AUGMENT YOUR WORK WITH UNIQUE INSIGHT INTO MUSCLE FUNCTION

TMG™

SCIENCE FOR BODY EVOLUTION.

SCIENTIFICALLY VALIDATED, FUNCTIONAL AND SELECTIVE MUSCLE MEASUREMENTS

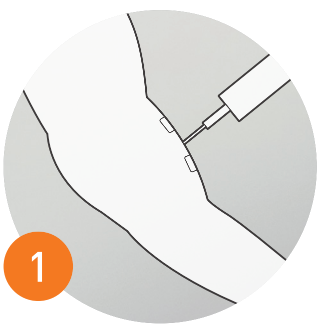
Our proprietary and patented TMG 100 measurement system is based on tensiomyography, a scientifically validated method substantiated by more than 50 independent studies.

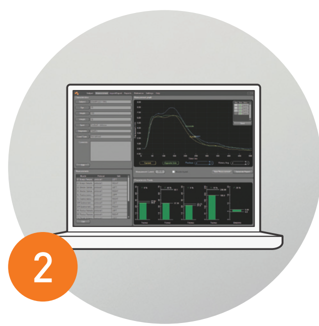
TMG provides relevant information about muscle contractile properties in an objective, selective and non-invasive way. It gives insights into: muscle composition, muscle functional characteristics, local muscle fatigue, atrophy, muscle inhibition, spasticity, tonus, and more. High repeatability enables long term monitoring of acute and chronic changes in muscle function.


TMG - S2
20.6

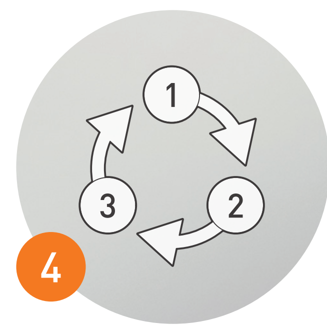
AN EFFECTIVE DIAGNOSTIC AND TREATMENT MONITORING PROCESS

Our methodology is based on selective, qualitative and quantitative monitoring of treatments or action plans with fast and simple measurements to determine results of your interventions.





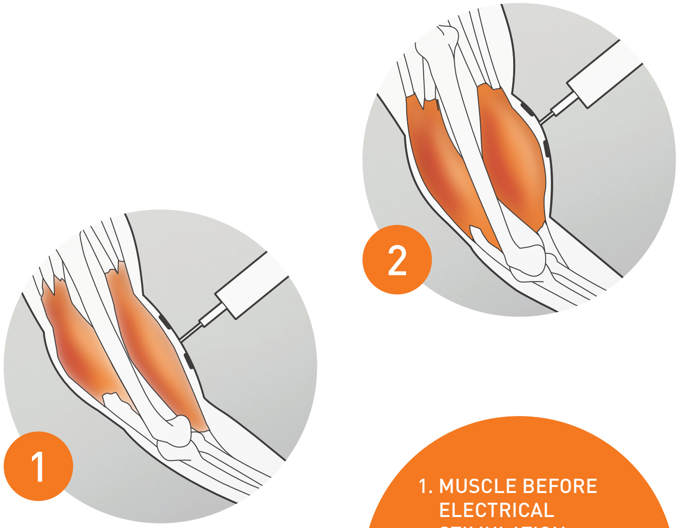
1. MEASUREMENT
2. ANALYTICS
3. ACTION
4. FEEDBACK LOOP



THE MEASUREMENT PROCESS

The measurement is completely non-invasive, fast and userfriendly. The displacement sensor is placed on the skin above a selected muscle, which is artificially stimulated with an electro stimulator to obtain a standarized, repeatable contraction. The sensor measures the displacement and obtains time-based characteristics.

The results are displayed in real-time on screen as time/displacement curves. The dynamic response time of the sensor lies in the millisecond range, allowing you to distinguish differences in reaction between fast and slow muscle fibres.



1. MUSCLE BEFORE ELECTRICAL STIMULATION
2. MEASUREMENT OF RADIAL DISPLACEMENT CAUSED BY MUSCLE CONTRACTION

THE MEASUREMENT SYSTEM

Our patented measurement system was developed in cooperation with the Laboratory for Biomedical and Muscle Biomechanics at the University of Ljubljana, Slovenia.

