INTERVAL TRAINING TRAINING

DR. KUNTAL THAKUR
Dept. of Physical Education, Khejuri College,
Batatala, Purba Medinipur

WHAT IS INTERVAL TRAINING

- Interval walking simply means alternating bursts of intense, high activity with bursts of lighter activity.

- The bursts of lighter activity are also called recovery periods because you are allowing your heart rate and breathing to slow down a bit to prepare for the next high intensity interval.

- All you need to get started is:

- Interval training is a type of training that involves a series of low- to high-intensity workouts interspersed with rest or relief periods The high-intensity periods are typically at or close to anaerobic exercise, while the recovery periods involve activity of lower intensity. Varying the intensity of effort exercises the heart muscle, providing a cardiovascular workout, improving aerobic capacity and permitting the person to exercise for longer and/or at more intense levels.

TYPES OF INTERVAL TRAINING FOR RUNNERS

- The two most common types of interval training for running are low intensity intervals and high intensity intervals. Both are good training methods, but they are for different types of running. While low intensity interval training for running is best for marathon runners and those runners preparing for very long distances, high intensity interval training for running is best for sprinters and those runners preparing for shorter runs. The best interval training will also depend on the athlete's fitness level and athletic goals. A middle ground between low and high intensity interval training for running may be the best option for some runners.

- The best interval training for running will be custom-made for a specific runner. A racer may want to consider the race he or she is preparing for when designing his or her interval training program, but most runners will fit into either the low intensity category or the high intensity category. It is a wise idea for beginners to tailor the interval training for running programs, as such training is very strenuous and the body may not be prepared for it. Going into an interval training program cold may actually be counterproductive and lead to injury. Low intensity interval training for running is the less strenuous of the two options, so beginners may want to start here. During this training, the runner will run faster than moderate pace for one to two miles (1.6 - 3.2 km), then rest at a slower pace for several minutes. The process is then repeated. The rest period allows the muscles of the legs to recover briefly, which allows the runner to run for longer durations. It also helps increase lactic acid threshold; as the body burns glycogen for energy, the lactic acid byproduct builds up in the muscles. Interval training helps the body learn to combat lactic acid build up, which can prevent or delay fatigue.

- High intensity interval training involves running for shorter periods at a fast pace, then rest for several minutes at a slower pace. The rest periods in high intensity training is generally much shorter than that of low intensity training, and the runner will run at a much faster pace than he or she would during low intensity training. The general idea of high intensity training is to build fast twitch muscles that will help the runner sprint faster or maintain a faster speed for short distances. Athletes participating in team sports such as baseball or football would most likely benefit from high intensity training more than they would from low intensity training.

Alternating periods of intense effort with periods of moderate-to-low effort.

INTERVAL TRAINING

A **20-minute workout** of alternating high/low-intensity periods burns more calories than a 20-minute workout of steady intensity.

Interval training **boosts metabolism** significantly longer than a steady workout of even longer length.

Interval training builds **lean muscle** tissue faster than steady state training.

EXERCISE AND RECOVERY

Warm up

Sprint

RECOVERY

Sprint

RECOVERY

Sprint

Repeat sets of intervals

BEGINNER INTERVAL RUNNING WORKOUT

What to Do	For How Long	Intesity (1-10)
Warm up at a 4.5 mph pace	5 minutes	3.5
Jog at a 5.5 mph pace	1 minute	6.5
Jog at a 5 mph pace	2 minutes	5
Jog at a 5.7 mph pace	1 minute	7
Jog at a 4.8 mph pace	2 minutes	4
Jog at a 5.5 mph pace	1 minute	6.5
Jog at a 5 mph pace	2 minutes	5
Jog at a 5.7 mph pace	1 minute	7
Jog at a 4.8 mph pace	2 minutes	4
Cool down	5 minutes	3.5

