during the past 6 month(s)Injected corticosteroids in the prior 3 month(s)No leg length discrepancy greater than 1 cmCurrently not using the Moleca® or similar shoes for more than 25 hours/week | Arm 1: Waitlist controln = 28Placebo/WaitlistDuration: 6 monthsMethod of Blinding: UnblindedArm 2: Orthotic shoen = 28Dose: 6 hr/dayFrequency: DailyDuration: 6 monthsMethod of Blinding: Unblinded | 6 min walk (meter):Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -11.00 95% CI: (-31.81, 9.81)Lequesne index:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -4.20 95% CI: (-6.29, -2.11)WOMAC function:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -43.80 95% CI: (-52.70, -34.90)WOMAC pain:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -38.60 95% CI: (-41.22, -35.98)WOMAC total:Follow-Up Time: 6 months :Comparator: Arm 2 vs Arm 1 , MD : -43.20 95% CI: (-55.77, -30.63) |
| Tsai, 2013[69](#_ENREF_69)Study design: RCTTrial name: NoneStudy Location: USHealth care setting: NRMultiple Sites: 8 | Total n = 55Age Range: >=60Arm 1, Mean Age: 78.93 (8.30)Arm 2, Mean Age: 78.89 (6.91)Female: 72.7%Racial/Ethnic Distribution: Caucasian 92.7%, 7.3% OtherLiving Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: A diagnosis of knee OA based on medical history reviewed with elders or family members/staff and confirmed by a health care providerAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeMinimum Age: 60AmbulatoryAble to sign ConsentMild, moderate or subtle cognitive impairmentAbility to speak EnglishMD's/NP's permission to participateVerbal Descriptive Scale (VDS): >=2estern Ontario and McMaster Universities Osteoarthritis Index (WOMAC) Pain Score: 3+ | Concomitant medical problems that prevent participationSurgery knee limb in prior 6 month(s)Physical Therapy or Rehab or exercise in the previous 1 month(s)Fractures in last 6 monthsFalls in last 3 monthsVertigo in last month | Arm 1: Attention Controln = 27Placebo/Attention controlDose: 20-40 minutes (increasing over treatment period)Frequency: 3 sessions/weekDuration: 20 weeksMethod of Blinding: UnblindedArm 2: Tai Chin = 28Dose: 20-40 minutes (increasing over treatment period)Frequency: 3 sessions/weekDuration: 20 weeksMethod of Blinding: Unblinded | GUG:Follow-Up Time: 21 weeks :Comparator: Arm 2 vs Arm 1 , MD : 1.15 95% CI: (-0.07, 2.37)Follow-Up Time: 9 weeks :Comparator: Arm 2 vs Arm 1 , MD : 1.54 95% CI: (0.32, 2.76)WOMAC pain:Follow-Up Time: 21 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.58 95% CI: (-2.76, -0.40)Follow-Up Time: 9 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.14 95% CI: (-2.34, 0.06)WOMAC physical:Follow-Up Time: 21 weeks :Comparator: Arm 2 vs Arm 1 , MD : -5.52 95% CI: (-9.70, -1.34)Follow-Up Time: 9 weeks :Comparator: Arm 2 vs Arm 1 , MD : -5.54 95% CI: (-9.72, -1.36) |
| Wallace, 2006[107](#_ENREF_107)Study design: RCTTrial name: NoneStudy Location: USHealth care setting: Academic sport science departmentSingle Site | Total n = 39Arm 1, Mean Age: 61.0 ± 9.2BMI: 27.9 ± 4.2Arm 2, Mean Age: 60.8 ± 9.8BMI: 28.7 ± 3.7Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: Medial tibiofemoral 100%Diagnosis: K-L: mean 3.2Analgesic Use: Yes,Subjects were allowed to continue all medications and other treatments as prescribed by their physicians including over-the-counter or prescription nonsteroidal anti-inflammatory drugs (NSAIDs) | Diagnosis of osteoarthritis of the knee:physician diagnosis of medial tibiofemoral OAMinimum Age: 39Radiographic medial knee narrowingMild to moderate pain during walkingPain more than half the days of the monthK-L: >=2 | Prior experience with the intervention of interestPrior tibial osteotomy or total knee replacementSignificant peripheral or central nervous system diseaseClinically serious OA of the hip or ankleRequirement for an assistive device to walk | Arm 1: Orthoticsn = 18Dose: NAFrequency: NADuration: 12 weeksArm 2: Orthoticsn = 18Dose: NAFrequency: NADuration: 12 weeks | VAS pain during stair descent:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : -19.60 95% CI: (-22.70, -16.50)VAS pain while walking:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : -15.10 95% CI: (-25.69, -4.51)WOMAC function:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.39 95% CI: (-7.95, 3.17)WOMAC pain:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : -5.00 95% CI: (-10.56, 0.56) |
