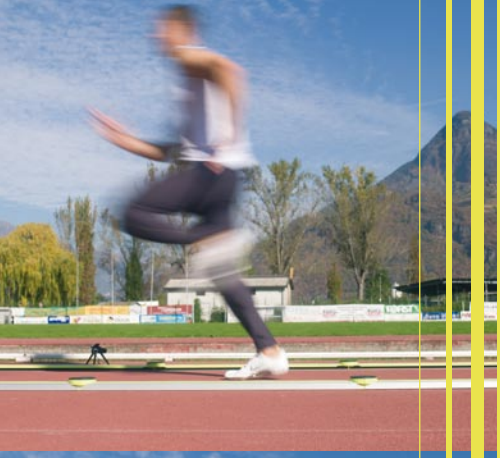
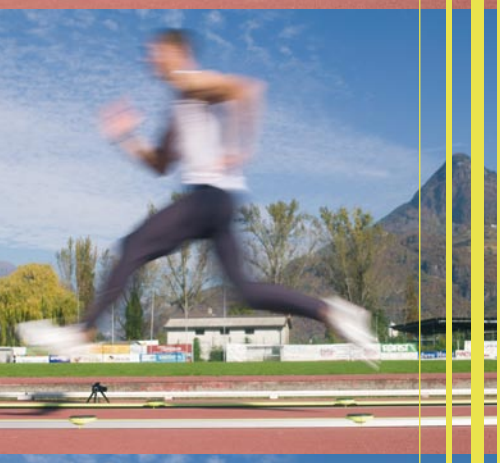
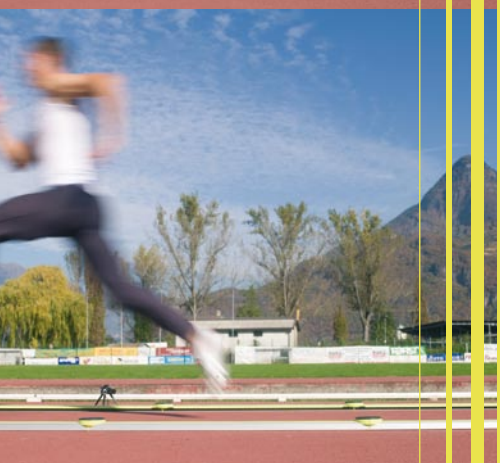
OPTOJUMP next

DISCOVER YOUR POTENTIAL

MICROGATE
TIMING AND SPORT







PERFORMANCE

OPTOJUMP next

A NEW UNIT OF MEASUREMENT.

Optojump Next revolutionizes training and athletic preparation methodology in sport.

It is an innovative system of analysis and measurement that brings a new philosophy of assessment and optimisation of performance to the world of competitive sport: it is designed for the development of a specific and customized training programme for the athlete, based exclusively on precise objective data. By acquiring the fundamental parameters that characterise the level of an individual's performance and physical condition, Optojump Next allows coaches, trainers and researchers to constantly test and monitor their athletes. This makes it possible to ascertain the abilities or physical fitness of an athlete in a simple and immediate way, creating over time a real database that makes it possible to compare values for that athlete or different athletes (even at a distance of months or years).

Optojump Next makes it possible:

- to assess an athlete's performance and physical condition
- to rapidly identify any muscular deficiencies and measure tolerance to various workloads
- to develop customized and diversified training based on the test results
- to periodically check the results of training
- to create a database of athletes in order to compare them with each other or to compare the results of a particular athlete in different periods of time in order to objectively determine the results of training
- to examine the physical condition of an athlete after an injury, to develop specific actions for rehabilitation and check its progress
- to motivate athletes by giving them tangible proof of the progress made, thus stimulating fruitful competition inside the group
- to significantly reduce the trainer's workload, at the same time allowing him/her to retrieve at any time the results of tests performed even months before
- to make use of an objective "judgement" when talent-scouting or choosing athletes
- and much more…

PRAC

Quantity and Quality

Optojump Next goes beyond the acquisition of numerical data: thanks to small cameras that can be positioned as desired, it allows recording of the images of the tests performed, synchronising them perfectly with the events measured. This makes it possible to enjoy the advantages of cross-checking between data and images and also those deriving from more detailed video analysis through the exploitation of the possibilities offered by the dedicated utility.
The film sequences and all the other data are saved in the database. This makes it possible to consult them at any moment and, as with numerical data, to make comparisons between the performances of different athletes or of the same athlete at different moments.

