

MYOTEL: ADDRESSING MOTOR BEHAVIOR IN NECK SHOULDER PAIN BY ASSESSING AND FEEDBACK SEMG IN THE DAILY (WORK) ENVIRONMENT

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INTRODUCTION

Subjects with chronic pain differ in motor behavior especially with a decreased ability to relax their muscles. As subjects are often not aware of this, feedback on the absence of muscle relaxation during daily activities might be of potential. A myofeedback system has been developed that assesses muscle relaxation in an ambulant way during daily activities and provides continuous feedback to the subject. Positive effects were shown in several studies in subject with neck-shoulder pain¹. To improve access to the service and increase its efficiency, the system was further developed into a tele-treatment system (RSMT). With this system, subjects can view their muscle activation patterns on a PDA. Besides, the PDA automatically sends the data via GPRS to a secured sever, which is remotely accessible for the therapist, anytime and anywhere. This enables remote (e-) counseling. The objective of this study was to examine the RMST on technical efficacy for clinical use and explore changes in clinical outcome.

METHODS

Ten female workers suffering from work related neck-shoulder pain participated. Subjects received the RMST for four week. In addition they noted their activities and pain intensity. Weekly counseling sessions of 30 min with a therapist took place. Technical efficacy for clinical use was assessed by logging technical failures of the system and examining the hours of sEMG data available at the server. A questionnaire, based on the Technology Acceptance Model, was used to assess satisfaction. Clinical outcomes used were pain and disability.

RESULTS

Results show that in 78% sufficient sEMG data during daily activities were available at the server to make an assessment of muscle activation patterns. Subjects reported high satisfaction with the usefulness and ease of use of RMST. However, they were less satisfied with the technical functioning of the system. Eighty percent of the subjects reported a reduction in pain intensity and disability directly after RSMT.

DISCUSSION AND CONCLUSION

The RMST was technically feasible, subjects were satisfied and the clinical changes tended to be slightly better compared to myofeedback provided *in vivo*. Nevertheless, the technical performance and the ease of use need to be optimized. Further evaluation, which will be performed in 4 different countries in the E-ten MyoTel project (www.myotel.eu), should be large scale clinical trials with outcomes defined on multiple endpoints like quality and costs.

REFERENCES

[1] Gerlienke E. Voerman, Leif Sandsjö, Miriam M.R. Vollenbroek-Hutten, Pernilla Larsman, Roland Kadefors, Hermie J. Hermens. Effects of ambulant myofeedback training and ergonomic counselling in female computer workers with work-related neck-shoulder complaints: a randomized controlled trial. J Occup Rehabil. 2007 Mar;17(1):137-52.