Strength Training For Runners

Be the strongest, fastest athlete you can be
Agenda

• Why to strength train and the benefits
• Myths about runners and strength training
• What to do
• How often
• Example program
About Us

Chuck
- Team USA Long Course Triathlete and Duathlete
- Boston Marathon Qualifier
- Complete over 32 triathlons, 5 duathlons, 7 half marathons, 1 marathon

Sasha
- Cross Country State Champion Team, Nevada 2005
- Participated in 10 half marathons and 1 full marathon
- Team and Training mentor for half marathoners
Overall Importance of Strength Training

Mobility without Stability = Injury

1. Enhances endocrine and immune function (which are compromised by endurance training)
2. Maintains functional muscle mass (also negatively affected by endurance training)
3. Improves functional capacity by maintaining maximal strength and power (both of which decrease with prolonged endurance training)
4. Builds bone density (crucially important due to the high risk of stress fractures)
5. Enables us to more rapidly correct muscle imbalances, as evidenced by the fact that resistance training is the cornerstone of any good physical therapy program
6. Strength training strengthens all of the connective tissues, which helps to avoid strains, sprains, and tendonitis
7. Reduces, and can help eliminate kneecap pain, or “runner's knee”, mitigates Iliotibial Band Syndrome

- A University of Alabama meta-analysis of the endurance training scientific literature revealed that 10 weeks of resistance training in trained distance runners improves running economy by 8-10%

- Scientists at the Research Institute for Olympic Sports found that replacing 32% of regular endurance training volume with explosive resistance training improved 5km times, running economy, VO2max, maximal speed, and agility. With the exception of VO2max, none of these measures improved in the control group that just did endurance training
Won’t muscle slow me down?
And other myths about strength training

**Myth 1** – Strength training makes you bigger and muscle bound. Additional pounds of muscle added will negatively impact performance.

**Myth 2** – Strength training makes you slower. You can only get faster by running

**Myth 3** – You’ll be too sore to run

**Myth 4** – You don’t need to work your upper body
Components of a Workout
Building an ideal strength training program

- Aerobic System Development
- Anaerobic System Development

______________________________

Power
- How fast you can move weight - producing force rapidly

Strength
- The ability to produce force (lifting heavy weights)

Balance
- The neuromuscular skill of activating the muscles and adjusting your body alignment to keep yourself upright

Flexibility
- The ability to attain large ranges of motion at the joints
Power

The ability to generate a high force in a short period of time

When a muscle group becomes stronger and more powerful, fewer muscle fibers need to be recruited to perform a task, thus giving the muscle group more muscle fibers available to continue to do work

Less energy used over same difference traveled

Thus, power allows a runner to:

- Quickly changing directions during a run
- Recruit a burst of speed to start a race or pass a competitor
- Maintain steady pace during a race rather than slowing (the ability to “negative split”)
- Be able to sprint your way down the finisher chute (or a flee a rabid neighborhood dog)

\[
\text{Power} = \text{Force} \times \text{Velocity}
\]
Strength

The stronger you are, the faster you will overcome resistance, whether it be your bodyweight or gravity.

The lower percentage of maximum strength needed for each stride will translate into improved efficacy and therefore greater endurance.

The key to human speed is simple: applying large mass-specific forces to the ground quickly.

Improved strength benefits:

- Gains in upper-body strength can translate to a significant performance advantage by bettering muscle efficacy and improving posture. Improved posture allows you to get more air in and out of the lungs.
- Maintaining good form when fatigued.
- Prolonged force production.
- Crossover into daily activities and helps make you look good.
Balance

The neuromuscular skill of activating the muscles and adjusting your body alignment to keep yourself upright

Each step we take while running is a controlled fall. Balance training should focus on unilateral movements

Balance is the foundation to building strength and power

Proper balance is important because:
- Allows a runner to preserve more energy that untrained runners waste on balancing their bodies (up to 50% of energy)
- Helps eliminate muscular imbalances
- By training on unilateral and unstable surfaces, balance training approximates the biomechanics of running
We want to achieve Dynamic Mobility rather than Static Mobility

Allows a runner to more easily extend muscles through their Range Of Motion (ROM) and reduce energy required to run

Top reason for slowing is the inability to continually drive the thigh forward through same ROM which shortens stride length = speed decrease

Proper Flexibility translates to:

- Prevention of injury

- Improved running efficiency and economy

- Allows for a full Range Of Motion (ROM) to generate max speed
How Often, How Heavy, and How Much?

How often:

- Runners looking to maximize running performance should look to do strength training 2-3 times per week

How heavy/intensely:

- How heavy is dependent on how many reps the exercise set calls for, but you should feel fatigued at the end of the given set, and that you could have only gotten 1-2 more reps

How many reps:

- Power movements: 3-6 reps
- Strength: 8-12 reps
- Balance and Stability: 10-15 reps
## Sample Routine

<table>
<thead>
<tr>
<th>Dynamic Warm up</th>
<th>Exercise</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 minute light cardio</td>
<td>1A. Plyo Lunges- 3x 10 reps</td>
<td>Power and Agility</td>
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<tr>
<td></td>
<td>1B. Box Jumps- 3x 5 reps</td>
<td></td>
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<tr>
<td>Walking lunges</td>
<td>2A. Barbell squat- 3x 6-8 reps</td>
<td>Strength and Power</td>
</tr>
<tr>
<td>Walking high kicks (Frankensteins)</td>
<td>3A. Dumbbell Bench press- 3x 10 reps</td>
<td>Strength</td>
</tr>
<tr>
<td></td>
<td>3B. Pull-ups- 3x 8- 10 reps</td>
<td></td>
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<tr>
<td>Lateral lunges</td>
<td>4A. Single-leg deadlift- 2x 12-15 reps</td>
<td>Balance and Stability</td>
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<tr>
<td></td>
<td>4B. TRX Bulgarian split lunge with Dumbbell shoulder press- 2x 12-15</td>
<td></td>
</tr>
<tr>
<td>Carioca</td>
<td>5A. Inchworms with dumbbells- 2x 8 reps</td>
<td>Flexibility and strength</td>
</tr>
<tr>
<td></td>
<td>5B. Fire Hydrants- 2x 20 reps</td>
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<tr>
<td></td>
<td>5C. Band core rotation- 2x 12 reps/side</td>
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### Post-workout:
- Static Stretch
- Foam roll
- Self-body work (lacrosse ball, massage, etc.)
## Training Calendar

### Sample Training Week

<table>
<thead>
<tr>
<th>Mon</th>
<th>Tues</th>
<th>Wed</th>
<th>Thurs</th>
<th>Fri</th>
<th>Sat</th>
<th>Sun</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recovery Run</td>
<td>Strength Workout</td>
<td>Interval Run</td>
<td>Cross-train</td>
<td>Tempo Run + Strength Workout</td>
<td>Recovery/Flexibility</td>
<td>Long Run</td>
</tr>
</tbody>
</table>
Final Components

In addition to Strength Training:

1) Sleep – The number one limiting factor in performance gains

2) Nutrition – Eat to Train

3) Specific run workouts

Make your body work for you, not against you
Q & A

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