Functional Considerations for Returning to Running after Injury: THE RUNNING READINESS SCALE™

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Running Injuries

- Injuries are related to exposure (too many miles) but also can be related to physical abnormalities
- Running-related injuries have been associated with decreased strength in several muscles and joints of the lower extremities
  - Hips
  - Core
  - Quadriceps
  - Calves

Running Injuries

- When can I go back to running?
  - "We’ll see..." IS NOT GOOD ENOUGH FOR MOST RUNNERS
  - "I have a test that you need to complete" IS MUCH BETTER

Running Readiness Scale™

- 5 tests, 1 minute in length each
- 30 seconds rest in-between
- Tests muscles and movements important in running
- PASS or FAIL each test
- Must pass ALL 5 tests
- If FAIL, used to determine what types of exercises to include in the circuit

Running Readiness Scale™

- TEST 1: HOPPING
  - Calves and quads
  - Coordination
  - No rest
  - 160 BPM
  - Good Form
  - Hop off toes
  - Knees apart
**Running Readiness Scale™**

**TEST 1: HOPPING**
- Poor Form
  - Significant slowing
  - Flat feet
  - Knees together

**TEST 2: PLANK**
- No rest
- Good Form
  - Straight line
  - Equal WB
  - Head alignment

**TEST 3: STEP UPS**
- No rest
- Good form
  - 160 BPM
  - Knee position
  - Trunk position

**Quads and gluts**
- Poor Form
  - Forward Lean
  - Knees together
  - Slow speed
Running Readiness Scale™

TEST 4: SINGLE LEG SQUAT
- 30 seconds each leg
- No rest
- 80 bpm
- No loss of balance
- Good Form
  - Level hips
  - Upright trunk
- Poor form
  - Hip drop
  - Opposite lean
  - Knee position

TEST 5: WALL SIT
- No rest
- Good Form
  - Quads parallel
  - Trunk upright
  - Equal WB
- Poor form
  - Forward lean
  - Non-parallel legs

Reliability and Validity
- 12 videos (6 pass, 6 fail)
- 8 practitioners (5 physical therapists, 3 ATCs)
- Viewed each video, 3 separate times in random order on 3 separate days
- Kappa coefficients calculated
  - Intraterror = 0.884 (range=0.669-1.000)
  - Intertester reliability = 0.792 (range=0.647-0.925)
- Validity = 0.744 (range=0.560-1.000)

Validity
- 41 female runners training for Columbus ½ Marathon
- 110 female and male XC runners
- Originally completed with 6 tests (double limb squat found to be redundant with SLS)
- Average RRS values
  - Uninjured = 3.15/5
  - Injured = 2.5/5
- Suggests that 3/5 may be cutoff for injury
- Only 10% of injured runners scored 4 or 5/5
Training Circuits

Deficiencies in:
- SLS
- Plank
- Wall sit

2 of 3

Deficiencies in:
- Hopping
- Step-ups
- Wall sit

2 of 3

CORE/HIP

Circuits

- CORE/HIP Deficiencies
  - 50% Core/Hip exercises
  - 25% Leg exercises
  - 25% endurance

Running Readiness Scale

- LEG Deficiencies
  - 50% Leg exercises
  - 25% Core/Hip exercises
  - 25% endurance

Running Readiness Scale

- LEG EXERCISES
  - General concepts
    - Body weight supported
  - Eccentric/concentric (stretch-shortening)
  - Reciprocal
  - Single leg
  - Complete for time OR to fatigue

Running Readiness Scale

- LEG EXERCISES
  - FAST SQUATS
  - STANDING LEG EXTENSIONS
  - LUNGES

Running Readiness Scale

- FAST STEP UPS
- SINGLE LEG BRIDGES (flat foot and heel)
Running Readiness Scale

LEG EXERCISES
- Switch Lunges
- Butt Kicks
- Side Lunges

SINGLE LEG BALL SQUATS
SINGLE LEG SQUATS
SIDE STEP UPS

Running Readiness Scale

CORE EXERCISES
- Twist Crunches
- Weight Ball Toe Touches
- Bicycle Crunches
- Reverse Crunches
- Planks
- Plank Twists

BICYCLE CRUNCHES
REVERSE CRUNCHES
PLANKS
PLANK TWISTS
Running Readiness Scale

CORE EXERCISES

- SIDE PLANKS
- REVERSE PLANKS
- PUSH-UPS ON BALL

ENDURANCE

- SQUAT THRUST
- BURPIE

- MOUNTAIN CLIVER

- High knee jog in place
- Jumping jacks
- Jump rope

THE CIRCUIT

3 sets
4 exercises in each
5 minute warm-up and cool-down

3 4 5

CORE FOCUS

5 MINUTE CARDIO WARM UP

SET 1
- Plank push-ups (fatigue)
- Fast squats (1 minute)
- Bicycle crunches (1 minute)
- Jumping jacks (1 minute)
- (30 sec rest)

SET 2
- Jump Lunges (fatigue)
- Side plank (30 sec each side)
- Uphill run (1 minute)
- Weighted back touch (fatigue)
- (30 sec rest)

SET 3
- Mountain climbers (1 minute)
- Step ups (1 minute)
- Reverse planks (1 minute)
- Push-ups on ball (fatigue)

5 MINUTE CARDIO COOL DOWN
### Return to Run

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<th>MON</th>
<th>TUE</th>
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<th>THU</th>
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**THANK YOU.**

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