What is Optojump Next?

It is an optical measurement system consisting of a transmitting and receiving bar. Each of these contains from 33 to 100 leds, depending on the chosen resolution. The leds on the transmitting bar communicate continuously with those on the receiving bar. The system detects any interruptions in communication between the bars and calculates their duration. This makes it possible to measure flight and contact times during the performance of a series of jumps with an accuracy of 1/1000 of a second. Starting from these fundamental basic data, the dedicated software makes it possible to obtain a series of parameters connected to the athlete's performance with the maximum accuracy and in real time. The absence of moving mechanical parts ensures accuracy and great reliability.

TICALITY AND PRECISION

Convenient to transport, easy and quick to install

Its lightweight and the convenient bag makes it possible to have Optojump Next always available wherever test sessions take place.
The whole system is extremely simple to install: it is only necessary to position the bars on the ground and connect the receiving bar to the PC via the USB cable. The maximum distance between the bars is 6 metres and no connecting cables are needed. This maximises the simplicity with which the bars can be moved and minimises disturbances caused to the athlete during performance of the test.
Correct alignment of the system is signalled by a green led. The led lights up red if the bars are not parallel or unsuitability of the ground prevents communication between the transmitting and receiving bars.

The single meter

dim. 100 x 4 x 3 cm
weight 2,1 kg

The single meter

In this configuration OptoJump Next makes it possible to perform jump tests, reaction tests and running tests (if mounted on a treadmill). The data that can be obtained are:

- contact times
- flight times
- reaction time to a sound/visual impulse
- elevation of centre of gravity
- specific power (W/Kg)
- frequency
- energy expended (J)

Thanks to these data and to video analysis, the operator quickly evaluates the athlete's explosive and elastic force and tolerance to different kinds of effort, and his/her posture and technique. Moreover, the possibility of performing reaction tests, configuring them freely, makes it possible to compare the results of tests performed in normal situations with those obtained under stress.
In addition, if mounted on a treadmill, Optojump Next also generates the typical data of the analysis of a run, also those of a long one (for example, step length).

The single meter can be powered by both battery (about 8 hours' autonomous use) and from the mains.

The modular system

In its modular configuration, Optojump Next makes it possible to analyse a walk, a run or specific movements. The CPU works in real time, making it possible to assess complex exercises such as shuttle tests and the like.

As well as the data of the "single meter" configuration, the modular configuration makes it possible to measure:

- step length
- exact and average acceleration
- exact and average speed
- stride angle (the angle between the theoretical arc traced by the centre of gravity during the step and the line of the ground)
- the imbalance index (calculated on the basis of the difference between real contact time and ideal contact time)
- the time taken (calculable also with the help of external sensors such as photocells)
- treading mode (heel or toe)

Thanks to the practical and innovative system of joining bars with the dedicated connecting plugs, the modular system can be assembled in just a few minutes. It does not need connection cables or an external power supply and it can be from 2 to 100 metres long.

The two-dimensional system

This is one of the main strong points of Optojump Next.
The two-dimensional acquisition mode makes it possible:

- to acquire all the data typical of Optojump Next, leaving the athlete free to move in any direction
- to create exercises and reaction tests in which the athlete must move along predefined courses inside the measurement surface, exploiting his/her reactivity and concentration
- to perform complex tests that involve the combination of two or more tests or the combination of jump tests with movement tests
- to faithfully reproduce posture and the treading mode of the foot (heel, toe, angle, etc.)
- to calculate the position on the coordinates xy in real time (for example, to detect the tendency of an athlete to move from a predefined position during a series of jumps)

The area of measurement can reach a maximum surface of 36 square metres (6m x 6m) and is delimited by the normal bars which can therefore be used also in "single meter" or "modular" mode.

The software

The interface with which the Optojump Next system is managed is divided into three main sections: Athlete data, Tests and Results.

Athlete data

This is the section in which the profiles of the athletes or patients are created and catalogued. Each profile can contain numerous items of data (personal data, notes, photos of the athlete, etc.). Each individual can be inserted into one or more groups or subgroups. The athlete data is therefore completely open to modulation or modification in accordance with the user's needs, and if required can be imported from other formats (for example Excel).