DIGITAL - OPTICAL SENSOR

Output current	0 – 110 mA
Output voltage	Uimax < 30 V rms
Pulse duration	1 ms
Pulse shape	square, monophase
Power supply (battery)	12 V DC

ELECTRICAL STIMULATOR

Operating principle	optical ladder
Maximum measuring lengt	42 mm
Resolution	2 μm
Error	2 μm across entire measuring length
Maximum velocity	1 m/s


1. ELECTRICAL STIMULATOR
2. DIGITAL SENSOR
3. TRIPOD & MANIPULATING HAND
4. ELECTRODES
5. SUPPORTING PADS
6. USER INTERFACE
1
2
4
5
6

SELECTED REFERENCES

EDUCATIONAL SECTOR

INEFC, Spain
Ruhr-Universität Bochum, Germany
Johannes Gutenberg University Mainz, Germany
Manchester Metropolitan University, UK
University of Stirling, UK
Technical University of Madrid, Spain
Nanjing Sport Institute, China
Beijing sport University, China
University of Primorska, Slovenia
University College for Health Studies, Slovenia

SPORT CLUBS AND TRAINING FACILITIES

FC Barcelona
Chelsea FC
Liverpool FC
Manchester United FC
FIGC – Italian Football Association
ACF Fiorentina
Genoa CFC
Maria Sharapova
Merlene Ottey
AS Bari Calcio

HEALTH SECTOR

Massachusetts General Hospital, USA
Quiron Groupo Hospitalario, Spain
Centre of a physical Rehabilitation, Moscow, Russia
Research Centre in Sports, Health and Human Development, Vila Real, Portugal
Soča Rehabilitation Centre, Slovenia
Orthopaedic Hospital Valdoltra, Slovenia
School of Public Health, Physiotherapy and Population Science, Dublin, Ireland
ZVD - Institute of Occupational Health, Slovenia
Stubičke toplice, Croatia
Faculty of Medicine, University of Maribor, Slovenia

SELECTED SCIENTIFIC PUBLICATIONS

TITLE	YEAR	TYPE	PUBLICATION
Noninvasive Estimation of Myosin Heavy Chain Composition in Human Skeletal Muscle	2011	Journal	Med Sci Sports Exerc. 2011 Sep;43(9):1619-25. doi: 10.1249/MSS.0b013e31821522d0. PMID: 21552151
Tensiomyography in Physical Rehabilitation of High Level Athletes	2010	Journal	The Open Sports Sciences Journal, 2010, 3, 47-48
Monitoring of muscle activation changes after acl surgery	2012	Conference	XXI International conference on sports rfhabjutation and traumatology
Physical activity program effects on the functional efficiency of flexors and extensor's knee and ankle in Alzheimer's patients	2011	Journal	European Geriatric Medicine. 2S. Pág.: S154. ISSN: 1878-7659.
Atrophy dynamics of quadriceps muscles during 35 days of bed rest	2008	Presentation	EJAP Bedrest 2008
Evaluation of the Ability to Make Non-invasive Estimation of Muscle Contractile Properties on the Basis of the Muscle Belly Response	2001	Journal	Med Biol Eng Comput. 2001 Jan;39(1):51-5. JCR IF (1999): 1.004; SE, x: 0.661 (13/76), computer science, interdisciplinary applications, x: 1.055 (16/43), engineering, biomedical, x: 1.014 (9/19), medical informatics. PMID: 11214273
Effect of high-load and high-volume resistance exercise on the tensiomyographic twitch response of biceps brachii	2012	Journal	J Electromyogr Kinesiol. 2012 Aug;22(4):612-9. ISSN: 1050-6411 doi: 10.1016/j.jelekin.2012.01.005. Epub 2012 Feb 15. PMID: 22341590
Neuromuscular Investigation in Diabetic Polyneuropathy (Case report)	2009	Journal	Rom J Morphol Embryol. 2009;50(2):283-290. PMID: 19434324
Strength and endurance of knee extensors in subjects after paralytic poliomyelitis	2005	Journal	Disabil Rehabil. 2005 Jul 22;27(14):791-9. PMID: 16096231
Inter-Rater Reliability of Muscle Contractile Property Measurements Using Non-Invasive Tensiomyography	2010	Journal	J Electromyogr Kinesiol. 2010 Aug;20(4):761-6. doi: 10.1016/j.jelekin.2010.02.008. Epub 2010 Mar 16. PMID: 20236839

Check references online.

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