PREFACE (1)

Surface EMG for Non-Invasive Assessment of Muscles (SENIAM) is one of the concerted actions funded by the European Commission (EC). The aim of the concerted actions is to enhance international co-operation in a given field. A mere fact that the EC has decided to fund this concerted action on Surface ElectroMyoGraphy (SEMG) (electromyogram recorded with electrodes placed on the skin surface as against needle electrodes) can be considered as an acknowledgment of the maturity of SEMG. SENIAM will enable scientists and clinicians working with SEMG, to exchange knowledge and experience on basic and applied aspects of SEMG. Furthermore, it will help in breakdown of present barriers which prevent useful exchange and enhance widespread use of SEMG. To this latter purpose specific attention will be paid to the type of electrodes, electrode placement procedures, signal processing techniques and modeling.

On 5th and 6th September 1996, the first general workshop of SENIAM took place in Torino, Italy. The goal of this first general workshop was twofold. Firstly, it was considered important that the 16 partners of the concerted action from 9 different European countries should get acquainted with each other, not only on a personal basis but also of each others interest and knowledge. Secondly, to get a good overview of the state of the art concerning basic knowledge of SEMG and its applications, a number of experts were invited to outline their specific areas of expertise. Looking back at the workshop, I think, we succeeded in achieving these goals. Numerous discussions during the sessions of the workshop as well as during breaks showed a great interest in this concerted action.

Finally, I would like to express my sincere thanks to Roberto Merletti, for his perfect organisation of the workshop as well as his generous hospitality.

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Project manager SENIAM project

PREFACE (2)

The first meeting of the SENIAM Concerted Action was organised with the main purpose of integrating reciprocal knowledge of the activities carried out by the partners, facilitating reciprocal contacts, increasing the awareness of synergetic, complementary or overlapping research efforts. It was also the purpose of the meeting to place in proper focus the state of the art of surface EMG by inviting internationally recognised expert speakers, not partners of the project, to describe their work, chair sessions and co-ordinate discussion.

It seems to me that both objectives have been reached to a satisfactory degree. Some topics that, in my opinion, deserved more discussion, will be dealt with in greater detail in subsequent topical meetings. Other topics that triggered lively (but necessarily short) discussion will probably increase the E-mail and fax traffic between partners. The important issue was to make the partners aware of different positions and of grounds for discussion.
One point that I found worth noticing is a double soul in the group, certainly worth of some IV concertation. One trend is represented by the researchers who painstakingly investigate means to “look” into the muscle by appropriate electrode arrays and signal processing techniques to distinguish individual motor units and observe their properties, they debate how to measure muscle fibre conduction velocity in the best way, how to quantify myoelectric manifestations of fatigue, how to make models that help understanding what is going on and provide some light in the dark of our ignorance. A second trend is represented by researchers who are more interested in the dynamics and in the relationship between muscle activation and movement, they associate muscle activity to gait patterns or to athletic performances, they make diagnosis and sometime decide treatment on the basis of EMG findings, they are only marginally bothered by the details that are troubling the first group.

It will be interesting to have a concertation within each group and between the groups. It will be like working out a puzzle by constructing the pieces. The pleasure of completing a piece will be multiplied by seeing it match with the piece that another fellow researcher made and by finding that both pieces contribute to the general picture, even if we are starting from different corners. So, let us begin and move toward the middle.

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Host of the first SENIAM general workshop

CONTENTS

Chapter 1: The SENIAM project
The SENIAM project, H.J. Hermens (Enschede, The Netherlands)
Results of the preliminary SENIAM questionnaire, B. Freriks (Enschede, The Netherlands)