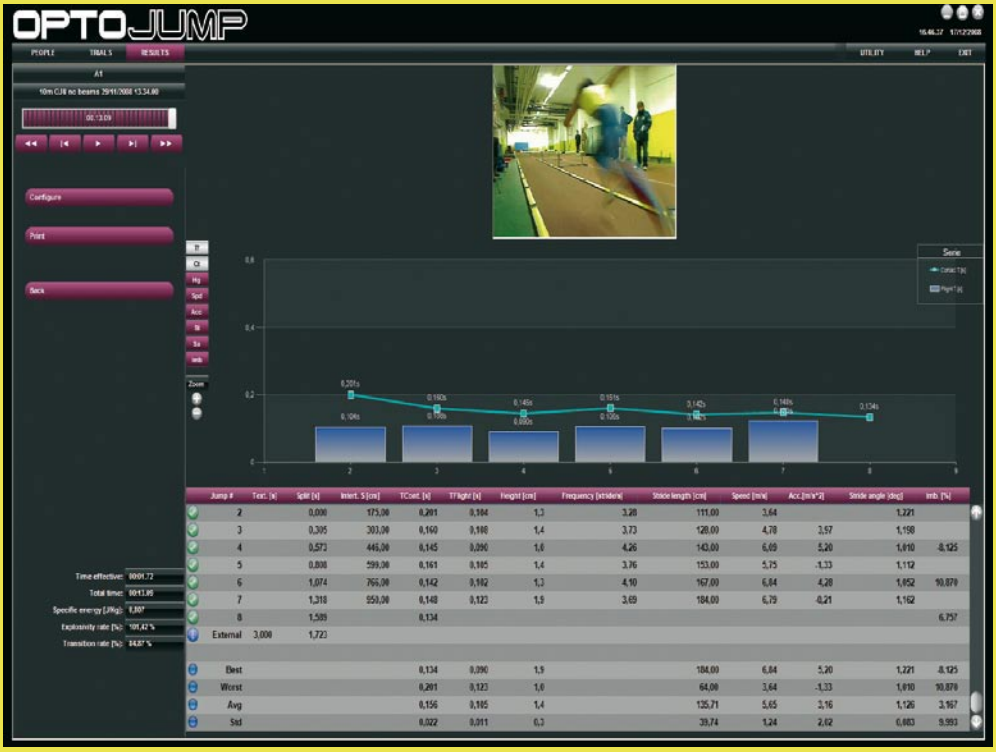
Tests

This is the nerve centre of the software. It is the part to access in order to design and configure new tests (jump, reaction, running, etc.) and to perform tests, choosing from the predefined tests and those created by the user. It is also possible to program sequences of tests in order to make one or more athletes perform several tests.
During performance of the test, the user receives three types of feedback in real time: numerical, graphical and video (from one or two webcams). Once the test has been confirmed, all three types of data are saved and remain available for immediate review or future consultation. If the user so requires, information not of interest can be temporarily hidden (for example, if it is the video that is important for the user, the images can be viewed full-screen and the numerical data can be hidden).

