REPLY TO THE LETTER

Sir,

In response to Kasikcioglu’s question, we would like to point out the three basic facts of the study:1

1. We did find a significant decrease in the myocardial performance index (MPI), but this was only a function of the general reduction in all intervals, as RR-interval decreased. The index actually increased relative to the RR-interval. This may reflect the weighting of the index in favour of isovolumic relaxation interval.

2. The increase in index only reached significance at the last stage, when the value had more than doubled. This is an indication that variability is so high that MPI during exercise is of little use.

3. Although the study comprised subjects with varied fitness, the sample was too small to allow subgroup analysis of the resting MPI. We would not like to conclude anything about the differences between more and less trained subjects on the basis of this.

In general, the use of the resting MPI to characterise different states of fitness and disease has severe limitations. It is too weighted in favour of isovolumic relaxation, which is very load-dependent. This may not be an issue in fitness in healthy individuals, although the level of systolic blood pressure may matter. But if the index is measured as originally proposed by Tei et al.,2 from mitral valve closure, it becomes dependent on PQ interval as well. But basically, the resting MPI reflects relaxation time, and apart from load effects, this reflects relaxation rate, which can be measured much more reliably by tissue Doppler. Early diastolic relaxation velocity has been shown to be a key to aerobic fitness,3,4 and without the methodological problems of the MPI.

Yours sincerely,

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References