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| **SUPPLEMENTARY MATERIAL B.**  Specific study characteristics of included studies; study, subject, raters, methods/tests, assessment criteria and outcome/statistics | | | | | |
| **Study** | **Subjects** | **Raters** | **Methods/Tests** | **Assessment Criteria** | **Outcome/Statistics** |
| Ageberg et al | N=25, ♀=17.  Age 18-37 yr.  Healthy active. | -2 PTs researchers.  -No previous  experience of the test. | **Single-limb mini squat:**  -Stance leg; 50° knee flexion;  -Non-stance leg; slight hip flexion and 80° knee flexion.  -Arms; Fingertip support. | -Body segments; knee/foot  -Rating scale; Medial or over/lateral to 2nd toe at 3 out of 5 squats. | -Nominal data.  -Interrater reliability; Kappa and PA. |
| Barker-Davis et al | N=20 (♂)  Age 34.3 ±6.7 yr.  Healthy military volunteers | -5 PTs with minimum 9 yr. experience. | **Small knee bend:**  -Stance leg; knee flexion until you can´t see your second toe.  -Non-stance leg; knee flexion 90°  -Arms; not specified.  **Single Leg Squat:**  -Stance leg; knee flexion 60°  -Non-stance leg; knee flexion 90°.  -Arms; not specified. | **Small knee bend/ Single Leg Squat:**  -Body segments; trunk flexion, pelvic tilt and obliquity, hip adduction, knee,  -Rating scale; dichotomous for each segment and given 0-1 points. This was summated to a 0-5 scale.  -Five SLS is performed but only repetition 2,3, and 4 was analysed**.** | -Ordinal data.  -Intra-and interrater reliability;  Kappa for criteria scores and ICC for  composite scores. |
| Chmielewski et al  (Unilateral Squat) | N=25, ♀=18.  Age 18-37 yr.  Healthy active. | -2 PTs and 1 AT.  -Clinical experience 14 6 yr. | **Unilateral Squat:**  -Stance leg; knee flexion 60  -Non-stance leg; hip neutral and knee flexion 90°.  -Arms; not specified. | **Overall method scoring system:**  -Body segments; trunk, hip and pelvis as one unit.  -Rating scale; a three-point scale  **Specific method scoring system:**  -Body segments; scoring the segments trunk, hip and pelvis individually.  -Rating scale; a four-point scale  -Median score of 3 trials was used | -Ordinal data.  -intra- and interrater reliability; weighted and generalized Kappa and PA |
| Chmielewski et al  (Lateral Step Down) |  |  | **Lateral step-down:**  -Stance leg; on a 15.24-25.4 cm height.  -Non-stance leg; hip in slight flexion and the knee extended. Heel should touch the ground before returning to start position.  -Arms; not specified. | **Overall method scoring system:**  -Body segments; trunk, hip and pelvis as one unit.  -Rating scale; a three-point scale  **Specific method scoring system:**  -Body segments; scoring the segments trunk, hip and pelvis individually.  -Rating scale; a four-point scale  -Median score of 3 trials was used | -Ordinal data.  -Intra- and interrater reliability; weighted and generalized Kappa and PA. |
| Cornell et al | N=23, ♀=17  Age 26 ±3 yr.  Healthy students. | - 1 AT  -Clinical experience 24 yr. | **1-Leg Squat Test:**  -Stance leg; Perform 5 squats as if sitting into chair. Toes straight ahead  -Non-stance leg; Non-involved foot and leg are neutral  -Arms; hands on hips | -Body segments; foot, knee, lumbo-pelvic-hip complex and balance.  -Rating scale; dichotomous (Yes/No)  -The most proficient of five squats were chosen. | -Nominal data.  -Intrarater reliability; Prevalence-adjusted bias-adjusted kappa and PA. |
| Crossley et al | N= 15  Age 25 ±5 yr.  Healthy active. | 3 PTs, 2 with 10 yr of clinical experience. | **Single-Leg Squat:**  **(N.B. this test is named as an SLS but executed as an FSD).**  -Stance leg; on a 20-cm high box  -Non-stance leg; pointing forward (as for step down).  -Arms; folded across their chest | -Body segments; trunk, pelvis, hip joint and knee joint.  -Rating scale; a three-point scale.  -Overall impression across 5 trials. | -Ordinal data.  -intra- and interrater reliability; Kappa and PA. |
