

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

- Strength training and cross training are shown to have positive effects on:
 - Lower extremity mechanics
 - Performance
 - Injury?



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



Running Readiness Scale™

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



Running Readiness Scale™

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



Running Readiness Scale™

- TEST 2: PLANK
 - Poor form
 - Core
 - Hips
 - Gluts
 - High hips
 - Low hips
 - Weight shifting



Running Readiness Scale™



Running Readiness Scale™



Running Readiness Scale™

TEST 4: SINGLE LEG SQUAT



Running Readiness Scale™



Running Readiness Scale™

TEST 5: WALL SIT

- No rest
- Good Form
- Quads parallel
- Trunk upright
- Equal WB



Running Readiness Scale™

TEST 5: WALL SIT

- Quads
- Core
- Poor form
- Forward lean
- Non-parallel legs



Running Readiness Scale™

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
 - **VERY GOOD TO EXCELLENT**
 - Intratester reliability= **0.884** (range=0.689-1.000)
 - Intertester reliability= **0.792** (range=0.647-0.925)
 - Validity= **0.744** (range=0.560-1.00)

Running Readiness Scale™

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

CORE/HIP

Deficiencies in:

- Hopping
- Step-ups
- Wall sit

2 of 3

LEG

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

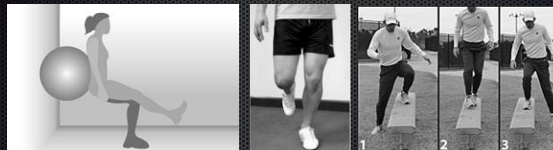


SWITCH LUNGES

BUTT KICKS

SIDE LUNGES

Running Readiness Scale



SINGLE LEG BALL SQUATS

SINGLE LEG SQUATS
(fast)

SIDE STEP-UPS
(fast)

Running Readiness Scale

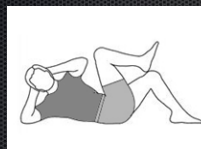
• LEG EXERCISES



PLYO SQUATS
(fast)

Running Readiness Scale

• CORE EXERCISES



TWIST CRUNCHES



WEIGHT BALL TOE TOUCHES

Running Readiness Scale



BICYCLE CRUNCHES

REVERSE CRUNCHES

Running Readiness Scale



PLANKS
(can switch between hands and elbows)

PLANK TWISTS

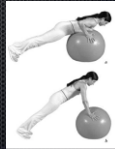
Running Readiness Scale



SIDE PLANKS

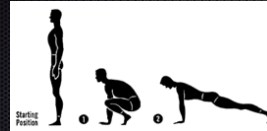


REVERSE PLANKS



PUSH-UPS ON BALL

Running Readiness Scale



SQUAT THRUST



BURPIE

Running Readiness Scale



MOUNTAIN CLIMBER

Running Readiness Scale

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



Running Readiness Scale

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

3 4 5

Running Readiness Scale

- 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 planks (30 sec each side)
 - Uphill run (1 minute)
 - Weight ball toe 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

	MON	TUE	WED	THU	FRI	SAT	SUN
WEEK 1	R1, W1 20 mins	Circuit	Rest	R1, W1 20 mins	Circuit	R1, W1 20 mins	Rest
WEEK 2	R2, W1 21 mins	Circuit	Rest	R2, W1 21 mins	Circuit	R2, W1 21 mins	Rest
WEEK 3	R4, W1 25 mins	Circuit	Rest	R4, W1 25 mins	Circuit	R4, W1 25 mins	Rest
WEEK 4	R8, W1 27 mins	Circuit	Rest	R8, W1 27 mins	Circuit	R8, W1 27 mins	Rest
WEEK 5	R16, W1 33 mins	Circuit	Rest	R16, W1 33 mins	Circuit	R16, W1 33 mins	Rest
WEEK 6	WU, R30, CD 40 mins	Circuit	Rest	WU, R30, CD 40 mins	Circuit	WU, R30, CD 40 mins	Rest

THANK YOU.

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