

**KISTLER**

measure. analyze. innovate.



**Succeed  
when it  
counts**

## **Kistler MARS: performance analysis system**

Effective solution for performance monitoring,  
injury prevention and athlete qualification

# Succeed with performance analysis

In today's world of sports the margin between winning and losing is very small. Therefore athletes need to be prepared at their utmost best. To get the most out of their training and be successful in competition, the training itself needs to be monitored and individually adapted. Basing the plan of trainings sessions or rehabilitation on reliable data is crucial to effectively increase performance while avoiding injury. Kistler MARS is a state of the art performance analysis tool that provides parameters about power, strength, balance and stability. Making the right decisions to optimize your athletes' performance with reliable data leads to faster, stronger and healthier athletes.

Physical performance is the sport specific combination of conditional and coordinative skills. With Kistler MARS you get a versatile measurement, analysis and reporting software for performance assessment in sports and rehabilitation to measure exactly the relevant skills. This unique analytical software for Kistler force plates offers 20 modules for standard performance tests analyzing ground reaction force measurements. Modules like Counter movement jump evaluate the maximal power

output for lower extremities. Kistler MARS's Stamping module can precisely measure fast alternating leg movements – essential to the locomotion in agile sports such as fast acceleration, quick stops or directional changes. By using the Landing module or balance tests such as Body Sway the dynamic and static postural stability can be immediately analyzed.

The system with Kistler MARS and the Kistler force plate gives you a clear overview of the performance parameters that matter most for your training and rehab plan. The system quickly performs targeted evaluations and helps you develop your athletes at an optimum level.

## Increase performance

Coaches play a vital role in an athlete's success. Kistler MARS can help you to:

- Adapt training based on test results and strengthen the "weak" spots
- Plan individual recovery phases when needed
- Select the fittest athletes for the next game
- Set references and benchmarks

## Counter movement jump

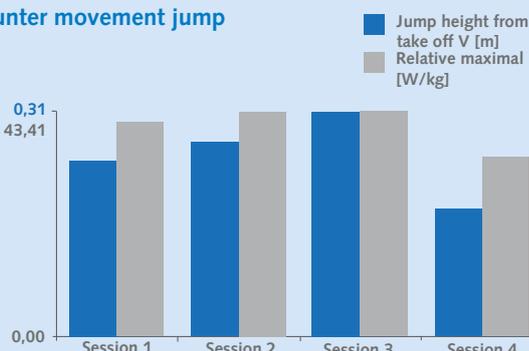


Fig1: Result parameters of different test sessions of a Counter movement jump show an increase in performance over time followed by a drop in performance. This could indicate a normal fatigue due to training sessions beforehand but also a too short recovery time between the training sessions and the possible risk of an overtraining. Depending on the circumstances a longer recovery phase might be recommended.

## Prevent injuries

Athletic trainers, therapists and doctors help to ensure the health of the athletes. Kistler MARS allows them to:

- Prevent injuries by monitoring performance
- Adapt rehabilitation based on test results
- Make fast and safe return-to-play decisions by comparing test results to the former level or a reference.
- Establish successful rehab concepts to reduce costs of rehabilitation for your valuable assets