Total Workout Time: **22 minutes**

SPARKPEOPLE ®

EXERCISE AND RECOVERY

Warm-up	Interval	Active pause	Interval	Active pause	Interval	Active pause	Interval	Cool-down
		3 min		3 min		3 min		
60-70%	85-95%	60-70%	85-95%	60-70%	85-95%	60-70%	85-95%	60-70%
10 min	4 min		4 min		4 min		4 min	10 min
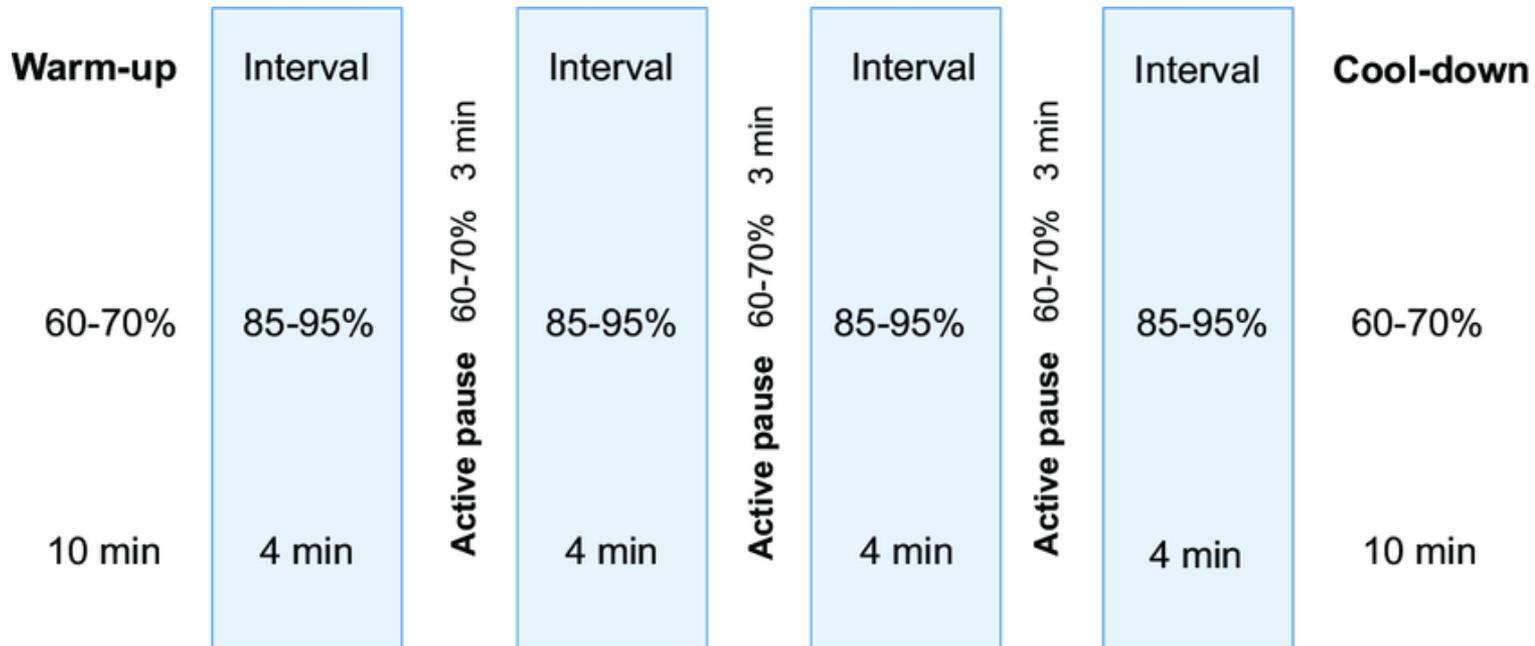
Intensity Level	Duration	Speed	Incline
Low	5 minutes	Brisk Walk	No Incline
Medium	2 minutes	Brisk Walk	2 - 3% incline
High	1 minute	Sprint / Run	No incline
Medium	2 minutes	Jog	No incline
High	1 minute	Jog	2 - 4% incline
Low	5 minutes	Brisk Walk	No incline
Medium	2 minutes	Brisk Walk	2 - 3% incline
High	1 minute	Sprint / Run	No incline
Medium	2 minutes	Jog	No incline
High	1 minute	Jog	2 - 4% incline
Low	3 minutes	Brisk Walk	No incline
Total Workout Time	*25 minutes*		