| Wang, 2015[95](#_ENREF_95)Study design: RCTTrial name: NoneStudy Location: ChinaHealth care setting: Academic rehabilitative medicine clinic/departmentSingle Site | Total n = 99Arm 1, Mean Age: 61.5±9.1BMI: 26.7± 1.5Arm 2, Mean Age: 61.2±9.6BMI: 26.1 ± 1.2Female: 72%Racial/Ethnic Distribution: NRLiving Situation: Community Dwelling | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: at least 3 monthsMinimum Age: 40Maximum Age:65BMI<=30No previous knee surgeriesACR criteria: NAK-L: 2&3 | Surgery knee limb in prior month(s)Any surgery in the preceding yearCentral nervous system disease, especially epilepsy and serious psychotic disordersHistory of arthritis (inflammatory or metabolic disease)Deep venous thrombosis in prior 24 weeksSevere heart or lung disease or advanced cancer | Arm 1: Strength/resistance trainingn = 50Dose: 3 sets of 10 reps, 40 minutes per dayFrequency: 5 days per weekDuration: 24 weeksArm 2: Whole body vibrationn = 49Dose: 30 minutes per dayFrequency: 5 days per weekDuration: 24 weeksCo-Intervention: quadriceps resistance exercise | 6 min walk (meter):Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -77.07 95% CI: (-119.18, -34.96)Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : -3.14 95% CI: (-47.01, 40.73)Lequesne index:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.19 95% CI: (-2.30, -0.08)Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.47 95% CI: (-1.59, 0.65)SF-36:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -8.88 95% CI: (-12.03, -5.73)Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.89 95% CI: (-5.03, 1.25)TUG (s):Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -3.01 95% CI: (-3.92, -2.10)Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.26 95% CI: (-1.22, 0.70)VAS pain walking:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.71 95% CI: (-1.21, -0.21)Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.50 95% CI: (-1.10, 0.10)WOMAC function:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.63 95% CI: (-5.63, 0.37) |
| Wang, 2015[95](#_ENREF_95) -Continued |  |  |  |  | Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : 0.21 95% CI: (-2.63, 3.05)WOMAC pain:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.49 95% CI: (-3.53, -1.45)Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.45 95% CI: (-1.40, 0.50) |
| Wang, 2015[96](#_ENREF_96)Study design: RCTTrial name: NoneStudy Location: ChinaHealth care setting: Rehab medicine clinicSingle Site | Total n = 39Age Range: NRArm 1, Mean Age: 61.5 (7.3)BMI: 26.2(2.7)Female: 59%Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: Medial 100%Diagnosis: K-L: NR,ACRAnalgesic Use: NR | Diagnosis of osteoarthritis of the kneeMinimum Age: 40Maximum Age:80Pain predominantly over medial kneeRadial evidence of medial compartment KOAMedial joint space narrowing>lateral joint space narrowingMedial compartment osteophyte grade>+lateral osteophyte gradeK-L: >=2ACR | Concomitant medical problems that prevent participationSecondary or inflammatory KOAAnkle, hip, or foot disordersChronic back painAlzheimers, Parkinson's, motor neuron disorders, inability to understand procedureDiabetes mellitus, cardiac or respiratory insufficiency | Arm 1: Strength/resistance trainingn = 20Dose: NRFrequency: 5 days per weekDuration: 12 weeksArm 2: Vibrating platform | 6 min walk (meter):Follow-Up Time: 16 weeks :Comparator: Arm 2 vs Arm 1 , MD : -3.40 95% CI: (-11.12, 4.32)TUG (s):Follow-Up Time: 16 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.30 95% CI: (-3.25, 0.65)VAS pain:Follow-Up Time: 16 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.60 95% CI: (-1.39, 0.19)WOMAC function:Follow-Up Time: 16 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.60 95% CI: (-4.78, 3.58)WOMAC pain:Follow-Up Time: 16 weeks :Comparator: Arm 2 vs Arm 1 , MD : -0.10 95% CI: (-2.17, 1.97) |
