

CON-TREX

Biomechanical Test- and Training Systems

CON-TREX Ballistics

CMV AG introduces the Ballistic mode for Isokinetic and Isotonic loading on it's own **CON-TREX** brand test- and training systems.

What is CON-TREX Ballistics?

Ballistics by definition: "...is the trajectory of thrown objects" and describes "...the physics of an object moving freely through space".

CON-TREX Ballistics is a synonym for the loading modes "isokinetic ballistic" and "isotonic ballistic", developed by CMV AG for it's **CON-TREX** test- and training systems.

Why Ballistics?

- In the initial stage of rehabilitation, patients are often unable to produce enough force to achieve an active movement on isokinetic and computer-controlled measuring and training systems.
- Physiologically reasonable motion speeds can only be realised to a certain extent.
- High movement velocities, equivalent to natural motions, could not be reproduced realistically

The aim is to achieve:

- Effective execution of movements in training/ diagnostics, even if low force is applied.
- Higher relative motion speeds at low strength
- Higher absolute velocities.
- Training and testing under functional movement and loading closer to reality.

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Features & Benefits:

The new, ballistic mode of control enables greater acceleration and therefore faster movement through the prediction of expected motion.

⇒ This results in a substantial reduction in the influence of inertia with the use of **CON-TREX** Ballistics.

For users of **CON-TREX** Ballistics this means:

- Patients can train actively at a reasonable movement speed even if they are only capable of low force.
- Force performance diagnostics, training or rehabilitation can be performed at more functional (absolute higher) motion speeds.
- The ballistic motion behaviour comes much closer to functional motion compared to classic isokinetic loading on rotatory and/or linear (isokinetic) measuring devices.

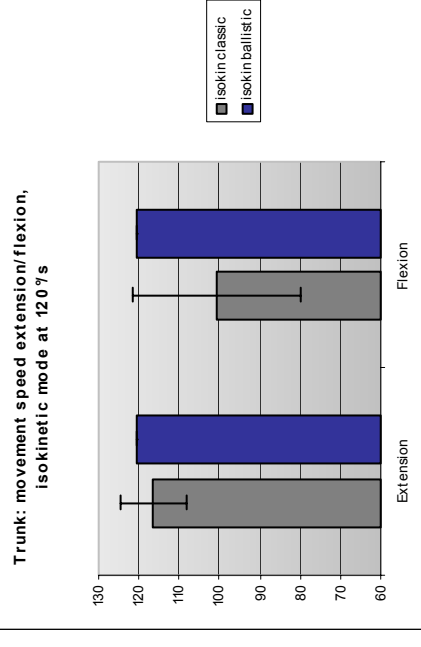
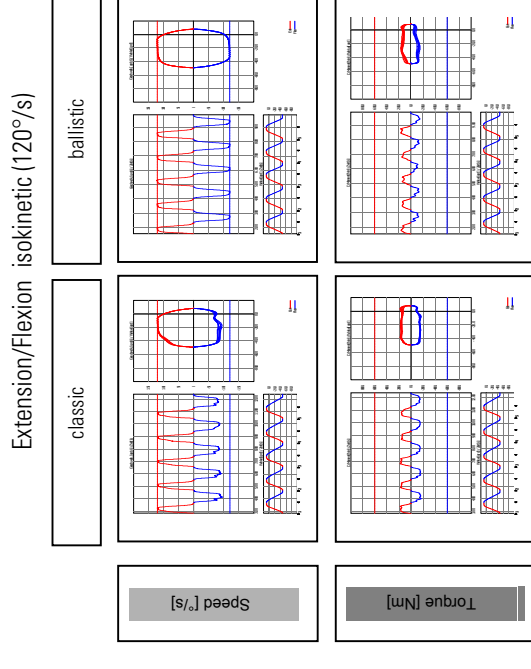
Note:

Only small differences between traditional isokinetic mode and the new ballistic mode may appear in high force range and at pre-defined, low movement speeds. Therefore only a small effect/advantage of the ballistic mode may be detected e.g. at knee joints of athletes.

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Result of studies: (Example: Trunk TP)



Conclusion:

In ballistic modes, higher movement speeds and/or velocity can be achieved in isokinetic behaviour for a longer period compared to "classic" isokinetic and isotonic modes.

