

# Running Formula by Jack Daniels (1998)

Success comes from ability and motivation. The benefits of increased stress (workouts) come 6 weeks later, so increase workload every 6 weeks. Few people realize their running limits, so improvement is always possible. The max heart rate (MHR) doesn't change with training, but the stroke volume does. Reps improve running economy. Long, easy runs should be at marathon pace or 65-75% of VO<sub>2</sub>max; tempo runs at 86-88%; and interval/reps at 100%. See VO<sub>2</sub>max and running times for training and race estimated times. **Estimated 1600m = 800m x 2.2**; 800m = 400m x 2.2.

Elite runners take 90 steps (each foot) per minute (get into a steady rhythm). Everything you do must have a purpose (why am I doing this workout?). A slower marathon runner will incur more stress than a faster runner (more time running). 85% of running should be easy runs; 15% intense runs. We should breathe 45 breaths per minute in normal runs & 60 in the last part of a race. If you get a side stitch, slow down your breathing. Check VO<sub>2</sub>max every 6 weeks and adjust training. VO<sub>2</sub>max can only be maintained for 10-15 minutes in race conditions.

Intervals (1200m each) should only be 8% of weekly mileage (6 miles max). Reps (400m each) should only be 5% of weekly mileage (3 miles max). There should be a primary, secondary & maintenance workout each week with the balance easy workouts. 5k & 10k races are great substitutes for interval workouts. Reduce mileage, but not intensity during the taper. Maintaining (or regaining) fitness is easier than obtaining it in the first place. Knee problems can usually be corrected by knee extensions. Good health must take precedence over training.

**Tailwinds won't speed you up as much as the same headwind will slow you down.** Good hydration is directly related to the number of opportunities available for drinking. The % of oxygen does not change in high altitudes, but the pressure does. And this is what determines how much oxygen will be carried by the hemoglobin in the blood. If you are normally well rested, a bad night before the race should not impact performance. Easy run warm-ups work well before long races, and fast strides for shorter races.

Racing is the ultimate expression of a runner's ability, training & motivation. Use an early assessment in a race to make feasible adjustments. Most races don't change drastically in the last third of the race. Running at 6:00-mile pace creates a 10-mph headwind (if no wind is blowing). Running at 6:00-mile pace into a 15-mph headwind takes the same energy to run at 5:00 pace in calm wind. Feeling sorry for yourself is not a good reason to drop out of a race. Analyze race results and injuries.