

# Clinical Investigation into the Effects of Extracorporeal Shock Waves on Skeletal Muscle Dysfunctions in Patients Affected by Cerebral Palsy

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For some time shock waves have been employed in the management of post-traumatic skeletal muscle injuries to treat contracture. Recently ESWT has found new medical applications and, among these, one of the most interesting is the treatment of muscular contraction in patients affected by Cerebral Palsy (CP). In our department we have been treating equine foot in children with CP for several years with very encouraging results. Nevertheless it is difficult to evaluate objectively the effects of shock waves on skeletal muscle. For this reason we have performed a clinical investigation on the effects of ESWT in skeletal muscle dysfunctions in patients affected by CP by means of gait analysis.

Sixteen patients affected by monolateral equine foot as a complication of CP were treated by ESWT and rehabilitation according to our usual protocol, which consists of 1-5 sessions of treatment at very low energy followed by Physiokinesitherapy. Each patient underwent quantitative gait analysis before and after treatment. Quantitative gait analysis is useful in objective documentation of walking ability in patients with Cerebral Palsy.

In all the cases, we observed increased improvement of time, space and kinematics variables at the suffering side; a greater balance between the affected limb and the contralateral was achieved in all areas of measurement. Moreover the overall patient satisfaction level for this treatment modality was high.

Once the clinical validity of this methodology is proved, a pathological study of the relationship between shock waves and skeletal muscle tissue will be necessary (and we are already working on this). At the same time we are also evaluating the possibility of applying this methodology to other muscular dysfunctions such as dystrophy.