| DiMattia et al | N=50, ♀=24.  Age 24.3 ±4.8 yr.  Healthy active. | 2 ATs | **Single-Leg Squat:**  -Stance leg; knee flexion 60°.  -Non-stance leg; 45° hip flexion, 90° knee flexion.  -Arms; straight arms, 90° shoulder flexion. | -Body segments in degrees; hip adduction <10°and knee valgus <10°.  -Rating scale; a four-point scale.  -Three SLS is performed | -Ordinal data  -Interrater reliability; non-parametric Kappa PA. |
| Edmondston et al | N=31 (♀).  Age=21.7 ± 3.1  Healthy active. | 2 PTs with 27 yr. and 15 yr. of clinical experience. | **Single-Leg Squat:**  -Stance leg; knee flexion 30°.  -Non-stance leg; knee flexion 30°  -Arms; arms along the side. | -Body segments; trunk  -Rating scale; dichotomous, direction of trunk against/from the non-stance leg. | -Nominal data.  -Interrater reliability:  Kappa and PA. |
| Friedrich et al | N=23, ♀=12  Age=31.7 yr., range 23-55.  Healthy active. | 4 physicians at a university outpatient spine centre. | **Single-Leg Squat:**  -Stance leg; knee flexion 45°.  -Non-stance leg; knee flexed.  -Arms; Hands on hips. | -Body segments; balance, trunk, pelvis, knee flexion and femoral control.  -Rating scale; a four-point scale.  -One squat was executed. | -Ordinal data.  -Interrater reliability;  ICC (1,1) and 95% CI. |
| Frohm et al | N=26 (♂)  N=18 (Retest)  Age=Med 18 yr.  Elite soccer players. | 8 PTs with 4-12 yr. of clinical experience and 3-7 yr. of experience of screening tests. | **One-Legged Squat:**  -Stance leg; squat is performed as deep as possible with the upper body vertically.  -Non-stance leg; Hip neutral, knee flexion 90°  -Arms; Hands on hip | -Body segments; foot, knee, hip, pelvis and trunk  -Rating scale; a four-point scale  -Three squats were assessed. | -Ordinal data.  -Interrater reliability;  ICC and ME. |
| Gianola et al | N=70, ♀=28  Age=25.85 yr.  One physically active group and one non- physically active group. | 6 clinicians, specialized in musculoskeletal  rehabilitation. | **Single-Leg Squat:**  -Stance leg; Squat down as far as possible.  -Non-stance leg; pointing forward (as for step down).  -Arms; folded across their chest | -Body segments; trunk, pelvis, hip joint and knee joint.  -Rating scale; a three-point scale.  -Overall impression across 3 trials. | -Ordinal data.  -intra- and interrater reliability; weighted and generalized weighted Kappa and CI. |
| Harris-Hayes et al | N=30, ♂=18  Age=19.3±4.5 yr.  Healthy active. | 2 PTs with 13 and 24 yr. of clinical experience and 1 postdoctoral fellow (non-clinician) | **Single Legged Squat:**  -Stance leg; knee flexion 60°  -Non-stance leg; hip neutral hip, knee flexion  -Arms; arms across the chest. | -Body segments; Knee/midline  -Rating scale; a three-point scale  -One squat was assessed | -Ordinal data.  -Intra- and interrater reliability; weighted Kappa, 95% CI and PA. |
| Herman et al | N=6  Age=27.9±2.2 yr.  Healthy subjects. | 142 PTs divided into level of experience, familiarity with the test and training of the test. | **Forward-step-down test:**  -Stance leg; on a 20 cm high box  -Non-stance leg; pointing forward, as for step down. Heel should touch the ground before returning to start position.  -Arms; folded across the chest. | -Body segments; trunk, pelvis, hip and knee -Rating scale; a three-point scoring scale.  -Overall impression across 5 trials. | -Ordinal data.  -Interrater reliability; ICC and PA. |
| Junge et al | N=74  Age=9–12 yr.  ♀=16, ♂=21  Age=12–14 yr.  ♀=20, ♂=17 | 2 PTs students. | **Single Leg mini Squat:**  -Stance leg; knee flexion approx. 50°, no hip flexion.  -Non-stance leg; not specified.  -Arms; hand support | -Body segments; ankle, knee, hip and trunk  -Rating scale; a four-point scale  -General impression of the SLS performance during 30 sec. | -Ordinal data  -Interrater reliability: overall agreement, linear weighted Kappa, Kappa, prevalence adjusted bias-adjusted Kappa and Quadratic Weighted Kappa. |
