

EVALUATION OF MUSCULAR EMG ACTIVITY VARIATIONS WEARING SKI-MOJO ON A SKIING TREADMILL



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INTRODUCTION

The aim of the investigation was the evaluation of the muscular activity patterns on a skier equipped with a ski~mojo device. Tests were performed on a skiing treadmill by an experienced skier wearing the ski~mojo for the first time. He skied performing narrow slaloms turns (SLALOM) and wide slaloms turns (GIGANTE) with ski~mojo OFF and ON.

MATERIALS AND METHODS: A SKIMAGIC treadmill was used outdoor at Longarone-Italy for the tests. The treadmill is made of a synthetic fur snow surface wetted by water that is spinning at variable speeds. The tests were performed at a speed of 22 km/h on a slope of 30°.



Fig. 1. The treadmill used for the tests



Fig. 2. EMG electrodes being applied to the skier's legs.



Fig. 3. The skier performing giant slalom with ski~mojo.



Fig. 4. The skier performing special slalom with ski~mojo.

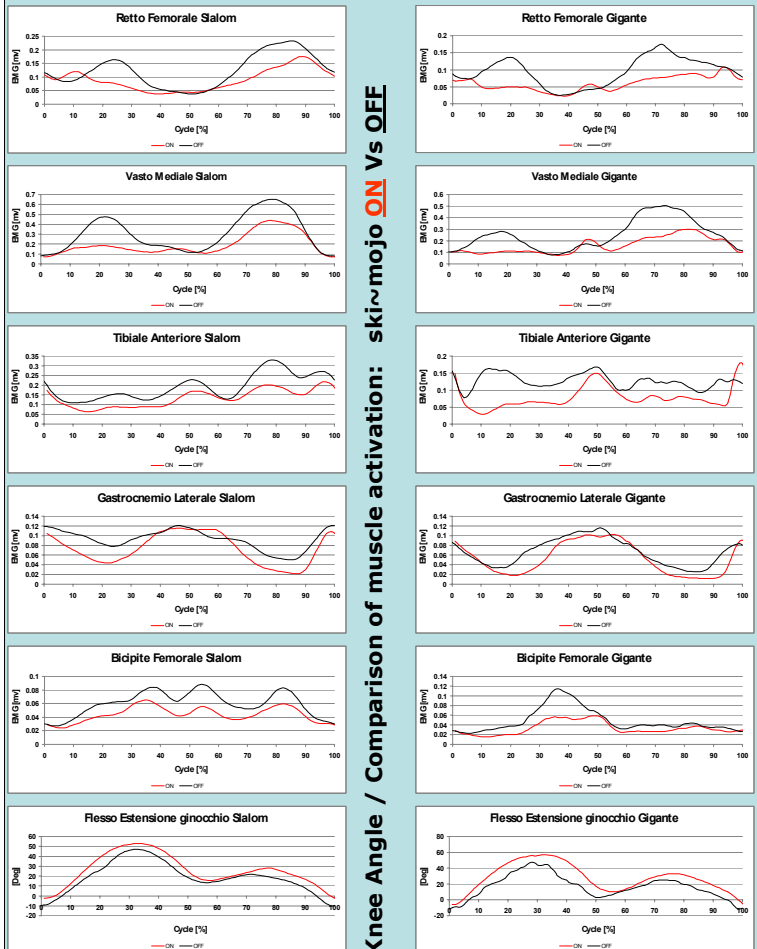
CONCLUSIONS:

The tests performed with the ski~mojo activated consistently showed a relevant reduction of Muscle Activation levels on five principal leg muscles, ranging from -19% to -37%.

Although the tests were performed on a single skier, the positive effects of ski~mojo in reducing fatigue are likely to be statistically confirmed by further ongoing tests.

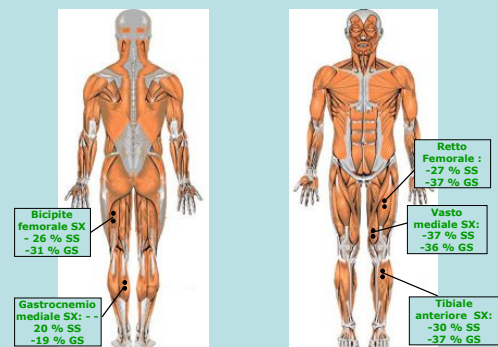
DATA ANALYSIS. EMG signals were analyzed and averaged over ten turns. The average activity resulting over the turn cycle on five dominant leg muscles are plotted.

Red curves are with ski~mojo ON,
Black curves are with ski~mojo OFF.



RESULTS:

EMG signals were consistently lower when the ski~mojo was activated (ON). The average reduction of the EMG activation signal is reported for each muscle in the two conditions of Special Slalom (SS) & Giant Slalom (GS).



Results: With ski~mojo ON there is a general Advantage (LOWER ACTIVATION) on all Muscles

