

VIKING SQUASH TEST

A unified system of physical fitness testing

The described test has been developed to meet the needs of the most precise as well as simple and economic way of physical fitness of squash players under conditions close to the real sport performance. An important assumption was to specify identical conditions for performing and evaluating the test. At the same time, the purpose was to develop one universal tool to be used for all age and efficiency groups with the possibility to measure physical fitness for the whole period of player's active career from his junior age to an eventual elite level.

Another contribution of the test is the possibility to compare physical fitness in identical conditions for any comparable groups (for example junior age categories U11 - U19, national selections and others) within one club, sports association or at the international level.

The test can be performed repeatedly in any intervals and it can be evaluated very easily. Several tests of one player subsequently performed in intervals of weeks/months clearly demonstrate the effectiveness of physical fitness training or its development during the season.

A principle and performance of the test

It concerns the physical abilities test up to the maximum load when a player runs across the squash court lengthways in time intervals while touching its front and back walls with his hand. The test is adjusted to be simply performed on the standard squash court which has the same length worldwide. Physical load during the test is similar to real load during the game and it takes place in the environment familiar to players. Economic demands of the test are neglectable. Load rise is set so that the testing of all age and performance groups from the youngest juniors would be possible. Elite players can consider the test start too slow; however, the following context must be taken into account.

- A lower test speed at the beginning is intended as a substitute to running before the test, it means that there is no need for warming up before performing the test.
- Gradual loading gives a better idea of the physical loading progress and its displaying after making a graph.
- The test can be used by every player in the same version from the youngest age to the end of his sports career, and it has clearly comparable results of the identical test for the whole period.
- The test is unambiguously defined, and physical abilities of players of all age and performance groups can be compared practically worldwide.

Test progress

The player is standing ready for run, touching the back wall of the court with his hand. His coach starts the sound file, three identical signals informing the player on the test start will be heard.

It is followed by a sound signal with a different tone than three preceding tones and the player starts running slowly toward the front wall of the court after hearing it. After getting to the front wall, he touches it with his hand and slowly runs back to the back wall. He repeats these runs regularly. In the initial phase of the test, time for one run is approximately 4.5 seconds and at the end of the test, it falls under 2 seconds. Time planned for each run across the court is signalled by a tone. The player should touch the wall when the signal sounds. His task is to adapt himself to the time designated for individual runs and to run at the correct speed. He should not reach the wall sooner; he should not stop and wait before the signal sounds. He is not allowed to reach the wall with a time delay either. Each of sections passed within the time limit shall be recorded by the coach on a data sheet. The method of marking is mentioned in the data sheet headings - fields passed within the limit will be marked with X and fields passed beyond the limit will be marked with O.

After performing 20 runs in the same time, the interval will be shortened followed by another 20 runs in a shorter period of time while the player must choose the optimum speed again. The player is informed on passing 20 courts and shortening the interval by a deep tone which is clearly different from other signals. As soon as the player hears this deep signal, he presses the lap time on the sport tester which is important for evaluating the graph.

These series of 20 runs are regularly repeated, after each of series, the time designated for running across the court is shortened. For the whole period of time, the coach records lengths performed within the time limit in the data sheet and the player presses the lap time on the sport tester in every 20 runs. When the physical load reaches the level that the player is not able to run to the wall within the time limit and to touch the walls when hearing the sound signal anymore, the coach starts to mark the sections passed in a different way, specified in the data sheet headings. If the player manages to catch up on lost time and if he gets within the time limit again, the coach will keep on marking the sections using the original method. However, every player will experience time lags in the final phase of the test, then, the coach will get back to the appropriate marking method.

It is very important NOT TO FINISH the test at the moment when the player is not able to reach the wall within the time limit! He keeps on overrunning until he is absolutely exhausted and unable to run any more. This phase is important to find out to what maximum pulse rate the player is able to get under extreme load.

As soon as the player finishes the test for absolute exhaustion, at last, he presses the lap time regardless the sound signal or place where he has finished the test, and the coach marks the length of the last overrun. He writes the distance surpassed within the time limit and distance surpassed in total in the data sheet. Values of the distance surpassed can be found in the lower corner of each field of the data sheet. From this moment, 2 minutes of cooling down will be measured during which the sport tester records player's pulse rate, and the value to which the player's pulse will drop in 2 minutes from finishing his running is being determined. Another 3 minutes of cooling down follow and after this period of time, the sport tester can be switched off and the test finished. Thus the period of cooling down equalling to 5 minutes is monitored and pulse rate values are recorded in the data sheet when 2 and 5 minutes from finishing the run elapse. Maximum and average values of the pulse rate read from the sport tester will also be recorded.