WEEKLY SHEDULES FOR INTERVAL TRAINING

| Week	Warm Up	High Intensity Interval	Recovery Interval	Repeat	Cool Down	Total Workout Time
1	5 min	1 min	4 min	2 times	5 min	20 min
2	5 min	1 min	4 min	3 times	5 min	25 min
3	5 min	1 min	4 min	4 times	5 min	30 min
4	5 min	1.5 min	4 min	2 times	5 min	21 min
5	5 min	1.5 min	4 min	3 times	5 min	26.5 min
6	5 min	1.5 min	4 min	4 times	5 min	32 min
7	5 min	2 min	5 min	3 times	5 min	31 min
8	5 min	2 min	5 min	4 times	5 min	38 min

Interval Training - 1:3

Total Exercise Time = 10 minutes
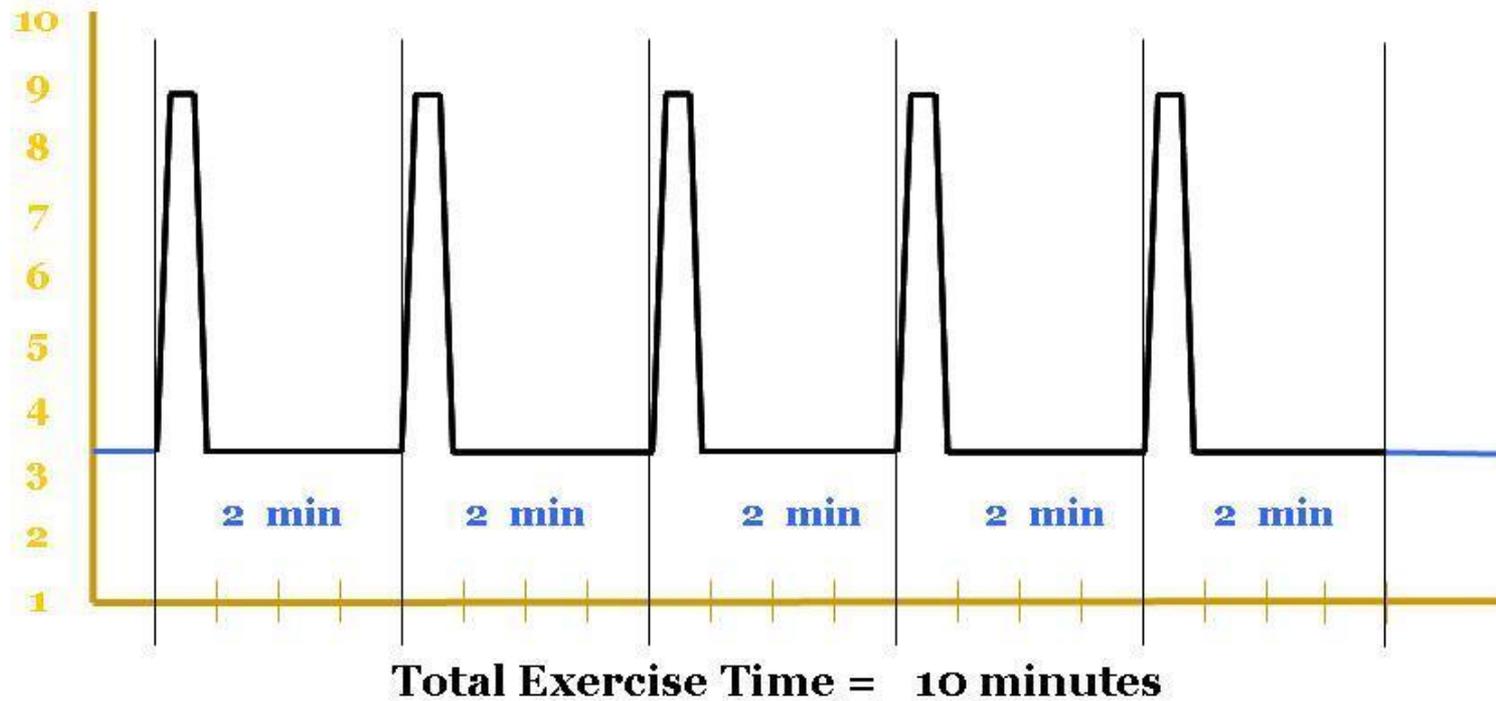
Table 2: Collection of findings from high-intensity interval-training (HIT) studies in highly trained cyclists (VO_2 max > 60mg/kg/min)