| Wang, 2016[70](#_ENREF_70)Study design: RCTTrial name: NoneStudy Location: USHealth care setting: Medical center (inpatient?)Single Site | Total n = 204Age Range: >=40Arm 1, Mean Age: 60.1 (10.5)BMI: 32.6 (7.3)Arm 2, Mean Age: 60.3 (10.5)BMI: 33.0 (7.1)Female: 70% (71% T, 69% C)Racial/Ethnic Distribution: African American 39% T, 32% C, Asian 4% T, 2% C, Caucasian 53% (51% T, 55% C), 7% T, 11% C, NRLiving Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: ACR; radiographic evidence of tibiofemoral or patellofemoral osteoarthritisAnalgesic Use: Yes,Participants were permitted to continue using routine medications, such as NSAIDs and acetaminophen, and maintain their usual physician visits throughout the study. Participants were not required to discontinue use of their pain medications before formal assessment visits. We kept a written record of changes in use of analgesics and NSAIDs throughout the entire intervention and evaluation period. We did not change or recommend changes in medical therapy. | Diagnosis of osteoarthritis of the kneeMinimum Age: >=40Required to have a score of 40 or greater on at least 1 of the 5 questions in the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) pain subscale (range of 0 to 100, with higher scores indicating greater pain) at baseline.ACR: criteria for symptomatic knee osteoarthritisradiographic evidence: d radiographic evidence of tibiofemoral or patellofemoral osteoarthritis (defined as the presence of a definite osteophyte in the tibiofemoral compartment and/or the patellofemoral compartment, as assessed on standing anterior– posterior and lateral or sunrise views) | Concomitant medical problems that prevent participationPrior surgery on one or both kneesInjected hyaluronic acid in the past or during the past 6 month(s)Injected corticosteroids in the prior 3 month(s)Prior experience with the intervention of interestErious medical conditions, such as dementia, symptomatic heart or vascular disease, or recent stroke, that would limit full participationScore less than 24 on the Mini-Mental State Examination | Arm 1: Physical therapyn = 98Placebo/Usual careDose: 30 minutesFrequency: Twice a week with physical therapist for 6 weeks; Four times a week with phone followup for last 6 weeksDuration: 12 weeksMethod of Blinding: Single-blindArm 2: Tai chin = 106Dose: 60 minFrequency: Twice a weekDuration: 12 weeksMethod of Blinding: Single-blind | 6MWT:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -4.40 95% CI: (-22.30, 13.50)Follow-Up Time: 52 weeks :Comparator: Arm 2 vs Arm 1 , MD : -4.30 95% CI: (-26.02, 17.42)SF-36 mental health:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.10 95% CI: (-3.87, 1.67)Follow-Up Time: 52 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.40 95% CI: (-4.09, 1.29)SF-36 physical health:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -3.70 95% CI: (-6.53, -0.87)Follow-Up Time: 52 weeks :Comparator: Arm 2 vs Arm 1 , MD : -2.00 95% CI: (-4.90, 0.90)WOMAC function:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -131.10 95% CI: (-251.35, -10.85)Follow-Up Time: 52 weeks :Comparator: Arm 2 vs Arm 1 , MD : -88.30 95% CI: (-223.31, 46.71)WOMAC pain:Follow-Up Time: 24 weeks :Comparator: Arm 2 vs Arm 1 , MD : -34.30 95% CI: (-69.74, 1.14)Follow-Up Time: 52 weeks :Comparator: Arm 2 vs Arm 1 , MD : -17.80 95% CI: (-58.18, 22.58) |
