AUGMENT YOUR WORK WITH UNIQUE INSIGHT INTO MUSCLE FUNCTION
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.
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.
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**: $U_{\text{max}} < 30 \text{ V rms}$
- **Pulse duration**: 1 ms
- **Pulse shape**: square, monophase
- **Power supply (battery)**: 12 V DC

### ELECTRICAL STIMULATOR

- **Operating principle**: optical ladder
- **Maximum measuring length**: 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
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 Grupo 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
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<thead>
<tr>
<th>TITLE</th>
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<tr>
<td>Monitoring of muscle activation changes after acl surgery</td>
<td>2012</td>
<td>Conference</td>
<td>XXI International conference on sports rehabilitation and traumatology</td>
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<td>Physical activity program effects on the functional efficiency of flexors and extensor’s knee and ankle in Alzheimer’s patients</td>
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<td>Journal</td>
<td>European Geriatric Medicine. 2S. Pág.: S154. ISSN: 1878-7659.</td>
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<td>Atrophy dynamics of quadriceps muscles during 35 days of bed rest</td>
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<td>Tramullas JA</td>
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<td>2011</td>
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<td>Sarmiento, S.; Rodríguez-Ruiz, Rodríguez-Matoso, De Saa, Bartolomé de la Rosa, García-Manso, J.M.</td>
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<td>Atrophy dynamics of quadriceps muscles during 35 days of bed rest</td>
<td>Simunic Boštjan, Križaj Dejan, Rittweger Jörn, Narici Marco, Mekjavic B Igor, Pišot Rado</td>
<td>Institute for Kinesiology Research, Science and Research Centre of Koper, University of Primorska, Slovenia Laboratory for Bioelectromagnetics, Faculty of Electrical Engineering, University of Ljubljana, Slovenia Institute for Biophysical and Clinical Research into Human Movement, Manchester Metropolitan University, UK Department of Automation, Biocybernetics and Robotics, Institute of Josef Stefan, Slovenia</td>
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<td>2001</td>
<td>Journal</td>
<td>Evaluation of the Ability to Make Non-invasive Estimation of Muscle Contractile Properties on the Basis of the Muscle Belly Response</td>
<td>R. Dahmane, V. Valenčič, N. Knez, I. Eržen</td>
<td>Institute of Anatomy, Medical Faculty, Ljubljana, Slovenia Faculty of Electrical Engineering, University of Ljubljana, Slovenia</td>
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<td>2012</td>
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<td>Effect of high-load and high-volume resistance exercise on the tensiomyographic twitch response of biceps brachii</td>
<td>García-Manso, Rodríguez-Matoso, Sarmiento, De Saa, Vaamonde, Rodríguez-Ruiz, Da Silva-Grigoletto.</td>
<td>Laboratorio de Análisis y planificación del entrenamiento deportivo, Physical Education Department, University of Las Palmas de Gran Canaria, Spain.</td>
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<td>2009</td>
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<td>Neuromuscular Investigation in Diabetic Polyneuropathy (Case report)</td>
<td>Rusu, Calina, Avramescu, Paun, Vasilescu</td>
<td>Laboratorio de Análisis y planificación del entrenamiento deportivo, Physical Education Department, University of Las Palmas de Gran Canaria, Spain.</td>
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<td>2005</td>
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<td>Strength and endurance of knee extensors in subjects after paralytic poliomyelitis</td>
<td>Grabljevec, Burger, Kersevan, Valencic, Marinoce.</td>
<td>Institute for Rehabilitation Ljubljana, and University of Ljubljana, Faculty of Electrical Engineering, Slovenia.</td>
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