| Kaukinen et al | N=41, ♀=26  KOA:  N=29, 65±9 yr.  Control: N=12, 37±16 yr. | 2 PT with 30 years of experience. | **Small Squat on One-Leg Stance:**  -Stance leg; approx. 30° knee flexion.  -Non-stance leg; not specified.  -Arms; Hanging alongside the body, should not move | -Body segments; arms, balance, pelvis, hip, knee and foot. -Rating scale; a three-point scoring scale.  -4 squats were executed. | -Ordinal data.  -Intra- and interrater reliability; weighted Kappa, 95% CI and PA. |
| Kennedy et al | N=42 (♀/♂)  Athletes from different sports | 4 ATs | **Single-Leg Squat:**  -Stance leg;90° knee flexion  -Non-stance leg; not specified.  -Arms; straight arms, 90° flexion. | **Most significant limiting factor:**  -Body segments; trunk, hip, knee, lower leg, and other.  -Rating scale; dichotomous  -Most significant limiting factor assessed.  **Regardless limiting factor:**  Dichotomous classification regardless limiting factor. | -Nominal data.  -Intra- and interrater reliability; Kappa |
| Lenzlinger-Asprion et al | N=30 (♀/♂)  Age=55-75 yr.  N=16 with hip problems. N=14 without hip joint impairment | 2 PTs with 20 yr. and 4 yr. of clinical experience. | **Small Single Leg Squat:**  -Stance leg; small knee bend, straight upper body,  -Non-stance leg; vertically aligned legs.  -Arms; support allowed if needed. | -Body segments; hip, pelvis, knee, foot and balance.  -Rating scale; a three-point scoring scale.  -Number of correct trials out of four squats was assessed. | -Ordinal data.  -Intra- and interrater reliability; Weighted Kappa, 95% CI and PA. |
| McKeown et al | N=17 (♀)  Age=22 ± 4 yr.  Football players | 6 Strength and conditioning coaches with 2-5 yr. of experience of movement assessment. | **Single Leg Squat of a box:**  -Stance leg; Standing on a box, hip below knee.  -Non-stance leg; straight and flexed in the hip  -Arms; 90° flexion. | -Body segments; trunk, hip, knee, ankle and depth of squat.  -Rating scale; a three-point scoring scale.  -Number of correct trials out of three squats was assessed. | -Ordinal data  -Intrarater reliability; ICC  -Interrater reliability; Kappa |
| Nae et al | N=51, ♀=23  Age=24.5 ± 5.5 yr.  ACL patients with injury or reconstruction.  With/without other injuries to the knee. | 2 PTs | **Single-limb mini squat:**  -Stance leg; 50° knee flexion;  -Non-stance leg; knee flexion.  -Arms; no fingertip support. | **Segment-specific scoring system:**  Body segments; trunk, hip/pelvis, knee and foot.  -Rating scale; a four-point scoring scale but the worst score (3=very poor) was removed as a missing value and not used in the calculation.  -Number of correct trials out of five squats was assessed.  **Within-task scoring system:**  A total sum of each segment specific scores was calculated including the worst score 3=very poor. | -Ordinal data.  -Interrater reliability; Weighted Kappa and 95% CI. |
| Park et al | N=26 (♀)  Age=22.7 ± 0.9 yr.  Asymptomatic | 2 PTs with 2-6 years of clinical experience. | **Forward Step-down test:**  -Stance leg; on a 20 cm high box  -Non-stance leg; pointing forward, as for step down. Heel should touch the ground before returning to start position.  -Arms; hands on waist | -Body segments; arm strategy, trunk, pelvic, knee and stance.  -Rating scale; dichotomous for each segment and given 0-1 points. Except for the knee were 0-2 points were given.  -All five FSD was assessed to a composite score of 0 to ≥4 points. | -Ordinal data.  -Interrater reliability; Kappa and PA |