Reference	number in study	HIT Sessions	Reps	Intensity	Work Duration	Rest Duration	Results
Lindsay, Hauley et al. [19]	8	4 (4 weeks)	6-8	80% PPO	5 minutes	60 seconds	↑ TF150 from 60.5 to 72.6 (↑20%) ↑ TT40 watt threshold from 301 to 326 watts (↑8%) ↑ PPO from 416 to 434 watts (↑4%)
Westgarth-Taylor et al [12]	8	12 (6 weeks)	6-9	80% PPO	5 minutes	60 seconds	↑ watt peak from 404 to 424 (↑5%) ↑ TT40 speed from 42 to 43 km/hr (↑2%) ↑ threshold wattage from 291 to 327 (↑12%)
Laursen, Shing et al. [19, 21]	8	8 (4 weeks)	8	Pmax	60% Tmax	1:2 work-recovery ratio	↑ heart rate threshold from 172 to 178 beats/minute (↑3%) ↑ VO_2 max from 65.6 to 69.5 mg/kg/min (↑6%) ↑ TT40 speed from 42.2 to 44.4 km/hr (↑5%) ↑ 15% increase in VT1 & 16% increase in VT2 ↑ ANC 104% ↑ PPO from 439 to 460 watts (↑5%)
Laursen, Shing et al. [19, 21]	9	8 (4 weeks)	8	Pmax	60% Tmax	65% maximum of heart rate	↑ heart rate threshold from 173 to 179 beats/minute (↑3%) ↑ VO_2 max from 66.3 to 69.9 mg/kg/min (↑5%) ↑ TT40 speed from 41.4 to 43.7 km/hr (↑5%) ↑ 17% increase in VT1 & 24% increase in VT2 ↑ ANC 54% ↑ PPO from 431 to 457 watts (↑6%)
Laursen, Shing et al. [19, 21]	10	8 (4 weeks)	12	175% PPO	30 seconds	4.5 minutes	↑ heart rate threshold from 167 to 173 beats/minute (↑4%) ↑ VO_2 max from 63.7 to 69.9 mg/kg/min (↑10%) ↑ 9% increase in VT1 & 18% increase in VT2 ↑ TT40 speed from 41.9 to 43.7 km/hr (↑4%) ↑ ANC 75% ↑ PPO from 425 to 438 watts (↑3%)
Laursen, Blanchard et al. [20]	14	4 (2 weeks)	20	100% PPO	1 minute	2 minutes	↑ heart rate threshold from 167 to 172 beats/minute (3%) ↑ VO_2 max from 68.7 to 70.3 mg/kg/min (↑2%) ↑ 22% increase in VT1 & 15% increase in VT2 ↑ PPO from 469 to 489 watts (↑4%) ↑ TT40 watt threshold from 340 to 366 watts (↑8%)

ANC = anaerobic capacity; HR = heart rate; PPO = Peak Power Output; Pmax = minimal power to elicit VO_2 max; TF150 = time to fatigue at 150% of PPO; Tmax = time to exhaustion at Pmax;
TT40 = 40 km time trial performance; VT1 = ventilatory change reflecting trend in CO_2 extraction and O_2 consumption; VT2 = ventilatory threshold (is highly correlated with lactate threshold)
VO_2 max = maximal oxygen uptake

THANK YOU