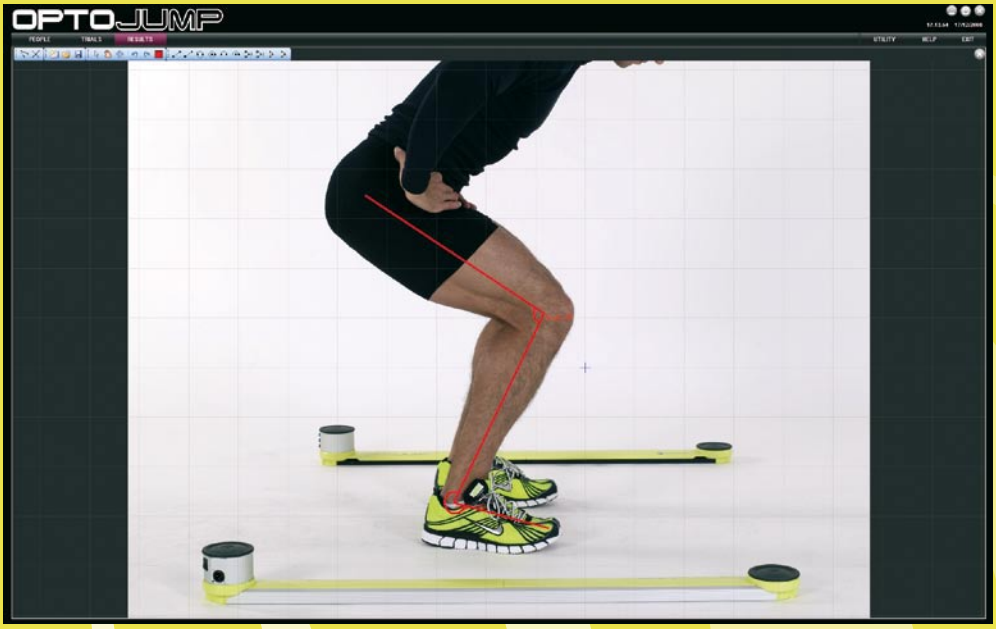
Results and video analysis

In this section it is possible to retrieve previously performed tests at any moment. The images can be compared with the data (numerical as well as graphical). In addition, the video support is of great help to the user in "remembering" how the athlete performed a test weeks or months before. Thanks to the "video memory" any anomalies in the numerical data are easily identified.

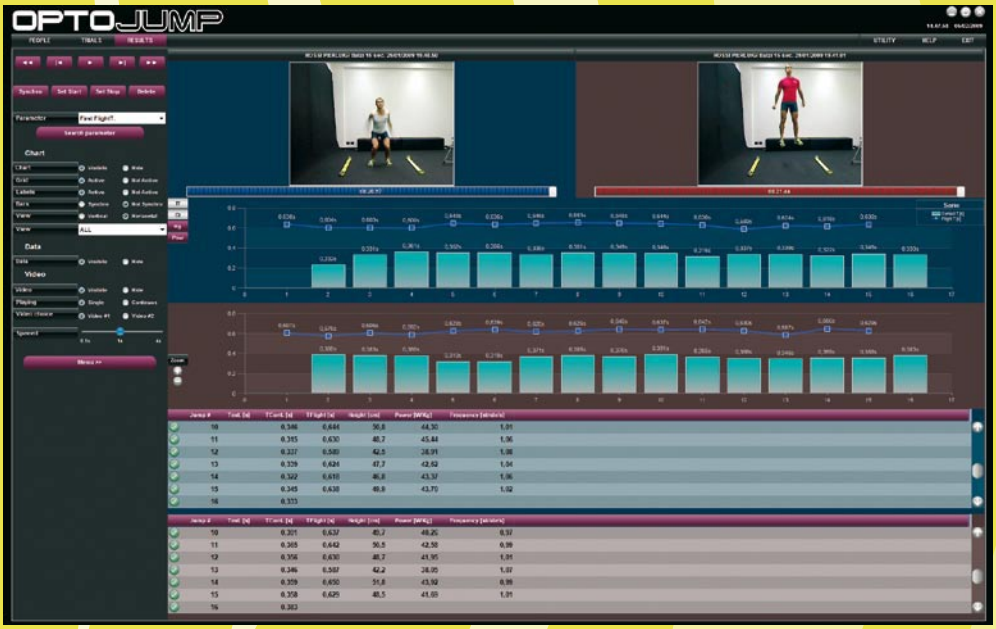
The video images are synchronised with the acquired values. This makes it possible to ascertain exactly what happened when a certain data item was acquired (for example, if a contact time seems too long, the cause of this can be determined by observing the images at the moment the value was recorded). The speed of the video can be reduced down to "frame by frame" or still picture. A video analysis utility is also included. This makes it possible to draw on the still picture, thanks to various graphic tools (lines, arcs, circles, ruler, goniometer, etc.). In the Results section it is also possible to compare two or more tests without the help of extra software: for example, it is possible to ascertain the performance of an athlete over a period of time or compare the results of tests performed by two or more different athletes. All the data (numerical as well as graphical) can be printed or exported in the most common formats.



Real time viewing of the data acquired during performance of a test, with video analysis, linear and bar graphs and numerical data for various measurements (times, heights, lengths, power, etc.). The data saved can be retrieved and viewed at any moment.



Processing of a video still image acquired during a test, with the possibility of graphical interventions and measurements of angles and lengths.



Comparison of two homologous tests with comparison of the numerical and graphical data and synchronisation of the two video sequences.

heart mind creativity

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MICROGATE Srl
via Stradivari, 4
I-39100 Bolzano (BZ) Italy
Tel. +39 0471 501 532
Fax +39 0471 501 524
info@microgate.it
www.microgate.it