



GAIN

TRACTION

Transition to the treadmill to escape the cold and switch up your routine.

By Jason R. Karp, Ph.D.

When winter weather makes running outdoors a chore, take advantage of the beloved treadmill.

Many runners find running on a treadmill easier than running outdoors because it requires less effort and energy, particularly at faster speeds. When you run on a treadmill, there is no air resistance and your muscles don't have to work as hard since the belt pulls your leg back as it lands. However, if you make the most of your time, a treadmill can provide challenge to even the most experienced runner. Given the ability to manipulate the speed and grade, treadmills offer many workout options not possible outdoors. Plus, they provide a controlled training environment, allowing you to focus your attention on the effort. So get out of the cold and into the gym and refresh your routine with these treadmill workouts.

TEMPO RUNS

About the workout: Tempo runs are sustained runs at a challenging pace. Since the speed of tempo runs corresponds to the fastest pace you can maintain aerobically, these workouts are great for burning fat, which people tend to put on in the winter months. Start your workout with a 10-15 minute warm-up run and follow up with a 20-minute run (two to three miles) at the fastest pace you can sustain without fatigue (10k or half-marathon pace). You should be able to notice your breathing and only speak up to one sentence at a time. This challenging run is then followed by a cooldown run of the same duration as the warm-up. To account for the less effort required to run on a treadmill (compared to road running), increase the treadmill grade to 1 percent.

Benefits: Tempo runs are the best way to increase speed, strength and endurance for any race distance. They teach your body to adapt to an increased intensity. Tempo runs are also great for mental adaptation. They can help you train your brain to keep going when it wants you to stop.

Why train on a treadmill: In order to have a sufficient training session, you must maintain a sustained pace at a "comfortably hard" intensity. Treadmills are ideal for tempo runs because you can set a specific pace for a desired length of time. Since a treadmill forces you to maintain a set speed, this workout is especially beneficial for runners who don't pay attention to their pace.

VO₂ MAX INTERVALS

About the workout: Interval training alternates high-intensity periods with low-intensity recovery periods. The goal of VO₂ max intervals is to reach and sustain your VO₂ max, the maximum volume of oxygen your muscles consume per minute. For recreational and intermediate runners, VO₂ max pace corresponds to 1 to 1½-mile race pace (for very good runners, it's close

to 2-mile race pace). You should come close to reaching your maximum heart rate by the end of each workout since VO₂ max occurs when you reach your maximum heart rate. This workout should feel difficult and you should only be able to speak a few words at a time.

Benefits: VO₂ max intervals should help to improve your speed as well as increase the amount of oxygen your body can take in and utilize.

Why train on a treadmill: Like tempo runs, the treadmill forces you to maintain a sustained pace. It also allows you to accurately monitor your pace from workout to workout. Set the treadmill grade to 1 percent.

DOWNHILL REPEATS

About the workout: While not often used as a training tool among runners downhill running can be very valuable to help improve your speed. You can expect your muscles to be sore the first time, but subsequent downhill workouts actually result in less soreness. Treat downhill workouts as hard sessions, and be sure you recover before your next hard workout.

Benefits: The significant characteristic of downhill running is the eccentric (lengthening) contractions of your muscles, which are your strongest type of contraction, during which your muscle fibers are forced to lengthen, causing microscopic damage. The eccentric-induced muscle fiber damage makes the muscle fibers heal back stronger resulting in stronger muscles. Downhill repeats can also help improve speed since you can run faster downhill than uphill. If done correctly, this workout will also help to increase efficiency and prevent injury.

Why train on a treadmill: Many treadmills offer a negative-grade option allowing you to run downhill. Since you control the incline, a treadmill allows you to ease into downhill repeats and adjust the workout to your comfort level. Start with a short, gradual slope of about

2 to 3 percent, and progress to steeper and longer descents. At the end of each downhill, raise the treadmill grade to 0 percent for a flat easy running recovery.

