The Skating Treadmill
Understanding Why and How it Produces Results

After 3 full years of coaching, running, and operating the skating treadmill, I now have a much deeper understanding of the benefits that can be gained by training on the skating treadmill. I have watched so many players of all ages and levels, beginners through elite College D1 players, make significant improvements to their stride mechanics, speed, leg strength, power, and anaerobic endurance. What I want to do now is share the “secrets” of the treadmill with all of you, so that you will gain a deeper understanding of the physical and physiological changes that can occur with regular treadmill training. My ultimate hope is that more players and parents will gain a better understanding of how and why the treadmill helps participants become stronger skaters and better players. The more you know, the more you will be able to share your knowledge and personal experience with others.

At first, I was skeptical of the ability of a machine to produce any better results or any faster results than what I was already familiar with in my previous 25 years of coaching. It didn’t take long before I realized what a magnificent teaching tool the skating treadmill was! Instead of spending 6 months to a year on-ice to start to see permanent changes in a player, I was able to convey proper stride mechanics to players in 1-3 months time instead. I was blown away! Why was this happening? How was this happening? Well, it wasn’t rocket science, nor was it some ancient Chinese secret, just some basic, long-known learning and training knowledge that had been ingeniously all rolled into one 60 minute training session.

There are 3 key “ingredients” that allow the skating treadmill to be so effective. The first of these is the full length mirror placed directly in front of the participant on the treadmill. Most people are visual learners, this is fairly common knowledge, try to imagine our world without visual tools! If you yourself have ever been videotaped while performing athletics, you know the profound effect it can have on your understanding of your movements and ultimately how to perform them better. While training on the skating treadmill, the player has constant visual feedback as to whether or not his legs, arms, and posture are performing properly. Coaching on the ice is primarily an auditory experience for the player, with little or no demonstrations to watch, and no visual memory of “right” and “wrong”. Rinkside video is used on occasion, but it is time-intensive, and there is a long delay from when the player performs the movement, to when he/she gets to see it, to when he/she gets to try it again. The treadmill/mirror combination is the perfect real-time visual tool where the player can make instantaneous corrections and adjustments. These corrections are then permanently locked into their visual memory banks, and the player is on his/her way to never skating incorrectly again!

The second key ingredient is the treadmill itself. Because the treadmill is made of a plastic polymer with a higher coefficient of friction than ice, any poor movements or
incorrect techniques are instantly magnified and result in a loss of speed and power. In turn, this means that the player will start to drift back on the treadmill, and will have increased difficulty in maintaining enough speed and power to stay at the top of the treadmill. **More simply put, the treadmill won't let you skate wrong!** Again, the player receives instant visual feedback that something isn’t right. To contrast and compare with our on-ice situation, some players can skate with poor technique and still go “fast”. **It is difficult to convince an athlete, especially a child, that the way they are performing a movement is not correct if there are no noticeable consequences.** The skating treadmill is a beautifully self-contained environment whereby the player is instantly made aware if something is not quite right.

The third key ingredient is the one that I think the players enjoy the most, but remains the least understood. This is the Levels of Progression, the training curriculum or “protocols”. Most of you have seen the player’s names listed on the board by the treadmill, and it is a great source of confidence and pride for the players to complete and achieve each Level and watch as their name plate moves into the higher Levels. What does it mean to be training in the Junior Level 2? Or the Junior Level 4? Or NHL Level 1? What is a workout? For me, the true “wizardry” of the skating treadmill lies in the progression of workouts from easy to most difficult. I have included a chart for a quick, easy to understand view of the 10 Levels, what occurs at each Level, and what kind of results one can expect after completing each Level. For those of you that are interested in a more in depth explanation, I will go into it here.

**Each Level consists of 12 one-hour workouts.** Within each of the workouts, players will perform 10-15 short interval bouts lasting anywhere from 6-30 seconds each. All workouts begin with a 45 second warm-up skate at low elevation and speed. This is so that every time the player skates on the treadmill, he gets a long 45 second bout to remember and correct from his last session. All workouts end with a 12 second bout, again at a low elevation to allow the player one more opportunity to perform everything properly before going home.