## Landing

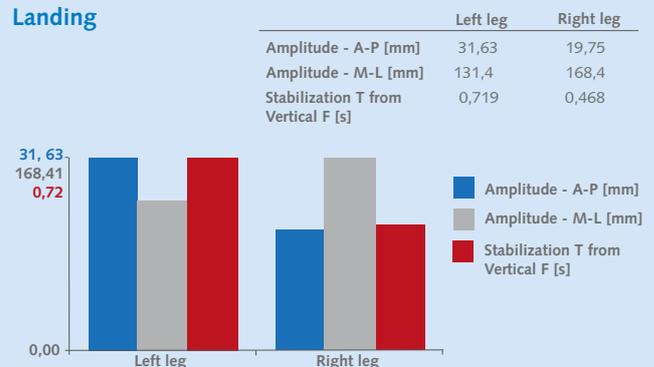
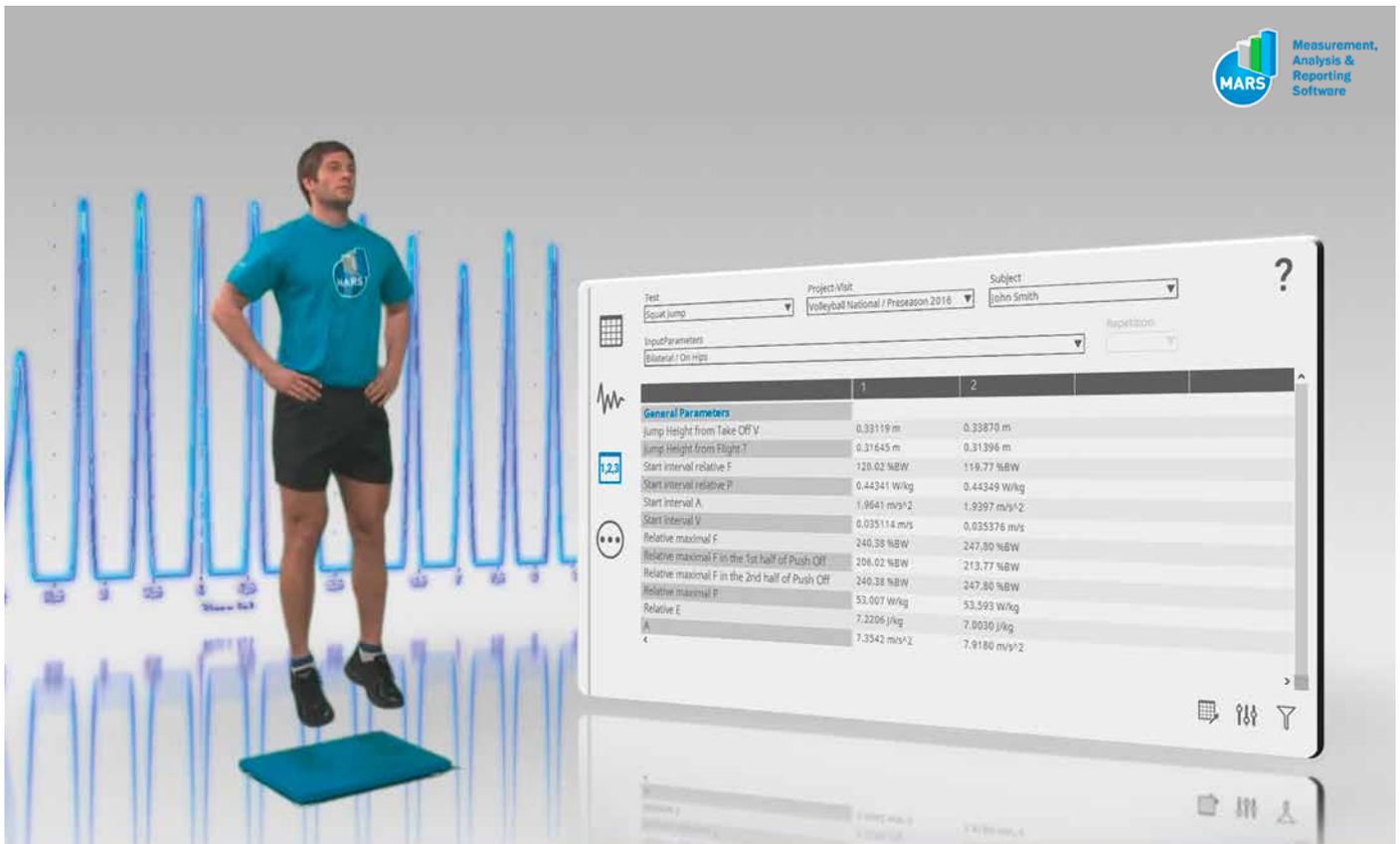


Fig2: The single leg landing test shows an asymmetry between the left and right leg in terms of stabilization which could indicate a risk for a possible injury due to muscular imbalances, an already existing injury or a weak spot in rehabilitation.



Kistler MARS 3.0 user interface

### Secure investments

For professional as well as collegiate sport teams, for investors and national associations, costs are a key part of success. Kistler MARS enables them to:

- Control athlete's development through regular testing
- Use test results as a qualification tool
- Recruit and invest in "healthy" talents and players
- Monitor youth development and decide upon individual promotion

### Counter movement jump

	Jump height from take Off V [m]	Relative maximal P [W/kg]
Norm	0,209 - 0,356	35,21 - 53,83
Mean	0,282	44,52
Standard deviation	0,074	9,313
Mike Manson	0,307	47,64
Jane Smith	0,312	46,35
John Smith	0,318	49,54
Peter Taylor	0,151	28,16
Deniss Terry	0,324	50,92

Fig. 3: Performance monitoring within a team or within a recruiting process. Marked in blue are parameters which are below a reference.

### Kistler MARS and Kistler force plates – the winning combination

Kistler MARS combined with Kistler force plates is an effective solution for capturing fast movements and slight changes in the performance of athletes. The system supports frequent testing in a very short amount of time and allows a user-friendly data evaluation. Combined with the unique piezoelectric technology Kistler is able to deliver reliable and very accurate data. Thanks to the accuracy and long-term stability of the Kistler force plates even slight changes in performance over time can be detected.

Kistler developed MARS with the future in mind. Therefore the improvement of Kistler MARS is an ongoing process which is based on scientific research. Regular updates make sure that Kistler MARS is always a state of the art solution for performance analysis.

Furthermore Kistler offers an installation and instruction service to ensure that the system can be operated properly to get the best out of it.

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