ELEVATE YOUR WORK WITH A UNIQUE INSIGHT INTO MUSCLE FUNCTION

TMG™

SCIENCE FOR BODY EVOLUTION.

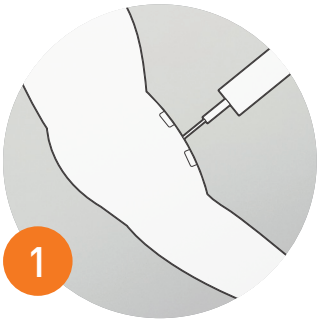
SCIENTIFICALLY VALIDATED, FUNCTIONAL AND SELECTIVE MUSCLE MEASUREMENTS

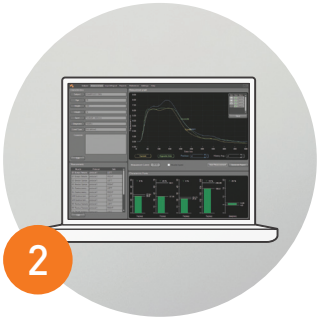
Our proprietary and patented TMG - S1 measurement system is based on tensiomyography, a scientifically validated method substantiated by more than 50 independent studies.

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.

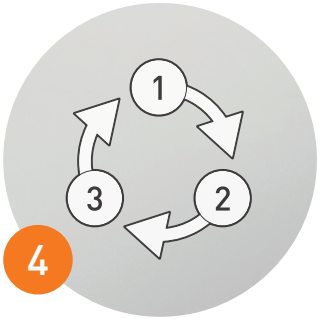
AN EFFECTIVE DIAGNOSTIC AND TREATMENT MONITORING TOOL

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





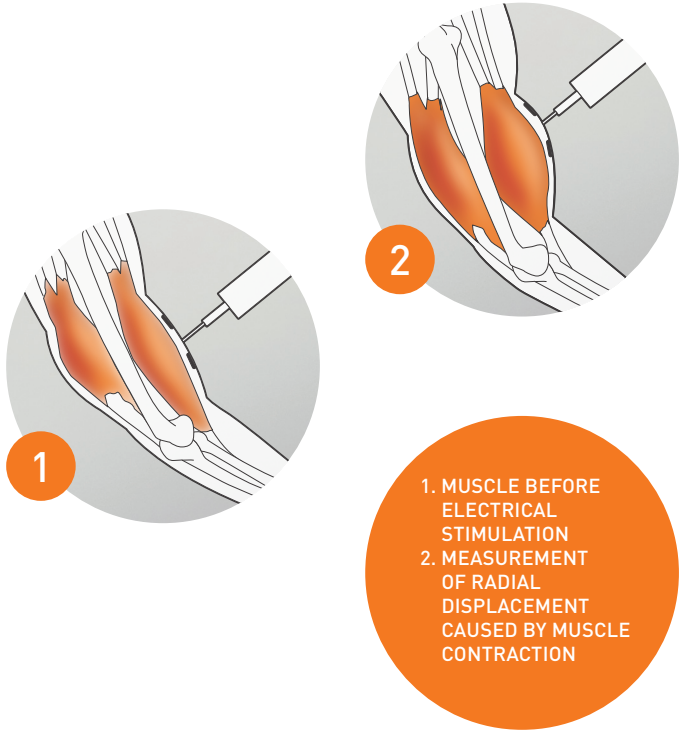
1. MEASUREMENT
2. ANALYTICS
3. ACTION
4. FEEDBACK LOOP



THE MEASUREMENT PROCESS

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

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



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.

ELECTRICAL STIMULATOR

Output current	0 – 100 mA
Output voltage	Uoutmax < 10 V rms
Pulse duration	1 ms
Pulse shape	square, monophase
Power supply (battery)	12 V DC

DIGITAL - OPTICAL SENSOR

Operating principle	optical ladder
Maximum measuring lengt	32 mm
Resolution	1 µm
Error	1,5 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

Harvard Medical School, USA
Ruhr-Universität Bochum, Germany
Johannes Gutenberg University Mainz, Germany
Manchester Metropolitan University, UK
University of Stirling, UK
Technical University of Madrid, Spain
Leeds Beckett University, UK
Beijing sport University, China
Kokushikan University, Japan
University College for Health Studies, Slovenia

SPORT CLUBS AND TRAINING FACILITIES

FC Barcelona, Spain
Chelsea FC, UK
Liverpool FC, UK
Manchester United FC, UK
FIGC – Italian Football Association
Baylor Bears, USA
FC Bayern München, Germany
Aspire Academy, Qatar
Bundesamt für Sport BASPO, Switzerland
UK Athletics

HEALTH SECTOR

Massachusetts General Hospital, USA
Quiron Groupo Hospitalario, Spain
Centre of a Physical Rehabilitation, Moscow, Russia
Daejeon Teun Teun Hospital, South Korea
Gemeinschaftspraxis Königsallee, Germany
Soča Rehabilitation Centre, Slovenia
Rogachev Memorial Federal Scientific Clinical Center, Russia
Orthopaedic Hospital Valdoltra, Slovenia
Universitätsmedizin Göttingen, Germany
ZVD - Institute of Occupational Health, Slovenia
Hiroshima University Hospital, Japan
Faculty of Medicine, University of Maribor, Slovenia

SELECTED SCIENTIFIC PUBLICATIONS

TITLE	YEAR	TYPE	PUBLICATION	AUTHOR(S)
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	Simunič B, Degens H, Rittweg Mekjavič IB, Pišot R.
Tensiomyography in Physical Rehabilitation of High Level Athletes	2010	Journal	The Open Sports Sciences Journal, 2010, 3, 47-48	Pedro S. Dias, Joan S. Fort, D Albano Santos and Mário C. M
Reduced Radial Displacement of the Gastrocnemius Medialis Muscle Following Electrically Elicited Fatigue	2015	Journal	Journal of Sport Rehabilitation	Macgregor LJ1, Ditroilo M, Sm MM, Hunter AM.
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.	Sarmiento, S.; Rodríguez-Rui De Saa, Bartolomé de la Rosa
Effects of anterior cruciate ligament injury on neuromuscular tensiomyographic characteristics of the lower extremity in competitive male soccer players	2014	Journal	Knee Surgery, Sports Traumatology, Arthroscopy	Pedro Alvarez-Diaz, Eduard A Ramon, Miguel Marin, Gilber José Boffa, Xavier Cuscó, Osc Ballester, Ramon Cugat
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.	R. Dahmane, V. Valenčič, N. K
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	García-Manso, Rodríguez-Ma De Saa, Vaamonde, Rodrígue Grigoletto.
Effects of age and physical activity on response speed in knee flexor and extensor muscles	2013	Journal	European Review of Aging and Physical Activity DOI: 10.1007/s11556-013-0127-7. ISSN. 1813-7253	Rodríguez-Ruiz, D.; García-M Matoso, D.; Sarmiento, S.; D Pisot, R.3
Strength and endurance of knee extensors in subjects after paralytic poliomyelitis	2005	Journal	Disabil Rehabil. 2005 Jul 22;27(14):791-9. PMID: 16096231	Grabljevec, Burger, Kersevan
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	Tous-Fajardo, Moras, Rodrígu Doutres, Maffiuletti.

Check references online.

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