Additional instructions for performing the test

MP3 audio file will be recorded by the coach on any device which can be placed on the squash court and through which these files can be played at a sufficiently loud level (notebook, MP3 player, mobile phone). The coach must ensure good audibility of sound signals, especially with regard to the final phase of the test when the player is extremely physically loaded.

The player puts on the sport tester, he starts running easily and checks if the transmission of heart pulse is functional. If the pulse reading is interrupted during the test, the whole test is destroyed.

If the player passes the test for the first time, he must get familiar with the whole test run and used sound signals and he must understand the whole test principle correctly which is very important. In the ideal case, he should be present to the test of another player; eventually he should try a short part of the test by himself before its real performance.

During the test, the coach must supervise the player recording the lap time on the sport tester after each series of 20 courts (when the deep tone sounds).

Results of the test must be carefully completed, labelled with a name and date of performing the test and a suitable method of storage must be chosen. Repeated testing and its results are an excellent and reliable identifier of physical fitness of players and training process effectiveness.

Evaluating the test

Evaluating the test correctly and applying its results into a training process require knowledge to work with the sport tester, dependence on physical load and pulse rate, evaluation of curves of its course and others. However, the following information can be used for basic evaluation of the test results. You must have in mind that one performance of the test is only information about the actual condition of player's physical fitness and it can serve for comparing the effectiveness with other players in the similar group. By repeating the test, the development of physical fitness and influence of the training process on this development can be observed.

1. Longer distance surpassed within the limit and distance surpassed in total are a definite measure of player's physical fitness and speed under full load. When the test is repeated, the player should reach higher values for both distances.
2. The growth curve of pulse rate during the test should have a smooth and gradual rise without jump changes (especially at the beginning of the test). The curve should never be broken and it should not start falling down before finishing the test, otherwise, it means that the player did not reach his maximum in the last phase of the test. When the test is repeated, the curve should have a flatter course at the beginning while reaching the higher maximum at the end.
3. Achieving a higher value of pulse rate indicates a player's ability to demonstrate better performance under maximum load (maximum value can be found out by testing the player in a laboratory), for simplified calculation, the following formula can be used:

$$\text{maximum value of pulse rate} = 220 - \text{player's age}$$

4. The pulse rate decrease after completing the test should be smooth and as fast as possible.
When the test is repeated, the decrease in the period of cooling down (2 and 5 minutes) should be steeper and it should reach lower values.

The mentioned evaluation of the test is only basic. More information can be obtained from the pulse rate course curve and by evaluating a higher number of repeated tests.

Necessary equipment

- standard size squash court
- sport tester with pulse rate, lap time recording, possibility to download data to PC
- audio file „viking_test_section_time.mp3“ (includes a testing set)
- player of MP3 audio files (notebook, MP3 player, mobile phone)
- form for recording the test course (includes a testing set)
- writing utensils

Final information

Viking Squash Test was developed and made by Pavel Sladeczek, a long-time junior and senior competition players coach, a holder of the ESF Level 3 coaching license. The test development and optimization took place in all age and performance groups of players and its practical use was tested on the part of the group of junior national team in the Czech Republic for a period of about one year. First, the test was publicly presented in January 2012 at the ESF coaching conference in Warsaw where it was positively evaluated.

The test is available free of charge to all coaches, national associations and squash players. The sound file and necessary forms can be sent to potential interested persons by e-mail, however, only its English version is available. Persons interested in sending the test can send their requirements to sl@decek.com.

The test author collects the results of all age and performance groups which would give insight into actual physical fitness of a certain segment of squash players in the course of time. In this context, feedbacks of test users are welcomed in the form of results (record + graph) sent with the information when the test was performed and information regarding player's age, nationality and his performance classification (eventual placement in the national, international ranking).

THE SAMPLE OF THE HEART RATE GRAPH AND THE TEST RECORD – JUNIOR PLAYER – BOY U19

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all necessary files and more information how to evaluate this test you can receive from the test author sl@dissect.com