| Wortley, 2013[45](#_ENREF_45)Study design: RCTTrial name: NoneStudy Location: USHealth care setting: NRSingle Site | Total n = 31Arm 1, Mean Age: 70.5 (5.0)BMI: 30.0(6.2)Arm 2, Mean Age: 69.5(6.7)BMI: 30.5(6.0)Arm 3, Mean Age: 68.1(5.3)BMI: 35.1(5.9)Female: 22/31Racial/Ethnic Distribution: NRLiving Situation: Community DwellingLocation of OA: NRSubtype: NRDiagnosis: ACRAnalgesic Use: Yes,Groups were asked not to alter their regular physical activity or pain medications during the intervention programs | Diagnosis of osteoarthritis of the kneeMinimum Age: 60Maximum Age:85ACR: NRK-L: 1-4 | Injected hyaluronic acid in the past or during the past 3 month(s)Injected corticosteroids in the prior 3 month(s)Arthroscopic surgery within prior 3 monthsParticipated in a resistance training or Tai Ji in the past 6 monthsNeurological disorders | Arm 1: Controln = 6Placebo/No activityDose: NAFrequency: NADuration: 10 weeksArm 2: Land-based exercise: strength/resistancen = 13Dose: 5 or 10 lb. weight, 1 hour per session, two sets of eight repetitions to three sets of 12 repetitions during the first 6 weeksFrequency: 2 sessions per weekDuration: 10 weeksArm 3: Tai Chin = 12Dose: 1 hour per sessionFrequency: 2 sessions per weekDuration: 10 weeks | 6 min walk:Follow-Up Time: 10 weeks :Comparator: Arm 2 vs Arm 1 , MD : 33.40 95% CI: (-66.24, 133.04)Comparator: Arm 3 vs Arm 1 , MD : 75.60 95% CI: (-26.73, 177.93)TUG (s):Follow-Up Time: 10 weeks :Comparator: Arm 2 vs Arm 1 , MD : 0.50 95% CI: (-0.85, 1.85)Comparator: Arm 3 vs Arm 1 , MD : 0.60 95% CI: (-0.91, 2.11)WOMAC function:Follow-Up Time: 10 weeks :Comparator: Arm 2 vs Arm 1 , MD : -235.00 95% CI: (-498.13, 28.13)Comparator: Arm 3 vs Arm 1 , MD : 77.00 95% CI: (-239.40, 393.40)WOMAC pain:Follow-Up Time: 10 weeks :Comparator: Arm 2 vs Arm 1 , MD : -86.00 95% CI: (-180.10, 8.10)Comparator: Arm 3 vs Arm 1 , MD : -16.00 95% CI: (-113.80, 81.80) |
| Yildirim, 2010[77](#_ENREF_77)Study design: RCTTrial name: NoneStudy Location: TurkeyHealth care setting: Home, Physical therapy outpatient clinicSite size: NR | Total n = 46Total # of knees = 80Age Range: 58.78Arm 1, Mean Age: 58.78 (SD 9.55)BMI: 29.24 (SD 3.33)Arm 2, Mean Age: 58.78 (SD 10.56)BMI: 30.67 (SD 5.37)Female: 84.8%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: Diagnosed with knee OA according to ACR criteriaAnalgesic Use: Yes,When recruited, patients underwent an outpatient pharmacological treatment such as NSAID and paracetamol. Patients were allowed to continue routine medication. | Diagnosis of osteoarthritis of the kneeAble to sign ConsentLiterateACR: Diagnosis of knee OA | Concomitant medical problems that prevent participationPrior acute injury to the kneeAcute trauma or inflammation around the legCardiac pacemakerSensitivity or allergy for heatCommunication disorder or psychological problemsSensory complications, peripheral vascular diseases, tendency to haemorrhage, oedema on the knee, large scar tissue, malignancy, or deformity to attract the attention during examination or thigh OA | Arm 1: Controln = 23Placebo/Control, received home visit 2 timesDose: NAFrequency: Visited 2 timesDuration: 4 weeksMethod of Blinding: NRCo-Intervention: Training guideline with equal information on OA, its effects and treatment based on the available literatureArm 2: Heatn = 23Dose: 20 minutesFrequency: Visited 15 timesDuration: 4 weeksMethod of Blinding: NRCo-Intervention: Training guideline with equal information on OA, its effects and treatment based on the available literature | SF-36 pain:Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : -10.95 95% CI: (-20.79, -1.11)SF-36 physical function:Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : -12.61 95% CI: (-21.49, -3.73)WOMAC function:Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : -6.05 95% CI: (-9.65, -2.45)WOMAC pain:Follow-Up Time: 4 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.85 95% CI: (-3.15, -0.55) |
