

## *How tired does your body feel during exercise?*

### *RPE Scale*

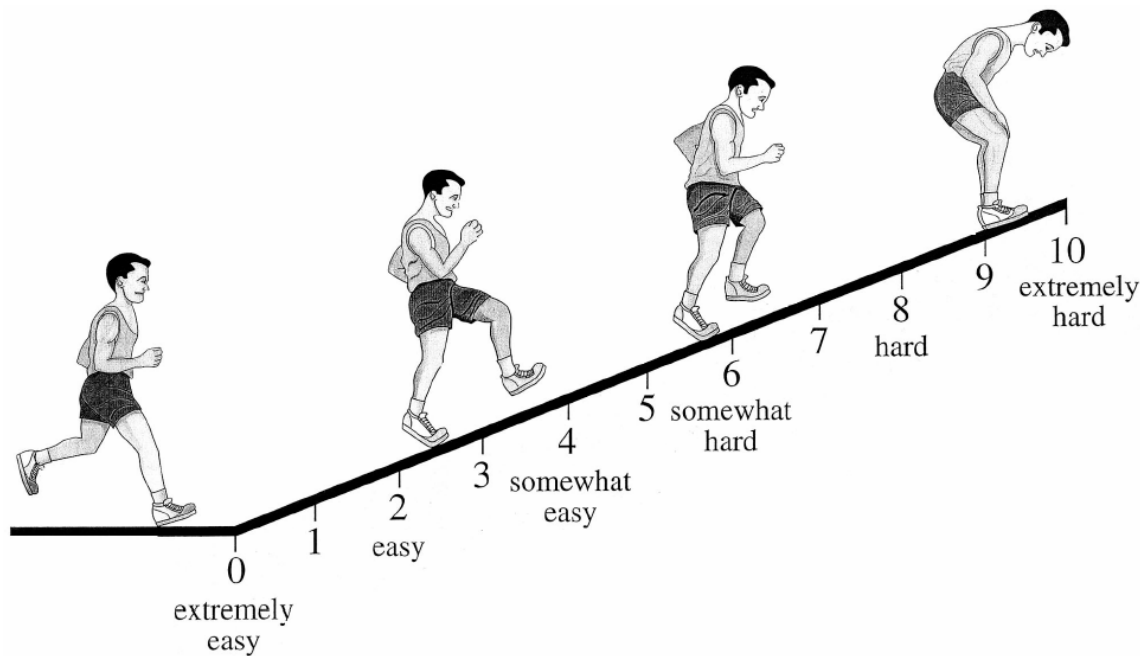
Perceived exertion is the ability to detect and respond to sensations that arise as a result of physiological adaptations to exercise. The cognitive awareness of these sensations is considered a form of biofeedback in which central, peripheral, and metabolic changes during exercise are assimilated. Borg designed the first rating of perceived exertion (RPE) scale, which is widely believed to be one of the best indicators of degree of physical strain. In addition, several RPE scales, including the original Borg scale (6 –20) and Borg CR-10, have demonstrated validity for use with adults. Some researchers have noted that they believe that limitations with use of the Borg scale in children/adolescents are related to cognitive abilities and testing methods used.



The OMNI Scale of Perceived Exertion was developed for use with children/adults of mixed ethnicity and gender. The scale uses numerical ratings that range from 0 to 10 with a series of pictures showing a child/adult at various levels of exertion walking/running up an incline. The pictorial format was used so that “the exertional meaning of each pictorial descriptor is consonant with its verbal descriptor.” Therefore, the range of numerical category responses that constitute the OMNI Scale are defined by both pictorial and verbal descriptors.

### *How tired does your body feel during exercise?*

*Instructions for players: We want you to rate your perceived exertion, that is, how heavy and strenuous the exercise feels to you. This depends mainly on the strain and fatigue in your muscles and on your feeling of breathlessness or aches in your chest. But you must only attend to your subjective feelings and not to the physiological cues or what the actual physical load is.*



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*Please use the numbers on this picture to tell us how your body feels when exercising. Please look at the person at the bottom of the hill who is just starting. If you feel like this person when you are exercising you will be not tired at all. You should select a 0 (zero). Now look at the person who is barely able to jog to the top of the hill (point to the right pictorial). If you feel like this person when exercising you will be very, very tired. You should select number 10. If you feel somewhere in between not tired at all (0) and very, very tired (10), then point to a number between 0 and 10.*

*We will ask you to select a number that tells how your whole body feels, then a number that tells how your legs feel and then a number that tells how your breathing feels. Remember, there are no right or wrong numbers. Use both the pictures and words to help select the numbers. Use any of the numbers to tell how you feel when exercising.*

### **SOCCKER and RPE**

Physical training is the systematic repetition of physical exercises, and it can be described in terms of its outcome (anatomical, physiological, biochemical, and functional adaptations) or its process, that is, the training load (TL= product of volume and intensity of training).

The external load is, the training prescribed by coaches (for example, running four times 1000 m at 15 km/ h with 3 min rest between runs or, in team sports, small-sided games). The internal load is the stimulus induced adaptations, physiological stress, imposed on the players by the external load (Booth & Thomason, 1991; Viru & Viru, 2000).



It is essential to determine valid and practical methods to quantify exercise loads to increase soccer performance. This is particularly relevant in team sports where the planned external load is often similar for each team member because of the extensive use of group exercises such as small-sided games in team training sessions. For example, it was recently reported that soccer players with higher  $\text{VO}_2\text{max}$  tend to exercise at a lower percentage of  $\text{VO}_2\text{max}$  during small game exercises. These previous results suggest that use of group training exercises, such as small-sided games, may not provide sufficient stimulus for physiological adaptation in the fitter athletes within a team. In addition to fitness level, other factors such as injury, illness, weather conditions, match-scheduling problems, and athlete psychological status can influence the internal TL. Consequently, when combined, these factors suggest that monitoring and controlling athletes' internal TL is very important to ensure that each athlete receives adequate training stimulus.

Currently, methods such as heart rates and lactate concentration measures are used as valid and objective approaches to estimate exercise loads during physical activities. Soccer players move in diverse directions with different intensities during soccer activities, which makes it difficult to estimate the physiologic strain on players. However, newly available technologies, such as portable heart rate monitors, lactate analyzers and gas analyzers, are making it possible to characterize the demands that are associated with a soccer game in terms of the rate and duration of energy expenditures.

One valid, inexpensive and practical option to quantify exercise loads is the use of RPE scales, it can measure intensity across a wide range of aerobic exercises, including interval training, and it may provide an easy way to quantify resistance training. Results from several researches, revealed validity evidence when the RPE Scales were correlated against oxygen uptake, lactate and heart rate. Therefore, when using these scales, its limitations have to be taken into account.



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