

TAKE IT TO THE TREADMILL

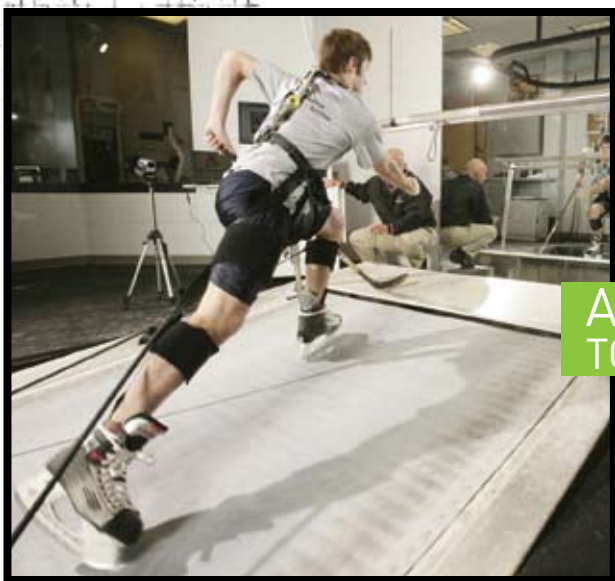
John Frappier, President of Athletic Republic

Running is one of the core activities of being human, a true expression of vitality. Human development—the lengthening of bone and the building of muscle mass—is critical to athletic development, whether we jump, run, kick, throw or hit. And human development, specifically the improvement of a locomotor skill like running, is what Athletic Republic does best.

Whether you train on the Super Treadmill or the Hockey Treadmill, your movements—forward, backward or lateral—and your abilities—speed, power, stride length, push angle and leg turnover—are precisely managed and measured to bring out your best. The abilities to move quickly, change direction, stop, start, accelerate, elude and track are the abilities that our training protocols enhance. But, why? And how?

So the question remains: Why are we different? When so many companies and outlets offer the facilities, why is Athletic Republic the place to invest your sweat?

Our treadmills are state-of-the-art athletic improvement tools. They provide an intimate running—and skating—environment that can be adapted to each individual athlete. We can raise or lower the speed, raise or lower the grade. Our trainers can fine-tune that runner's form every minute of the treadmill bout. With our mirrors and newly deployed Dartfish technology, your body learns to move more efficiently in much less time than it would running laps on a track. We can improve your leg turnover and correct your stride length for your body, because we know, from our research, what that stride length should be. We monitor your abilities and encourage you toward longer bouts while sustaining your improved form.



ATHLETIC REPUBLIC IS THE PLACE TO INVEST YOUR **SWEAT**

We learn at an early age that we like to do what pleases us. If we enjoy something, we tend to do it more often. This generality can be applied to locomotor skills: if we enjoy running, we do it more often. The same is true for slamming dunks or hitting baseballs. And the opposite of this is true as well; if we don't enjoy something, we tend not to continue. Athletes with poor running mechanics tend to drop out of sport, due either to injury or dissatisfaction. They miss out on one of the most primary movements and the resultant strength and physical, emotional and mental health that it provides.

Athletes at Athletic Republic, no matter their age, physical attributes or sports abilities, are taught and trained to be better runners, regardless of their sport. Virtually no athlete that comes to us arrives at our doorstep with perfect running mechanics. One thing I take great pride in is that we focus on helping each of these athletes learn how to move and improve, how to enjoy exercise, how to be better physically and emotionally and how to develop self-confidence based on physical accomplishment. It doesn't matter to us if we're training the next 1500-meter champion or the four mothers down the block that would like to complete a 10k.

Compare your Athletic Republic experience to a regular gym workout. Most coaches have time only to give general encouragement and instruction; few have time to devote to each and every one of their athletes. Most gyms offer only a general idea of how to operate a machine, then leave you to your own devices. At Athletic Republic, your trainer is YOUR TRAINER. They know our database, know how you measure up to others with similar athletic training, build and ability. They can show you how to compare your results to those of your peers through My Republic, our interactive training tool. Most importantly, they provide a road map of how you can improve through the training and testing we employ.

My point is, if kids don't know how to move their bodies to separate from a defender or track an attacker, then they are missing out on an important aspect of growing up and being active. Athletic Republic's programs are scientifically designed to provide every child, every athlete, every individual the opportunity to become all that they can be.



photos courtesy of Chelsea Piers BlueStreak



WHY IT WORKS: THE SCIENCE BEHIND TREADMILL TRAINING

BY STEVE SWANSON, Chief Science and Technology Officer, Athletic Republic

The most common question about treadmill training posed by parents and coaches is: "Why the treadmill? We don't compete on it, the motor does the work for you and it isn't the same as running on the ground." My answer is simple—our treadmills allow us to create an optimal training environment to improve your running or skating skill, efficiency and ability to produce power—all of which translate to improved performance in sport.