| Zegels, 2013[37](#_ENREF_37)Study design: RCTTrial name: NoneStudy Location: Belgium, France, SwitzerlandHealth care setting: Hospital-outpatientMultiple Sites: 10 | Total n = 352Age Range: >=45Arm 1, Mean Age: 64.9 (10.6)BMI: 28.6 (5.3)Arm 2, Mean Age: 65.4 (10.4)BMI: 28.8 (5.2)Arm 3, Mean Age: 65.3 (8.8)BMI: 28.4 (4.4)Female: 64.6%Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRDiagnosis: ACRAnalgesic Use: Yes,Paracetamol 500 mg up to 4g | Diagnosis of osteoarthritis of the knee:ACRMinimum Age: 45VAS: >=40mmLequesne index: >=7 | Concomitant medical problems that prevent participationSurgery knee limb in prior 3 month(s)Pending surgeryConcomitant or prior use of other medsInjected hyaluronic acid in the past or during the past 6 month(s)Prior experience with the intervention of interestGenu varum or valgum >8 degreesArthritis and metabolic arthropathies, Paget’s illnessPregnancy | Arm 1: Placebon = 117Placebo/Matching sachets and capsulesFrequency: Sachet once daily, capsule three times dailyDuration: 3 monthsMethod of Blinding: Double dummyArm 2: Chondroitinn = 117Dose: 1200 mgFrequency: Once dailyDuration: 3 monthsMethod of Blinding: Double dummyArm 3: Chondroitinn = 119Dose: 400 mgFrequency: 3 times dailyDuration: 3 monthsMethod of Blinding: Double dummy | Lequesne function:Follow-Up Time: 2 months :Comparator: Arm 2 vs Arm 1 , MD : -1.50 95% CI: (-2.62, -0.38)Comparator: Arm 3 vs Arm 1 , MD : -1.50 95% CI: (-2.59, -0.41)Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -1.90 95% CI: (-3.11, -0.69)Comparator: Arm 3 vs Arm 1 , MD : -2.20 95% CI: (-3.37, -1.03)VAS pain:Follow-Up Time: 3 months :Comparator: Arm 2 vs Arm 1 , MD : -7.70 95% CI: (-14.43, -0.97)Comparator: Arm 3 vs Arm 1 , MD : -8.30 95% CI: (-15.20, -1.40) |
| Zhang, 2012[119](#_ENREF_119)Study design: RCTTrial name: NoneStudy Location: USHealth care setting: NRSite size: NR | Total n = 36Age Range: 50-70Arm 1, Mean Age: 59.86 (4.91)BMI: 28.46 (4.05)Arm 2, Mean Age: 63.47 (2.64)BMI: 28.89 (4.16)Female: 100Racial/Ethnic Distribution: NRLiving Situation: NRLocation of OA: NRSubtype: NRAnalgesic Use: Yes,Stable use in previous month | Diagnosis of osteoarthritis of the kneeDuration of Symptoms: 6 monthsMinimum Age: 50Maximum Age:69Otherwise HealthyAble to sign ConsentFemaleBMI<=35Health good to satisfactoryPain in the knee in the preceding 2 weeks \_3/10 on a Likert pain scale from 1–10,Stable treatment with nonsteroidal anti inflammatory drugs and analgesics in the previous month, (9) if receiving glucosamine, a stable dose for the past 2 months,Unspecified diagnosis of OAKMild/moderate symptoms of OAK: Most days last month | Concomitant medical problems that prevent participationInjected corticosteroids in the prior 2 month(s)Prior experience with the intervention of interestKnee or hip replacementCurrent treatment of acupuncture for knee painAutoimmune dis ease that caused joint pain such as rheumatoid arthritis and lupusSevere unstable chronic illness or terminal dis ease | Arm 1: Usual caren = 21Placebo/Usual careDuration: 12 weeksMethod of Blinding: UnblindedArm 2: Acupressuren = 15Dose: 30 minutesFrequency: 5 times a week; 2 training session and 1 conclusion sessionDuration: 12 weeksMethod of Blinding: Unblinded | WOMAC function:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.88 95% CI: (-10.58, 6.82)Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : -3.40 95% CI: (-12.56, 5.76)WOMAC pain:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : 0.08 95% CI: (-2.36, 2.52)Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : -1.15 95% CI: (-3.45, 1.15)WOMAC total:Follow-Up Time: 12 weeks :Comparator: Arm 2 vs Arm 1 , MD : -3.74 95% CI: (-15.65, 8.17)Follow-Up Time: 6 weeks :Comparator: Arm 2 vs Arm 1 , MD : -5.51 95% CI: (-16.97, 5.95) |