**Level 1 and Level 2**
Both of these Levels are introductory Levels. Almost all first-time participants will start in either Level 1 or Level 2. These Levels are purposely easy in terms of both speed and elevation, so that the player will be able to focus on the details of his/her stride mechanics and can begin to make the necessary corrections. Workouts 1-6 are very easy, workouts 7-12 are a little more challenging as they require good mechanics and some leg strength and anaerobic endurance. Once a player has satisfactorily completed Level 2, it is safe to say that they possess a strong mental and physical understanding of proper stride mechanics. If not, I will strongly recommend that the player repeat the Level, as Level 3 is a huge step up from Level 2. The players who usually repeat these Levels tend to be younger, age 8-11, and simply do not yet have the leg strength or size (leg length) to produce the speed and power necessary for the final workouts of Level 2.
Level 3
This is the first of the more difficult Levels. Workouts 1-3 start out relatively easy, providing a chance to review everything that the player should have learned in Level 2. Workouts 4-12 progress rapidly in difficulty, with some new learning situations presenting themselves, such as “mountain climbers” and holding onto 2.5 lb. hand weights while skating. Level 3 is also the first step in elite anaerobic training. (For those of you who are unfamiliar with the difference between aerobic and anaerobic training, I will provide a brief and very simplistic description of the two. Aerobic training is usually considered to be an exercise bout where the athlete maintains a certain “medium range” heart rate for 30 minutes or longer. Think a long run, bike ride, etc. Aerobic sports would be marathon running, long-distance swimming, etc. Anaerobic training is usually done with short bursts of high-intensity exercise whereby a high-range heart rate is achieved for short periods of time. Most people know this as “interval training”, and without going into great physiological detail, this training produces a heightened capacity for short bursts of explosive power and speed.) It is important that an athlete train the way his/her sport is played, thus hockey players should train anaerobically not aerobically. This is such an important concept I will say it again, athletes should train the way their sport is played. So if you are a hockey player, forget the 5-mile run, you will be training yourself to be slow! Instead, go for 10 back-to-back high intensity intervals with short rests in between. Anyway, Level 3 does exactly this, the player is required to complete very short intervals, 4-10 seconds in length, multiple times, at higher elevations and speeds. “Holds” are mixed in where the player can hold onto the bar so as to keep focusing on perfect technique. Players who successfully complete Level 3 are changed players!!! They now possess excellent stride mechanics (can’t master Level 3 without them), and a good anaerobic foundation, improved leg strength, and increased strength and power.

Junior Level 4
Level 4 is by far the most difficult of all the Levels relative to where players are developmentally. Level 4 has no easy workouts, bungee cords for resistance training are introduced, and very high elevations and speeds are the norm. Players can expect to “die” every day, one of my long-time students called it the “I hate you now, I’ll thank you later Level”! The emphasis here is intensive anaerobic training, leg strength, mental toughness, and sheer perserverance. Make no mistake, any player successfully completing Level 4 will be the new elite player on the team; fast, efficient, strong, confident. All things worth having are worth working for! After finishing Level 4 you are the REAL DEAL!

Collegiate Level 1
After Junior Level 4 anything is easy! In describing Level 4, I made reference to the fact that it was the most difficult relative to where a player is developmentally. Once a player reaches the Collegiate Level 1, he/she is well prepared physically and mentally for the workouts here. This Level goes back to reinforcing correct stride mechanics, obviously at higher elevations and speeds than the Junior Levels, but
allows the player to spend some time studying, focusing on, and polishing any little inconsistencies that may have developed during the rigorous high-speed training in Junior Level 4.

**Collegiate Level 2 and Level 3**
These Levels take the difficulty up a notch again, lots of bungee cords, weights, hills and speed. Again, the player at this Level is well-prepared, and these 2 Levels revisit anaerobic training and leg strength. Players who successfully complete Collegiate Level 3 are in the peak of their training physiologically, and will demonstrate noticeable increases in leg strength, speed, explosive power, and overall beastliness!

**NHL Level 1 and Level 2**
These Levels simply continue the leg strength and anaerobic training components so necessary at the highest levels of competition. There isn’t anything new here, just more, harder, and longer. The only players working at this Level are the players who belong here.

**Backwards Level 1**
Skating backwards on the treadmill seams to take players a lot longer to learn, so I haven’t put a lot of time or effort into this yet. I currently have one player who will be finishing up the NHL series this winter, and he will serve as my first guinea-pig for Backwards Level 1. I’ll put out another newsletter when I learn more!

**Summary**
If you have read this far, I am confident that you have a much better understanding of the treadmill, the Levels, and what kind of results to expect and when. I have personally witnessed players go from hardly being able to skate to being picture perfect, and FAST! I have seen some of the worst mechanics ever transformed into poetry in motion, so I can say with confidence that the skating treadmill is a fantastic tool with which to improve your skating.

Is it easy? No.
Is it something a player can do 8 times and be way better? Maybe.
If I participate on a regular basis and get through Level 4 will everyone notice how much better I am? ABSOLUTELY!!!!
Think of it like farming, it takes time to prepare the ground, plant the seeds, water and nurture them, growth to occur, and only then do you get to harvest the fruits of your labor. And keep in mind that the skating treadmill is very one-dimensional, it does not help you improve your transitioning, cross-overs, stops and starts, etc. The younger the player, the more I would recommend on-ice training so that more areas can be covered. But if you are looking for the “fountain of speed” this might just be it!