The most important difference between treadmill running and running anywhere else is that the treadmill forces you to run a certain speed. If you get tired or change your mechanics while running over ground, it's easy to slow down. The treadmill forces you to match its speed—if you don't, you'll come off the back. This is a key aspect of creating your optimal training environment: We try to find the best way to teach you to move better, so you are more powerful and more efficient with every step. Designing an optimal training environment helps improve your conditioning for the demands of your sport, and there are several keys to using our treadmills that help make the difference:

The treadmill allows you to see, hear and feel what you need to do to improve your running skill. Over 80% of all people are visual learners, and most athletes refine their skills much quicker if they can see what they are doing as they are doing it. The mirrors in front of our treadmills are not there for aesthetics—you and your trainer use them to provide feedback at key coaching moments to correct problems and reinforce proper movements, to monitor how you are moving. Use of Dartfish™ video during training provides a whole new dimension to this learning process. Video clips of skilled runners side-by-side, or overlaid with your video, help you see angles that you can't see in the mirror.

We have spent nearly 20 years refining our sport specific training programs to provide your trainer with the best framework of training for your age, ability and sport. This framework can be modified to produce what is best and safest for you in that the treadmill allows us to take you just a step beyond what you can do on your own—safely. Our treadmills have the most powerful motors and largest drums in the industry—making it impossible for even a 350-pound athlete to slow down the

treadmill. If the treadmill doesn't slow down, it makes you run a little longer and a little faster than you might do on your own, which forces your brain to send stronger signals to your muscles to contract more powerfully for a longer time. Over several training bouts these powerful movements become second nature and happen whenever you run.

Effective use of incline running. Research has shown that hill running produces force in a way that is very similar to what the best sprinters do in an all-out sprint (see the graph). You're on your toes, have better knee drive, settle your pelvis in a more stable and effective position, move your arms more powerfully and generate a more forceful push-off. These are the movement patterns of the best sprinters, what speed coaches are constantly trying to teach. Research also indicates that hill running recruits key muscle groups at two to three times the level attained while running at the same stride frequency on a level grade (see the red, firing muscles in the skeletons). Again, this teaches the body to send stronger, more precise signals to your muscles.

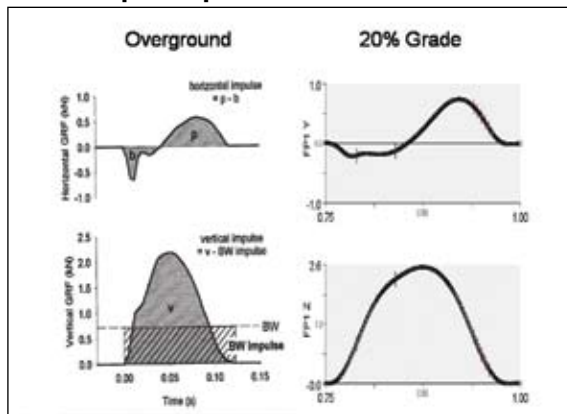
The treadmill coupled with our patented SprintCord® develops your lower abdominals and hip flexors. These muscles are difficult to train effectively but are very important to increasing stride length and stride frequency. The strength capacity in the muscles of your trunk, and especially your lower abs, helps you maintain dynamic stability when you accelerate, decelerate or change direction.

Taking this training to the ground, then, we continue to refine your effort with:

- Active dynamic warm-ups prior to each session to reinforce the treadmill techniques;
- Explosive sprint starts, agility runs and ground-based cord training that incorporate sport-specific work;
- Transition from treadmill incline running to lower-grade effort to ingrain the correct motor patterns.

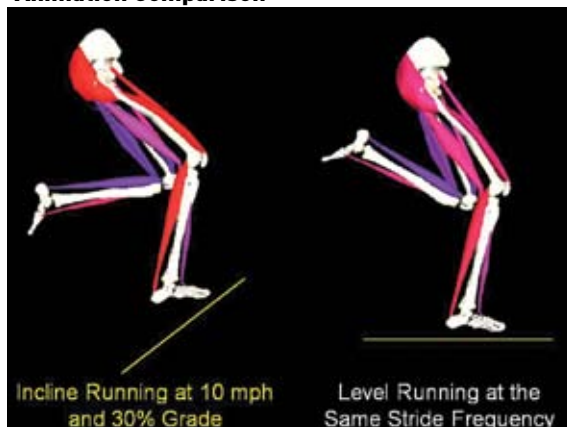
So why the treadmill? Because when you hit the ground running, the treadmill will have proved to have been an effective training and teaching tool that helps you toward better performance in your sport.

Force Graph Comparison



The above figures compare the horizontal (upper figures) and vertical (lower figures) forces measured at the 16-meter mark of an all-out sprint while running on a treadmill at 20% grade. Notice how similar the patterns are. The take-away is that incline running requires you to generate as much force as if you are accelerating on level ground—resulting in continual reinforcement of proper running mechanics while safely taking you beyond what you can do at ground level.

Animation Comparison



A red muscle is on at a high intensity while a blue muscle is completely off. Incline running results in your brain sending signals to key muscles at 200-300% greater intensity than the signal sent during ground-level running. The take-away is that incline running teaches your body to send stronger, more precise signals to your muscles that help you generate greater power and speed.