

# **10 Minutes a Week to Faster Running**



# Adaptations Necessary for Optimal Performance

- ◆ Aerobic capacity
    - ability to transport oxygen
    - ability to use oxygen
  - ◆ Lactate threshold (LT)
  - ◆ Running speed
  - ◆ Running economy (economy of movement)
- 
- A silhouette of a runner in a starting crouch on a track, positioned behind the text.

# Components of Running Speed

$$\text{Running Speed} = \frac{\text{Stride Length}}{\text{Stride Rate}}$$

- ◆ **Stride Rate:** The number of steps taken during a given time period (usually strides per minute).
- ◆ **Stride Length:** The length of a stride. Units of length/step (usually meters/stride)

# Stride

- ◆ Varies from Runner to Runner

- ◆ Forward **not** Up and Down

- ◆ Quick and Light

- ◆ No exaggerated knee lift



# Stride Rate of Elite Runners

- ◆ Jack Daniels, Exercise Physiologist / Coach says most elite runners tend to stride at the same rate of 180 steps per minute.
- ◆ Less experienced runners tend to stride at 160 to 170 steps per minute.



Slower turnover =

more time spent in the air  
and  
more time on the ground



# Elasticity = Efficiently

- ◆ Generates more force on each stride (push off the ground harder)
- ◆ Run farther and faster with less effort
- ◆ Will help minimize running injuries
- ◆ Stimulates central nervous system



# Running Technique

- ◆ Push-off - ankle-joint extension.  
Push with your hips.

- ◆ Flight Phase - Occurs when the foot breaks contact with the ground.

- ◆ Support Phase - Holds the body upright to prepare for the pushoff.



# Posture

◆ Trunk Erect

◆ Head Level

◆ Hips Tall

◆ Relaxed Upper  
Body



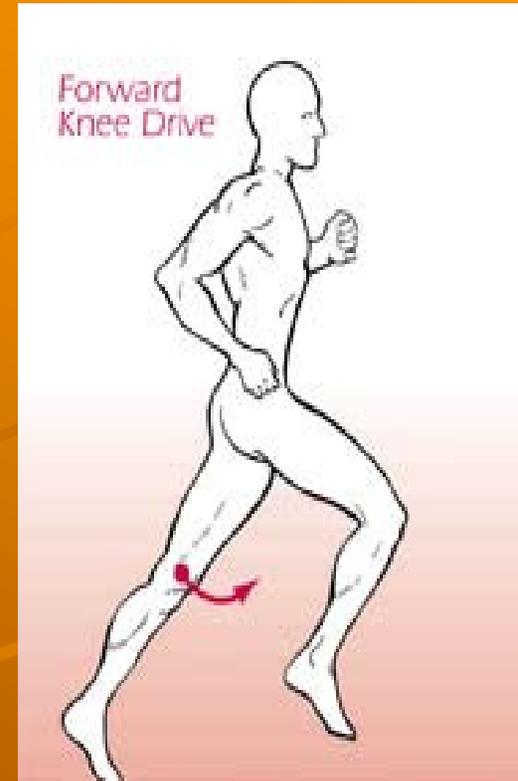
# Running Posture

◆ Trunk Erect

◆ Head Level

◆ Hips Tall

◆ Relaxed Upper Body



# Arms

- ◆ Used for balance
- ◆ Initiates the action of the legs
- ◆ Elbow angles vary from 60 – 140 degrees
- ◆ Arms and fists relaxed
- ◆ Arms should not cross midline of your body





(a)



(b)



(c)



(d)



(e)



(f)



(g)



(h)



(i)



(j)

Which photos illustrate good form? Poor form?

# Ways to Improve Running Form

◆ Strength Training

◆ Stretching

◆ Strides

◆ Drills

◆ Fast Running



# Drills to Improve Running Form



Hand out with drills and descriptions

# Ways to Improve Racing Form

◆ Down-hill repeats. You can run faster with less effort helping improve relaxation at a faster pace and leg turnover.

◆ Steep-hill repeats. Force you to work on foot pushoff, knee lift and arm drive. Also builds strength



# Dynamic Flexibility

- ◆ Quick movements that simulate muscles and connective tissue movements in running.
- ◆ Improves efficiency of stride by reduce muscle friction.
- ◆ Improves knee drive, toe off ability and range of motion.



## STRETCH LIKE A STAR

The following exercises are part of Alan Webb's dynamic flexibility routine. Try them as part of your own warmup two or three times per week. They help reduce the muscle friction in your stride.

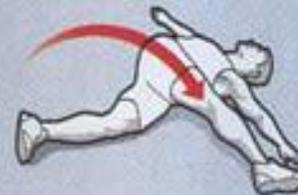
### Arm Swings:

Your upper body should remain relaxed while running. Loosen up by swinging your right arm in a giant circle. Do six forward rotations and six backward rotations. Repeat with your left arm.



### Eagles:

Lie on your back with arms out. Touch your right foot to your left hand. Keep your leg straight. Return to starting position and switch legs. Repeat 10 times.



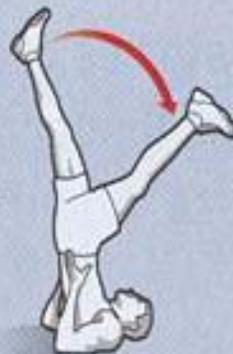
### Leg Swings:

With your left hand on a wall, stand on your right foot and swing your left leg backward and forward in an exaggerated kicking motion. Complete 10 swings and repeat with the right leg.



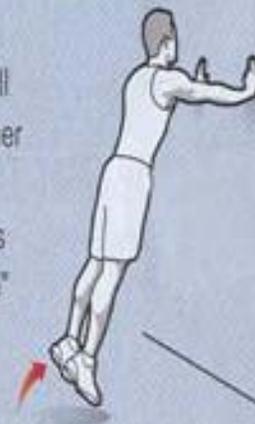
### Bicycle Kicks:

Sit "upside down" with your weight supported on your shoulders and upper arms. Keeping your legs straight, do 10 large scissor kicks, then do 10 "Y" kicks out to the sides.



### Ankle Bounce:

Lean forward against a wall with your feet close together and flat on the ground. Raise both heels as high as possible and then "bounce" them off the ground. Repeat 20 times.



Next FIRST Lecture

June 12<sup>th</sup> and 13<sup>th</sup>

Preparing to Run the Marathon



# Questions or comments

Lets go to the track



Warm-up

Form

Drills