

Aerobic Training, Mode vs. Effect:

Training Effects vs. %MHR: from Guy Thibault, Univ. of Laval

Training Intensity			Potential	Effect	On	High endurance athlete	Elite runner, HRMax = 180, VO2 Max = 70 ml/kg/min.
Percent MHR	Zone	MAP	Anaerobic Capacity	Maximal Aerobic Power (MAP)	Aerobic Endurance	Max Time	Running Velocity (km/hr)
100	5	110%MAP	+++++	++		0:03:00	22
95	4	105%MAP	++++	+++		0:04:00	21
85-90	3a	100%MAP	+++	+++++	+	0:07:00	20
82-85	3b	95%MAP	++	++++	++	0:15:13	19
75-85	2	90%MAP	+	+++	+++	0:32:54	18
		85%MAP		++	++++	1:10:55	17
65-75	1	80%MAP		+	+++++	2:33:00	16
		75%MAP			++++	5:30:00	15
		70%MAP			+++	Very long	14
< 70	Recovery	65%MAP			++	Very long	13
		60%MAP			+	Very long	12
		< 60%MAP				Very long	11

NOTE: Interval times for training should be significantly less than max. sustainable.

Definitions:

Aerobic Capacity: How much; or for how long can you go aerobically.

Maximal Aerobic Power (MAP): The peak energy can you generate using your aerobic system.

Training Sequence:

Early stages in the year-plan [General Preparation] will be dominated by activities in the **green** zones. Activities switch progressively into the **yellow** zone in Specific Preparation to build on the base, and then incorporates orange zones as we go into Pre-competition phase late in the training part of the plan. Nordic endurance training does not go much into the red zone.

... our programs focus on developing the athlete's **Aerobic Capacity** (AeC) from the *early stages of the training plan* right through to the Build up period of your Goal event. In this Build up phase we then focus on **Maximal Aerobic Power (MAP)** so you can fully harness the benefits of your training and perform at your best on the day (*Sport Med Ireland*).

General vs. Specific Training Modes:

This concerns what we do in our practices, and when we do it as much as how high our heart rate goes and for how long we stay in zone.

General endurance is the ability to perform over a long time any physical effort involving numerous groups of muscles that has a positive influence on sports specialization.

Directed endurance is the ability, based on aerobic fitness, that creates the functional basis for special endurance. In training methods the structure of movement is identical and the character of an athlete's effort is similar to that of the sports specialization.

Special endurance is the ability to perform efforts typical in a given sports discipline, for the same duration as that required in the discipline, while preserving the necessary quality of techniques." From How Your Future Champions Should Exercise to be Healthy, Fit, and Happy, [Drabik](#), 1997, pg. 94):

Similarly, the training modes in our yearly plan change from general, non-specific activities at the start, to sport similar and then sport specific as we move towards competition. These ideas about aerobic capacity and general vs. specific training have been commonplace in Nordic sports for many years.

In Canada, we usually combine Directed and Special endurance into Specific Training, done in both the Specific Preparation and Pre-Competition phases.

General Endurance training: Examples - running, rowing, swimming and biking.

Directed Endurance training: Examples - bounding, roller skiing, roller blading, double pole pulleys.

Special Endurance training: Examples - intervals on skis (classic/skating); double pole intervals; LSD endurance skis.