

FARTLEK TRAINING WITH PERSONAL TRAINING CLIENTS

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Fartlek training is a style of training that can be used to increase levels of overall fitness in all age groups, from beginners to elite athletes. Fartlek training is generally associated with running; however, it can be used for almost any kind of training (4). Fartlek training involves variable pacing, alternating between fast and slow bouts, and allowing for the training pace to be self-selected while progressing through the workout. Traditional Fartlek style training is associated with increasing $VO_2\text{max}$ during running increments, although this basic format can be used for cycling and swimming by simply combining long, slow distance training, pace/tempo training, and interval training (8). There are differences in programming for any individual based on fitness levels and goals. Fartlek training can be individualized for various goals, ranging from weight loss to top end speed, as well as developing high levels of fitness (2). Any individual can find a Fartlek style of training that would best enhance his or her fitness level.

WHAT IS FARTLEK TRAINING?

The word Fartlek comes from Sweden and means “speed play” (2,4). The training method was introduced to the United States in the 1940s by former Swedish decathlete Gösta Holmér as a method of blending interval and continuous training to develop both aerobic and anaerobic capabilities for application to outdoor running (6). Fartlek training is best described as periods of fast running intermixed with periods of slower running (4). During the training session, the runner uses different paces depending on the durations and intensity of each interval (7). An athlete running a Fartlek should run at an intensity (pace) close to $VO_2\text{max}$ (8). This method of Fartlek would be most commonly associated with mid- to long-distance endurance athletes in their preparatory phase of training. Even though Fartlek training is commonly used by elite athletes, recreational runners can also benefit from adding Fartleks into their training session. This style of training is efficient for conditioning various sports due to the ability to alter work to rest ratio to yield a desired adaptation (2,5).

FARTLEK VERSUS HIGH-INTENSITY INTERVAL TRAINING

Fartlek training and high-intensity interval training (HIIT) are both styles of interval training. Interval training involves repeated short to long bouts of high-intensity movement interspersed with recovery periods which includes light rest or no rest. A common difference between Fartlek training and HIIT is that Fartlek uses low-intensity running as recovery rather than passive rest that can be seen in HIIT. Interval training has potential for increasing both anaerobic and aerobic fitness (3,8). The training methods have very similar metabolic outcomes. Although the activity is different in a HIIT session the individual is repeating an exercise for a specific work to rest ratio that corresponds to the desired outcome of the training. The training intensity can be structured

in a way that would either use heart rate zones or percentage of maximum velocity as the variable. The distance of each bout of running could be pre-planned or last until the desired heart rate is achieved. The variability of Fartlek training allows for its versatility to train different qualities to fit the needs of each athlete. In Fartlek training, the individual completes a fast run, followed by a slower run under race pace until breathing rates have returned back to normal (4). Fartlek style training varies between long, slow distance runs and pace/tempo training intensities, targeting to train an individual's $VO_2\text{max}$ from 70 – 90% (8).

FARTLEK TRAINING PROGRAMMING

Fartlek training is commonly associated with endurance runners however, other athletes can benefit from a well-designed Fartlek training session (2). This method is ideal for sports that consist of bouts of anaerobic sprinting mixed with aerobic recovery periods, such as soccer, volleyball, basketball, and tennis. Endurance runners commonly use Fartlek training to prepare for uneven paces. However, this type of training is also effective for other sports, such as football, basketball, and rugby. (2,4). The style of the Fartlek may vary based on training status. For novices, it could be jogging with walking compared to more advanced trainees who would do running with jogging.

The intensity and continuous exercise nature of Fartlek training places stress on both the aerobic and anaerobic energy systems (4). When properly applied, Fartlek training utilizes all three bioenergetics systems. While many Fartlek training programs utilized prescribed durations of work to rest, many practitioners use a more subjective approach to training. Simply put, the individual is often allowed to train based on their perception of how they “feel” during each part of the Fartlek session. In other words, if an athlete feels like they are not sufficiently ready for another intense repetition they are allowed to recover slightly longer before the next intense bout. The danger of using “feel” is that some less motivated athletes may not train at a high enough intensity to gain the desired adaptations.

If the goal of training is anaerobic adaptations, the training is performed at a high intensity for a short duration. Anaerobic Fartlek training will improve the efficiency of an athlete's fast glycolytic energy system to produce adenosine triphosphate (ATP). This will increase the athlete's ability to perform high-intensity activity (2). A typical method for aerobic adaptations involves moderate intensity for a longer duration (i.e., long, slow distance) but with brief bouts of intervals of high intensity and partial recovery. This has been reported to enhance aerobic capacity if activity sufficiently overloads the aerobic system (6).

It is advised that all Fartlek training begins with a steady warm-up jog between 5 – 10 min followed by the interval training session

and ending with a cool-down at a steady pace for 10 min. To emphasize the anaerobic system during Fartlek training, one would run/sprint at near maximal speeds followed by less than two minutes of recovery jogging, repeating sprints and recovery periods up to 4 – 5 bouts. Unlike typical sprint practice with full recovery, the partial activity during recovery requires the utilization of all three energy systems. To emphasize the aerobic system, runs are performed at a moderate intensity pace, for up to five minutes, followed by active recovery of 1 – 2 min. The run portion of the Fartlek should be higher than the pace of a long, slow distance run and the recovery period is short to stress the aerobic system. Table 2 illustrates three Fartlek examples for all three energy systems: ATP phosphocreatine (ATC-PC), fast glycolytic, and slow oxidative. The training style can be successful within training speed and power using the ATP-PC system, training middle-distance events using the fast-glycolytic system, and training long-distance events using the slow oxidative energy system (2,6).