| Piva et al | N=30, ♀=17  Age=29.1±8.4 yr.  All with PFPS. | 2 pairs of PTs with 3-5 yr. and 2-10 yr. of clinical experience. | **Lateral Step-Down Test:**  -Stance leg; Standing on a 20-cm high box. Bending until non-stance leg gently touches the floor.  -Non-stance leg; positioned over the floor adjacent to the step, maintained with the knee in extension.  -Arms; hands on waist. | -Body segments; arm strategy, trunk, pelvic, knee and stance.  -Rating scale; dichotomous for each segment and given 0-1 points. Except for the knee were 0-2 points were given.  -All five FSD was assessed to a composite score of 0 to ≥4 points. | -Ordinal data.  -Interrater reliability; Kappa, 95% CI and PA. |
| Poulsen et al | N=12, Age=18–60 yr. No previous or current injury to lower extremity. | 6 PTs students. | **Single-Leg Squat:**  -Stance leg; neutral hip, knee flexion 45°  -Non-stance leg; not specified.  -Arms; not specified. | -Body segments; trunk, pelvic and thigh.  -Rating scale; a four-point scoring scale | -Ordinal data.  -Intra- and interrater reliability; Quadratically weighted kappa with 95% CI. |
| Rabin et al  (2010) | N=29 ♀  Age: 24.3±3.2  Healthy students. | 2 PTs with 12 yr. and 25 yr. of clinical experience. | **Lateral Step-Down Test:**  -Stance leg; Standing on a 20-cm high box. Bending until non-stance leg gently touches the floor.  -Non-stance leg; positioned over the floor adjacent to the step, maintained with the knee in extension.  -Arms; Both hands on the waist. | -Body segments; arm strategy, trunk, pelvic, knee and stance.  -Rating scale; dichotomous for each segment and given 0-1 points. Except for the knee were 0-2 points were given.  -All five FSD was assessed to a composite score of 0 to 6 points. | -Nominal data.  -Interrater reliability; Kappa, 95% CI and PA. |
| Rabin et al  (2014) | N=79, ♀=40  Age:  ♀=19.9±1.5  ♂=20.8±1.8  Healthy active soldiers diagnosed with PFPS. | 2 PTs with 15 yr. and 28 yr. of clinical experience. | **Lateral Step-Down Test:**  -Stance leg; Standing on a 15-cm high box. Bending until non-stance leg gently touches the floor.  -Non-stance leg; positioned over the floor adjacent to the step, maintained with the knee in extension.  -Arms; Both hands on the waist. | Body segments: arm strategy, trunk, pelvic, knee and stance.  -Rating scale; dichotomous for each segment and given 0-1 points. Except for the knee were 0-2 points were given.  -All five FSD was assessed to a composite score of 0 to 6 points. | -Nominal data.  -Interrater reliability; Kappa, 95% CI and PA. |
| Räisänen et al | N=60, intrarater  N=18, interrater  Age ♀=18±4 yr.  Age ♂=17±2 yr.  Athletes from different sports | 2 PTs, one with and one without clinical experience. | **Single-Leg Squat:**  -Stance leg; 90° knee flexion.  -Non-stance leg; not allowed in front or at side.  -Arms; hands on waist | -Body segments; pelvic, knee and medial/lateral side to side movement of the knee.  -Rating scale; a three-point scoring scale  -The subjects were scored by their poorest performance. | -Ordinal data  -Intra- and interrater reliability; Kappa |
| Stensrud et al | N= 18 (♀)  Age= 22±4 yr.  Handball players | A single observer. | **Single Leg Squat:**  -Stance leg; 90° knee flexion.  -Non-stance leg; not allowed in front or at side.  -Arms; hands on waist | -Body segments; pelvic, knee and medial/lateral side to side movement of the knee.  -Rating scale; a three-point scoring scale  -The subjects were scored by their poorest performance. | -Ordinal data.  -Intrarater reliability; Kappa |
