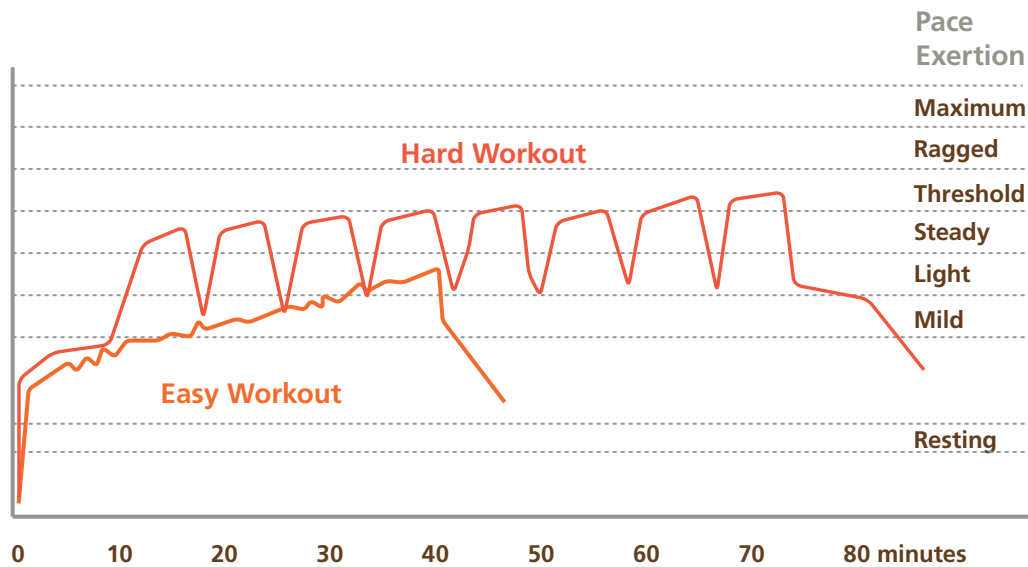


## Comparing Workout Efforts

If pace exertion tells you how hard you are running from moment to moment, then workout effort tells you how hard the run was as a whole. I measure workout effort on its own unique scale: very easy, easy, moderate, hard, very hard, and all-out.

Take a look at the following graph. It shows the heart rate curves of two workouts, including the 40-minute workout from Figure 1-1, plus a separate interval workout. The interval workout has a distinctive exertion structure, with my heart rate rising to upper steady state during each tempo interval and then dropping to light exertion during each rest interval.

Figure 2-1: Comparing Heart Rate Curves for Two Different Workouts



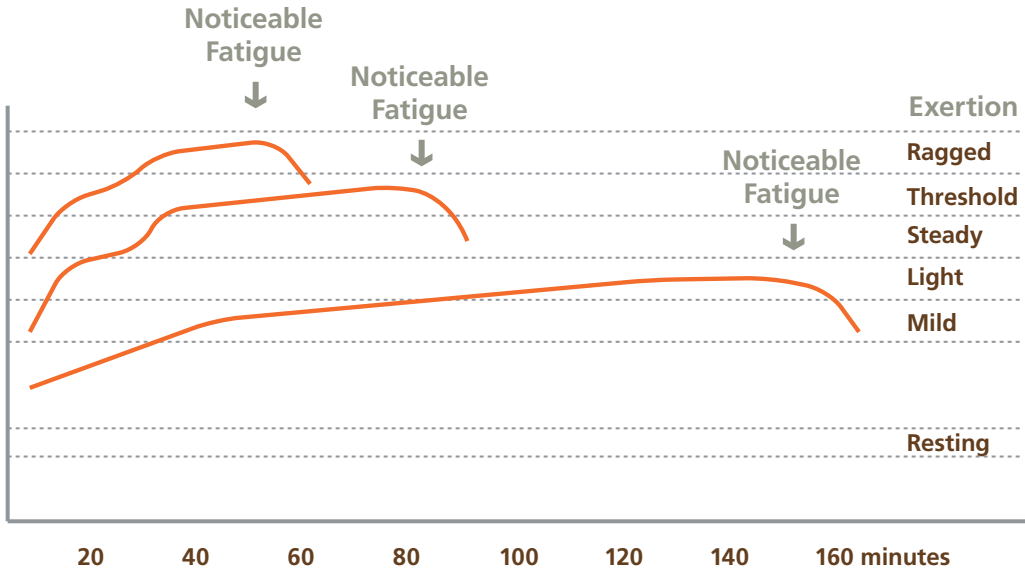
Clearly, my average heart rate during the interval workout was higher than that of the 40-minute easy workout (146 beats per minute [bpm] vs. 110 bpm). Average heart rate is one way of telling what my exertion was like during a run. But average heart rate doesn't necessarily give a clear picture of the overall effort of the run.

I can imagine, for instance, a workout with the same average heart rate as the easy 40-minute workout, which is nonetheless much more difficult. Do you see that this new workout would have to be longer than the easy 40-minute workout in order to be harder?

Since workout effort is the sum of all the exertion moments of a run, when I run for a long time at a slow pace my workout effort can be just as hard as a shorter, faster workout. This principle is illustrated graphically in Figure 2-2.

**Figure 2-2: Three Hard Workouts in Relation to the On-set of Noticeable Fatigue.**

Each heart rate curve represents a hard workout because they all end at a point where noticeable fatigue sets in.



There are three hard workouts shown in Figure 2-2. Although they were run at different levels of exertion and for three different durations, they have one thing in common: the workouts end when noticeable fatigue sets in (as indicated by the downward pointed arrows).

In the hard-easy system, a workout becomes a hard workout at the point when noticeable fatigue sets in. If I hadn't become noticeably fatigued, then the workout would have been easier than hard. Or if I had continued running after noticeable fatigue set in, then the workout might have become very hard or possibly all-out. Thus (other things being equal), the longer and faster I run the sooner fatigue sets in, and the harder the workout becomes.

The fly in the ointment here is fatigue, which can sometimes be a moving target. Although I use fatigue to delimit different levels of workout effort, fatigue is not strictly a part of effort. It actually belongs to another construct of ideas called energy, which is the subject of the next article.