The anaerobic speed/power training mainly uses high-intensity training for 10 – 60 s intervals, thus using the ATP-PC energy system. Highly intense activity of short duration requires immediate energy for such as events as a 100-m dash, 25-m swim, and even heavy resistance training (see Table 1). The recovery intervals range from 30 – 45 s of slow running following the high-intensity sprint which aids in ATP replenishment (6). The high-intensity sprinting coupled with partial recovery mimics the work to rest ratios commonly encountered in speed and power sports.

Middle-distance training mainly utilizes the short-term glycolytic energy system, thus forming lactate at a faster rate (see Table 2). Rapid accumulations of blood lactate occur in the large muscles, during maximal movements between 60 – 180 s. Recovery periods of 120 – 150 s, at or below 50% of VO₂max, allow for only partial elimination of blood lactate levels, which over time leads to a

training adaptation of more efficient blood lactate elimination as well as lactate buffering capacity (6).

Long-distance training mainly utilizes the slow-oxidative energy system, thus providing nearly all energy when intense exercise continues beyond several minutes (see Table 3) (6). Long-distance training activity requires greater oxygen consumption and is largely dependent on the aerobic capacity to maintain performance at a given workload for duration. The self-paced active recovery intervals of 60 s provide recovery to avoid training in the anaerobic state (6).

PHYSICAL AND PHYSIOLOGICAL VARIABLES

Depending on the manner in which Fartlek training is designed, the potential physiological changes include an increase in aerobic fitness likely to enhance VO₂max, an increase in lactate threshold, and improved running economy and fuel utilization (8). Research states that many strength and conditioning coaches believe interval training is the best method to promote physiological changes (5). Fartleks have the ability to increase training heart rate just like a high-intensity training session, although maintaining active recovery keeps heart rate at a higher rate than passive recovery. When applied to sports that utilize different energy systems, like volleyball and soccer, improvements in lung ventilation and cardiovascular efficiency were shown (1).

As described by Kumar, a simple example of what a runner would do during a Fartlek is “sprint all out from one light pole to the next, jog to the corner, give a medium effort for a couple of blocks, jog between four light poles and sprint to a stop sign, and so on, for a set of total time or distance.” Table 4 provides an example of a simplified Fartlek training program that can be used as a basic guideline for implementing Fartlek training.

TABLE 1. FARTLEK TRAINING PROGRAM EXAMPLE FOR ANAEROBIC SPEED/POWER TRAINING

Primary energy system taxed: ATP-PC Basketball, baseball, tennis, football, etc. Common track and field events: 100 – 400-m training			
PORTION	INTENSITY	DURATION	
Warm-up	Low	10 – 15 min	
Sprint	High	30 s	
Recovery	Low	30 s	
Sprint	High	40 s	
Recovery	Moderate	30 s	
Sprint	High	45 s	
Recovery	Low	45 s	
Sprint	High	40 s	
Recovery	Moderate	45 s	
Cool-down	Low	5 min	

Basic concepts adapted from Bashir 2017.

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TABLE 2. FARTLEK TRAINING PROGRAM EXAMPLE FOR MIDDLE-DISTANCE TRAINING

Primary energy system taxed: fast glycolytic Soccer midfielder, figure skating, lacrosse, rowing, etc. Common track and field events: 800-m run, mile run, 5-k run		
PORTION	INTENSITY	DURATION
Warm-up	Low-moderate	10 min
Sprint	High	60 s
Recovery	Low	120 s
Sprint	High	100 s
Recovery	Moderate	120 s
Sprint	High	140 s
Recovery	Low	150 s
Sprint	High	180 s
Recovery	Moderate	150 s
Sprint	High	140 s
Recovery	Low	120 s
Sprint	High	100 s
Recovery	Moderate	60 s
Cool-down	Low	5 min

Basic concepts adapted from Bashir 2017.

TABLE 3. FARTLEK TRAINING PROGRAM EXAMPLE FOR LONG-DISTANCE TRAINING

Primary energy system taxed: slow oxidative Cycling, cross country, biathlon, etc. Common track and field events: 5-k – 10-k, half marathon, marathon		
PORTION	INTENSITY	DURATION
Warm-up	Low – moderate	10 min
Run	Moderate – high	3 min
Recovery	Low	1 min
Run	High	3:30 min
Recovery	Low	1 min
Run	High	4 min
Recovery	Low	1 min
Run	High	4:30 min
Recovery	Low	1 min
Run	High	3:30 min
Recovery	Low	1 min
Cool-down	Low	10 min

Basic concepts adapted from Bashir 2017.

TABLE 4. AN EXAMPLE OF A SIMPLIFIED FARTLEK TRAINING ROUTINE

PORTION	INTENSITY	DURATION
Warm-up	Low	10 – 15 min
Run	Moderate	2 min
Recovery	Low	2:30 min
Run	High	3 min
Recovery	Low	2:30 min
Run	Moderate	4 min
Recovery	Low	2:30 min
Run	High	3 min
Recovery	Low	2:30 min
Run	High	2 min
Cool-down	Low	10 – 15 min

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