| Teyhen et al | N=64, ♂=53  Age=25.2±3.8 yr.  Healthy service members. | 29 PTs students in a doctoral student program, novice raters. | **Lateral Step Down:**  -Stance leg; Standing on a 20-cm high box. Bending until non-stance leg gently touches the floor.  -Non-stance leg; positioned over the floor adjacent to the step, maintained with the knee in extension. | -Body segments; arm strategy, trunk, pelvic and knee.  -Rating scale; dichotomous for each segment and given 0-1 points. Except for the knee were 0-2 points were given.  -All five LSD was assessed to a composite score of 0 to 5 points. | -Ordinal data.  -Interrater reliability; ICC 2,5, 95% CI |
| Van Mastrigt et al | N=55  Age=40-89 yr.  N=31 with KOA  N=24 healthy controls | 11 PTs and 4 Orthopaedic surgeons, all experienced. | **Single-Limb Mini Squat:**  -Stance leg; 50° knee flexion;  -Non-stance leg; slight hip flexion and 80° knee flexion.  -Arms; Fingertip support. | -Body segments; Raters were instructed to rate overall movement quality and provide a comment on which movement characteristics they based their rating.  -Scoring scale; During 10 sec of squats, raters assessed participants movement quality based on a 4-point Likert scale from 1= poor to 4=good movement quality. | -Ordinal data  -Interrater reliability;  Linearly weighted, quadratically weighted and generalized kappa values for each rater pair and averaged overall rater pairs.  95% CI. |
| Weeks et al (2012) | N=22, ♀=9  Age=23.8 ±3.1 yr. Healthy | 8 PTs with clinical experience and 8 PTs students. | **Single-Leg Squat:**  -Stance leg; squatting as deep as possible without losing balance.  -Non-stance leg; knee flexion 90°.  -Arms; arms folded across the chest | -Body segments; the assessor was asked to grade the movement quality, no other instructions.  -Scoring scale; a 10-point ordinal scale.  -One squat was assessed | -Ordinal data.  -Intra and interrater reliability; ICC and t-test. |
| Weir et al  (Unilateral Squat) | N=40 (♂)  Age=25.4 yr.  Active athletes. | 4 sport physicians and 2 sport PTs | **Unilateral Squat:**  -Stance leg; moving into a squat position.  -Non-stance leg; neutral hip and knee in 90° flexion.  -Arms; hands on the hip. | -Body segments; trunk, hip, pelvic and knee.  -Scoring scale; a four-point scoring scale. | -Ordinal data.  Intra- and interrater reliability; ICC and 95% CI and PA. |
| Weir et al  (Lateral Step Down) |  |  | **Lateral Step-Down:**  -Stance leg; Standing on the edge of an adjustable step. Subjects lowered themselves until the non-weight bearing heel contacted the ground.  -Non-stance leg; positioned over the floor adjacent to the step, maintained with the knee in extension and hip in slight flexion.  -Arms; hands on the hip. | -Body segments; trunk, hip, pelvic and knee.  -Scoring scale; a four-point scoring scale. | -Ordinal data.  Intra- and interrater reliability; ICC and 95% CI and PA. |
| Whatman et al | N=23. Age=11 ±1 year.  Healthy athletes. | 66 PTs with clinical experience <5 to >14 yr. For intrarater reliability 26 PTs | **Single leg small knee bend:**  -Stance leg; knee flexion as far as possible without lifting the heel.  -Non-stance leg; neutral hip, knee flexion 80  -Arms; not specified. | -Body segments; pelvic, patellae and second toe.  -Scoring scale; Dichotomous, yes/no. | -Nominal data.  -Intra- and interrater reliability; AC1, 95% CI, PA. |
| Örtqvist et al | N=33, intrarater reliability. N=28, interrater reliability.  Age=9-16 yr (♀/♂) | 2 PTs. | **Single-Limb mini Squat:**  -Stance leg; 50° of knee flexion.  -Non-stance leg; not specified.  -Arms; fingertip support.  -As many squats as possible during 30 sec. | Body segments; knee and foot.  Scoring scale; dichotomous | -Nominal data.  -Intra and interrater reliability; Kappa, 95% CI and PA. |
| Abbreviations: AT, Athletic Trainer; PT, Physiotherapist; PFPS, Patellofemoral Pain Syndrome; KOA, Knee Osteoarthritis; ACL, Anterior Cruciate Ligament; ICC, Intraclass correlation Coefficient; AC1, First order of agreement coefficient; PA, Percent Agreement; ME, Measurement Error; CI, Confidence Interval. | | | | | |