



CON-TREX® MJ

The MJ Multi-Joint Module forms a rotatory biomechanical testing, training and therapy system of the highest performance class for testing and training all the large joints of the upper and lower extremities. For meaningful and reproducible test results with minimal expenditure of time.



CON-TREX® LP

The linear LP module (leg press) is a high-performance system for forces of up to 6000 N, specially developed for testing and training the lower extremities in a closed chain. The separable footplates can be used individually, together or in alternating fashion.



CON-TREX® WS

The WS module was designed to simulate the patterns of movement occurring in daily (working) life and sports. The height-adjustable dynamometer, which can additionally be swivelled in both directions, permits targeted and realistic recording and analysis of complex tasks in research, sports and therapy.



CON-TREX® TP

The special dorsal adapter allows optimal testing and exercise of the straight trunk muscles with its flexor and extensor muscles in a functional position.

THE POSITIVE FEATURES OF THE BALLISTIC MODE ARE PARTICULARLY RELEVANT WHENEVER:

- » the desired speed of movement is high
- » the patient's strength is low
- » high degrees of freedom in movement are desired
- » complex multi-articulated movements are performed

RECOMMENDED FIELDS OF APPLICATION FOR THE BALLISTIC MODE:

- » for patients with low strength (e.g. early functional rehabilitation)
- » for movements with involvement of large body segments (e.g. TP: trunk; MJ/WS: hip, shoulder; LP: entire lower extremity)
- » for high speeds of movement

The CON-TREX® ballistic mode – to enable you to actively test and train your patients and athletes effectively at optimum speeds of movement!

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TECHNOLOGY FOR THERAPY

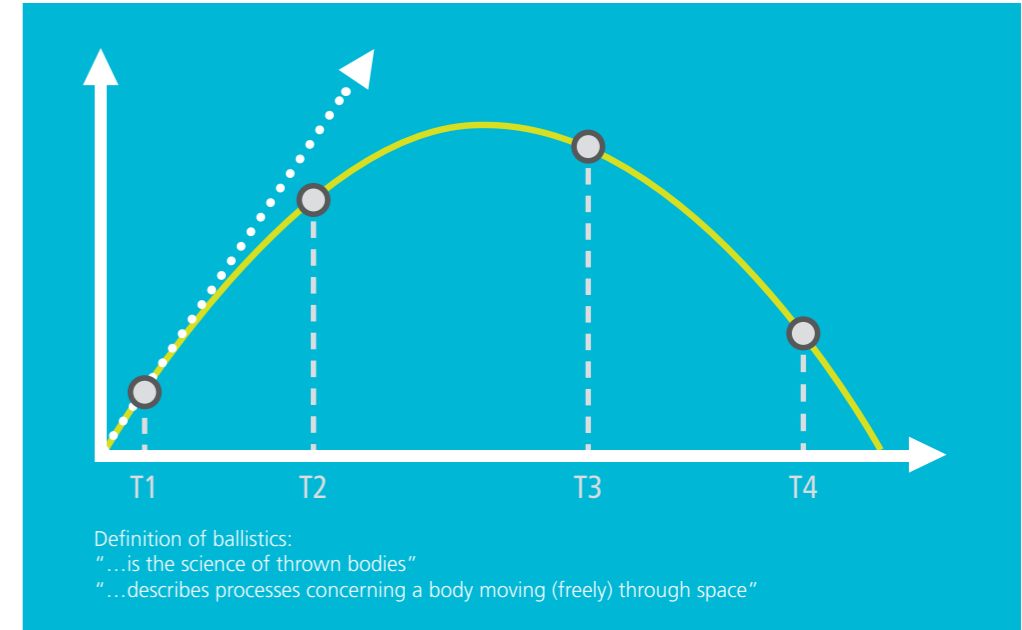
PHYSIOMED®



CON-TREX®
Biomechanical testing, training and therapy systems

Isokinetic – Isometric – Auxotonic

THE CON-TREX® BALLISTIC MODE



TECHNOLOGY FOR THERAPY

PHYSIOMED®

A special feature of PHYSIOMED's CON-TREX® modules is the unique ballistic mode, which is used both in isokinetic and in auxotonic loading.

WHAT IS THE BALLISTIC MODE?

Ballistics per definition: "...is the science of thrown bodies" and "...describes processes concerning a body moving (freely) through space".

The ballistic mode allows use of the unique load types "isokinetic ballistic" and "auxotonic ballistic" in all CON-TREX® modules.

WHY BALLISTICS?

- » At the beginning of the rehabilitation, due to lack of strength many patients are unable to carry out active movements on isokinetic or computer-controlled measuring and training systems
- » Physiologically meaningful movement speeds are possible only to a limited extent
- » High speeds of movement, equivalent to natural movements, are currently not realistically possible

OBJECTIVES

- » Active movement for training / diagnostics even at low strength
- » Higher relative speeds of movement with low effort
- » Higher absolute speeds
- » Support for the rehabilitation of neurological patients

Conclusion: The ballistic mode optimizes training and testing with functional and realistic movements and loads.

IMPLEMENTATION:

A new, ballistic control behaviour allows achieving higher accelerations and thus faster movement by pre-calculation of the movement to be expected.

This results in significant reduction of the influence of the moments of inertia.

FOR USERS OF THE BALLISTIC MODE, THIS MEANS:

- » Even patients with low strength can already train actively at a reasonable speed of movement
- » Strength-performance diagnostics, training or rehabilitation are possible with more functional (absolutely higher) speeds of movement
- » The ballistic movement is much closer to the functional movement, compared to classical isokinetic loads on rotational or linear (isokinetic) measuring systems

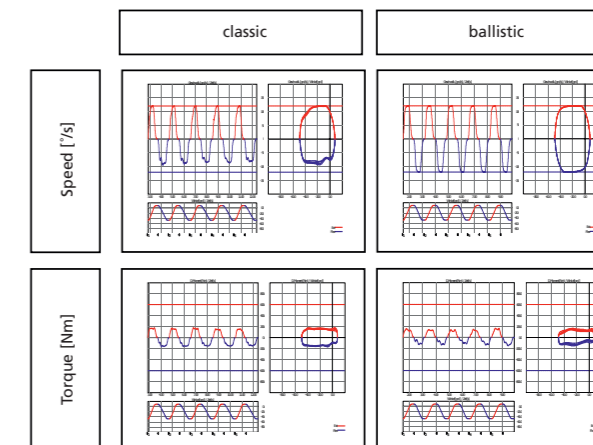
Note: Major differences between the conventional isokinetic and the ballistic mode exist especially in the low-strength range and at high movement speeds. The ballistic mode is therefore particularly advantageous in weak patients as well as in healthy athletes (especially when using long adapters, such as the dorsal module TP).

CLINICAL EVIDENCE OF THE EFFECTIVITY OF THE BALLISTIC MODE

Quote from Mueller S., e.a. (2011): Higher velocities in isokinetic dynamometry: A pilot study of new test mode with active compensation of inertia. *Isokinetics and Exercise Science* 19 (2011) 63–70: Especially at high isokinetic speeds, the new isokinetic mode shows relevant advantages with a possible compromise in force / torque measurement.

VISUALISATION OF THE EFFECTIVITY OF THE BALLISTIC MODE

Extension / flexion isokinetically (120 ° / s)



Trunk: Movement speed of the extension / flexion isokinetically at 120 ° / s

Conclusion: In ballistic mode, higher speeds of movement or a defined speed for longer times, respectively, can be carried out isokinetically.