Chapter 2: Partner Introduction (1)
Work in progress at COREP-Politecnico di Torino on Surface EMG, R. Merletti (Torino, Italy)
Research projects of the laboratory of ergonomics and occupational biomechanics of the K.U. Leuven, A. Spaepen (Leuven, Belgium)
Helmholtz-Institute for Biomedical Engineering at Aachen University of Technology and its Activities in Biomechanics and EMG, G. Rau (Aachen, Germany)
From muscle fiber membrane properties till understanding Surface EMG, W Wallinga-deJonge (Enschede, thenetherlands)
Evaluation of repeatability of surface-EMG variables, U. Dimanico (Torino, Italy)
EMG research in the Department of Biology of Physical Activity, University of Jyvaskyla, Finland, P. Komi (Jyvaskyla, Finland)
Signal processing tools for applications in SEMG, H. Rix (Nice, France)
Application of electromyography in occupational physiology and ergonomics, A. Luttmann (Dortmund, Germany)

Chapter 3: Partner Introduction (2)
Surface EMG at Roessingh Research and Development, H.J. Hermens (Enschede, the Netherlands)
Basic concepts of clinical surface ElectroMyoGraphy, G. Comi (Milano, Italy)
Use of kinesiological EMG in a movement analysis laboratory, Y Blanc (Geneve, Switzerland)
EMG as an indicator of fatigue, physical exposure and muscular disorders in ergonomics, G. Hagg (Solna, Sweden)
Kinesiologic and electromyographic studies concerning the evaluation of the functional condition, F. Danckwerth (Miinster, Germany)
EMG topography as an instrument in clinical neurophysiology: a unipolar recording approach, D. Stegeman (the Netherlands)
Kinesiological use of surface EMG signals, C. Frigo (Milano, Italy)

Chapter 4: State of the art
Acquisition of Surface EMG-Signals: An Overview of the State of the Art, C. Disselhorst-Klug (Aachen, Germany)
Muscle characterization through Surface EMG, R. Merletti (Italy)
Modelling surface EMG signals, D. Stegeman (the Netherlands)
Chapter 5: Fundamentals on SEMG
Distance-dependent effects of anatomical and physiological parameters on EMG signals, N. Dimitrova (Sofia, Bulgaria)
Mechanomyogram and fatigue during stimulated contraction, C. Orizio (Brescia, Italy)
Attempts at Computer Analysis of the EMG Signals in the System Software Laboratory of Maribor, D. Zazula (Maribor, Slovenia)

Chapter 6: SEMG applications in Neurology
Assessment of central fatigue by transcranial magnetic stimulation in multiple sclerosis patients, G. Comi (Milano, Italy)
Macro needle-EMG versus Surface EMG topography. A comparative study, D. Stegeman (Nijmegen, the Netherlands)
Topography of muscular activation processes in healthy subjects and patients with disturbances of the central and peripheral nervous system - a surface EMG mapping approach, H. Scholle (Germany)
Quantification of human gait with the presence of back pain, L. Arendt-Nielsen (Aalborg, Denmark)

Chapter 7: SEMG applications in Kinesiology and Occupational Health
Load pattern in the upper trapezius muscle in medical secretaries with and without shoulder/neck disorders, G. Hagg (Solna, Sweden)
Evaluation of EMG parameters during force production and sustained contractions, V. Hermans (Leuven, Belgium)
Electromyographical study on surgeons in urology, A. Luttmann (Dortmund, Germany)
Monitoring of shoulder muscle activity over whole working days, R. Kadefors, (Goteborg, Sweden)
Quantitative assessment of mechanical low back load outside the laboratory, C. Baten (Enschede, the Netherlands)
Fatigue effects of exhaustive SSC exercise on stretch reflex response, P. Komi (Jyvaskyla, Finland)

Chapter 8: SEMG applications in Rehabilitation and Sports medicine
Surface ElectroMyoGraphy and Sport, M. Marchetti (Roma, Italy)
EMG timing errors of pathological gait, Y Blanc (Geneve, Switzerland)
Surface EMG for functional assessment in motor rehabilitation, C. Frigo (Milano, Italy)
Surface-EMG and discrimination analysis by patients with cerebral palsy, S. Senst (Munster, Germany)
Surface EMG applications in rehabilitation medicine, S. Cavazza (Ferrara, Italy)