UPHILL REPEATS

About the workout: Uphill repeats, or uphill running, is a challenging workout that helps build muscle strength. Aim for effort rather than speed when doing uphill repeats. Use uphill repeats lasting 3 to 5 minutes at close to your maximum heart rate to improve the performance of your cardiovascular system and increase your VO₂ max. Use short hill sprints lasting 20 to 45 seconds to improve your anaerobic capacity and leg muscle power. At the end of each rep, lower the treadmill grade to 0 percent for a flat jog recovery.

Benefits: Since the muscles used to run up hill are the same ones used for sprinting, uphill repeats can make you a faster runner. Hill running also increases upper body strength since you drive your arms more than running flat.

Why train on a treadmill: For uphill repeats, treadmills offer the advantage of not having to run back down the hill, which can cause muscle soreness and slow the recovery process. Running on a treadmill allows you to focus just on the uphill portion. You can also manipulate uphill and downhill running on a treadmill for a challenging workout that can prepare you for upcoming races.

Check out the following two training programs (for beginner and advanced runners) that combine each of these four treadmill workouts. If you're looking to take a break from your traditional outdoor training and get the most from your training this winter, embrace the treadmill. And if you train smart enough, you'll not only burn a ton of calories, you'll also be able to run faster than your competitors next spring!

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YOUR TRAINING PROGRAMS

BEGINNER TREADMILL TRAINING PROGRAM

	MON	TUES	WED	THURS	FRI	SAT	SUN
Week 1	XT 20 min	3	TEMPO RUN <ul style="list-style-type: none"> • 1 warm-up • 2 @ tempo pace • 1 cooldown 	REST or XT 40 min	3	REST	5
Week 2	XT 20 min	3	UPHILL REPEATS <ul style="list-style-type: none"> • 1 warm-up • 4 x 3 min @ 95% max HR w/ 3 min jog recovery • 1 cooldown 	REST or XT 40 min	3	REST	5
Week 3	XT 20 min	2	DOWNHILL REPEATS <ul style="list-style-type: none"> • 1 warm-up • 5-6 x 20 seconds fast (-2-3% grade) w/ 2 min jog recovery @ 0% grade 	REST or XT 40 min	3	REST	6
Week 4	XT 15 min	REST	TEMPO RUN <ul style="list-style-type: none"> • 1 warm-up • 2 @ tempo pace • 1 cooldown 	REST or XT 25 min	2	REST	4

ADVANCED TREADMILL TRAINING PROGRAM

	MON	TUES	WED	THURS	FRI	SAT	SUN
Week 1	5	TEMPO RUN <ul style="list-style-type: none"> • 2 warm-up • 3 @ tempo pace • 1 cooldown 	8	6	UPHILL REPEATS <ul style="list-style-type: none"> • 2 warm-up • 4 x 3 min @ 95% max HR (6-8% grade) w/ 3 min jog recovery @ 0% grade • 1 cooldown 	REST	10
Week 2	5	VO2MAX INTERVALS <ul style="list-style-type: none"> • 2 warm-up • 4-5 x 3 min @ VO2max pace (95-100% max HR) w/ 3 min jog recovery • 1 cooldown 	8	6	DOWNHILL REPEATS <ul style="list-style-type: none"> • 2 warm-up • 8-10 x 20 seconds fast (-2-3% grade) w/ 2 min jog recovery @ 0% grade • 1 cooldown 	REST	10
Week 3	6	TEMPO RUN <ul style="list-style-type: none"> • 2 warm-up • 4 @ tempo pace • 1 cooldown 	8	7	UPHILL/DOWNHILL REPEATS <ul style="list-style-type: none"> • 2 warm-up • 4 x 1/4-mile uphill + 1/4-mile downhill @ 5k race pace effort (2-3% grade) w/ 3 min jog recovery @ 0% grade • 1 cooldown 	REST	11
Week 4	4	5	TEMPO RUN <ul style="list-style-type: none"> • 2 warm-up • 3 @ tempo pace • 1 cooldown 	3	5	REST	7

KEY

NUMBERS represent miles **XT** = cross training (e.g. bike, elliptical trainer, swim) **HR** = heart rate **Week 4** = recovery week.