

## RECOVERY AND READINESS

The definition for “Readiness” can be considered as the ability and willingness to accomplish a specific task. In sports it is often used to describe simply how an athlete performs at their sports. Knowing the readiness of the athletes is definitely important factor for coaches in preparing them to peak at the right moment. This article summarizes some experiences on how Firstbeat recovery test should be interpreted for predicting the “readiness to perform” of the athletes.

### Tapering

Long term recovery monitoring is the best way of predicting the performance. During the tapering period it is recommended to monitor rolling averages of the recovery index to see how the recovery level starts to rise up while training loads are lowered step-wise. The chart below is from the three years follow-up study of the Olympic level race walker. Dr. Hynynen discovered that “In every year, a similar trend of increasing values of the recovery index was found during the last month preceding the main competition in the World Championships or the Olympic Games. It started from low values and ended up to values over 200 during the last week before the competition”.

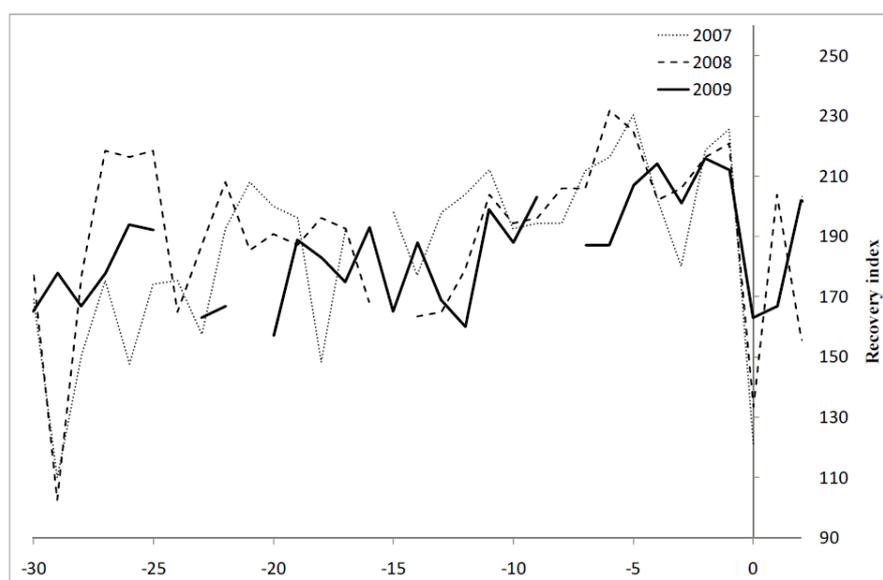


Figure 6. Recovery index based on nocturnal HR and HRV during the last 30 nights before the main competition.

Source: [http://www.european-athletics.org/files/development/Innovation\\_Awards\\_2010/Case\\_study\\_of\\_an\\_international\\_level\\_race\\_walker.pdf](http://www.european-athletics.org/files/development/Innovation_Awards_2010/Case_study_of_an_international_level_race_walker.pdf)

## Recovery prior to race day

When looking at the overnight recovery scores prior to race day, there seems to be huge individual and sport-specific differences. As the HRV describes the autonomic nervous system activity, it is clear that mental preparation and excitement level are affecting on the recovery results. When interpreting the daily scores before the race, the recovery follow-up needs to be considered and also it should be noted that each athlete has their own individual zone for optimal performance.

Our recommendation is to overlay retrospectively the race performance and recovery level. The key thing is to find what the optimal level is for each athlete and to identify races with over-preparedness. In team sports this should be acknowledged when applying recovery assessment for selecting the team roster for the game. It might be better to take into account recovery readings recorded 3-4 days prior to match.

## Recovery and readiness to train

During the training period recovery monitoring can be used to fine tune the training plan. Many studies suggest that when the HRV level is high, the body is responding well to hard training. A good example can be seen below from the study by Vesterinen & all (2010). The recovery index showed a clear trend against running speed/ heart rate relationship during the training period.

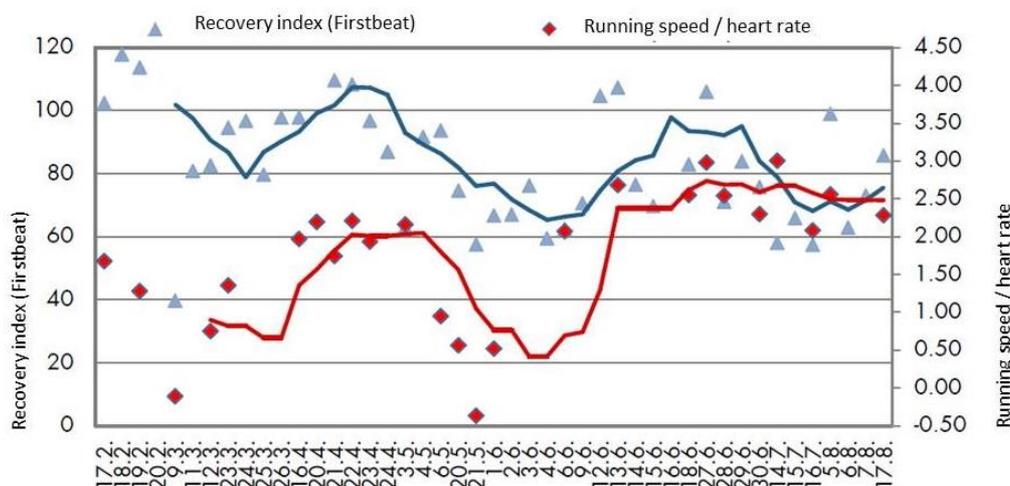


Chart: Example of the relationship between overnight recovery and running speed vs. heart rate during steady pace running sessions. Overloading period can be seen in decreased recovery and decreased running speed/heart rate relationship. Ref: page 25, [http://www.kihu.fi/tuotostiedostot/julkinen/2011\\_ves\\_tavoitteen\\_sel44\\_27073.pdf](http://www.kihu.fi/tuotostiedostot/julkinen/2011_ves_tavoitteen_sel44_27073.pdf)

While the endurance training seems to correlate well with the recovery index levels, some Track&Field athletes have reported phlegmatic feelings before speed/explosive type training when the recovery index has been high. By doing strength training workout (“wake-up calls”) a day before the explosive type training session, sympathetic activity has increased (lowered HRV and recovery) and the body has been adapting better to speed/explosive type training.

## Summary for interpreting recovery and readiness

- Pay attention to rolling averages on recovery and detect decreasing recovery trends before the fatigue starts sneaking to the body.
- Readiness means ABILITY and WILLINGESS to perform so take into account also the mental preparation when interpreting results
- Use recovery index prior to race as a learning tool to identify the individual zone to perform optimally for each athlete.
- Apply recovery index scores to identify to what kind of training your body is the most adaptive in the following day.