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Recommended Range of Application

CON-TREX Ballistic mode is particularly relevant when:

- higher movement speed is required
- the patient can only produce low force
- a higher degree of freedom in movement is needed
- more complex combined joint movements are required

Recommended range of application for the

CON-TREX Ballistic mode:

- for patients capable of producing low force (e.g. early functional rehabilitation)
- for movements involving large body segments (e.g. TP: trunk; MJ/WS: hip, shoulder; LP: complete lower extremities)
- for high motion velocities



CON-TREX MJ

The MJ (MultiJoint) module forms a rotatory, biomechanical test and training system of superior quality for evaluation and training of all major joints of upper and lower extremities. For useful and reproducible test results within a minimum set-up time.



CON-TREX LP

The linear LP (Leg Press) module is a high performance system for forces up to 6000 N and was developed specifically for testing and training the lower extremities in combined joint movements. The LP has individual pressure plates, which may be used in either independent, synchronous or alternating modes.



CON-TREX WS

The WS-module has been designed for the simulation of movement patterns occurring in everyday work, life and sports activities. The dynamometer is adjustable in height and offers a wide angular adjustment range. It allows dedicated and realistic simulation and analysis of complex movement tasks in research, sports and therapy.

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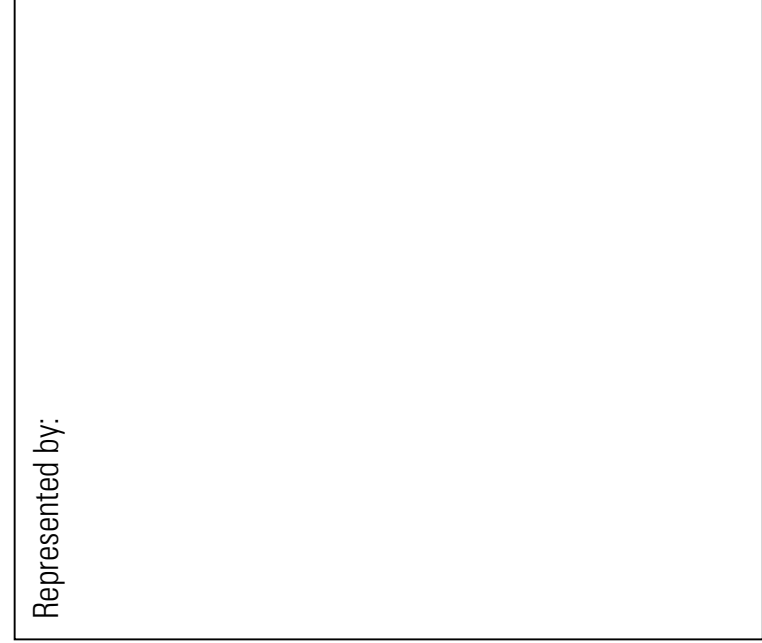
CON-TREX Ballistics – enables you to actively train and test your patients and athletes at optimal motion speeds!

CON-TREX Biomechanical Test- and Training systems are CE-certified medical devices of class 2a according to appendix IX of Council Directive 93/42/EEC concerning medical devices.
CMV AG is certified to have established and applies a quality management system according to requirements of ISO 9001 and ISO 13485.



Made in Switzerland

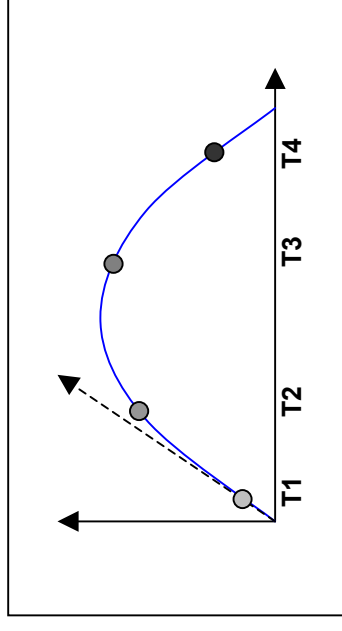
Represented by:



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BALLISTICS



Definition:

“..is the trajectory of thrown objects”

“..the physics of an object moving freely through space”

CMV AG

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