

Influence of a 2-year steroid treatment on body composition as measured by dual X-ray absorptiometry in boys with Duchenne muscular dystrophy



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Objectives.— Study effects of a long term steroids treatment on body composition in patients with Duchenne muscular dystrophy (DMD).

Methods.— Their effects on body composition were assessed using dual X-ray absorptiometry. The study followed over 2 years 29 genetically confirmed DMD patients: 21 in the steroid-treated group and 8 in the steroid-naïve group.

Results.— After 2 years of steroid treatment, the lean tissue mass values increased significantly ($P < 0.0001$), the percentage of body fat mass remained practically constant ($P = 0.94$) in comparison with the initial visit. In the steroid-naïve patients, there were no significant increases in the lean tissue mass but deterioration in body composition confirmed by a significant increases in the percentage of body fat mass. Besides, significant negative correlations were found between the percentage of body fat mass and the MFM total score ($R = -0.79$, $n = 76$, $P < 0.0001$).

Discussion.— A 2-year steroid treatment improves significantly body composition of boys with DMD through a significant increase in lean tissue mass. We suggest that a thorough check of body composition should be carried out before steroid treatment discontinuation in case of overweight gain.

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CO10-001-e

A bidimensional system of facial movement analysis: Conception and validation



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Keywords: Facial movement analysis; Bidimensional; Facial markers; Reliability

Objectives.— To design and validate a free, bidimensional facial movement measuring tool.

Methods.— We utilized KinoveaTM, a free video-analysis software, to track pre-selected points during movement and measure two-point distances off-line. Three raters positioned facial markers on 10 healthy individuals and videotaped them during contractions of frontalis, corrugator, orbicularis oculi, zygomaticus, orbicularis oris and buccinator, on two occasions 1-week apart. Each rater analyzed the first video twice, 1-week apart. For each muscle, intra-rater reliability was measured by percent agreements (PA) and intra-class correlation coefficients (ICC) between two assessments of the same video 1-week apart and between assessments of two videos collected 1-week apart. Inter-rater reliability was measured by PA, ICC and coefficients of variation (CV) between assessments of the first video-recording by the three raters.

Results.— Intra-rater and inter-rater reliabilities were good-to-excellent for frontalis (PA and ICC > 70%; CV < 15%), insufficient for orbicularis oculi, zygomaticus and orbicularis oris (PA and ICC < 70%) and poor for corrugator and buccinator (PA and ICC < 50%).

selection, training sessions and reliability testing in patients with facial paresis may enhance reliability for orbicularis oculi, zygomaticus and orbicularis oris.

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Experimental analysis of 6D scapula kinematics



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Keywords: Shoulder; Scapula; Biomechanics; 6D analysis

Background.— The motion of scapula relative to the thorax has theoretically a maximum of 6 degrees of freedom (DoF). However, only the 3D rotations are assessed in biomechanical studies.

Objectives.— To assess the 6D scapula kinematics (3D rotations and 3D displacements of the barycentre of the scapula, DBS).

Methods.— We assessed 3 different active and unilateral tasks: arm elevation in sagittal and frontal plane, simulated daily activities (hair combing and back washing) and shoulder rolling (forward and backward) in 8 healthy subjects using a 6 DoF electromagnetic device. Principal component analysis was performed on the normalized time course of the 6 parameters.

Results.— Scapula 3D rotations and DBS were found for all tasks in varying amplitudes. Three factors (factor 1: protraction and anterior and lateral DBS, factor 2: posterior tilt and inferior DBS, factor 3: lateral rotation) explained 97.6% of the variance.

Discussion.— By assessing all the movements of the scapula, this study sets 3 functional DDL and improves the understanding of the scapula kinematics.

Further reading

Bao H, Willems PY. On the kinematic modelling and the parameter estimation of the human shoulder. *J Biomech* 1999;32:943–50.

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Cervical orthosis for dropped head syndrome in neuromuscular disease



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Keywords: Dropped head syndrome; Cervical orthosis; Neuromuscular disease

Objectives.— Dropped head syndrome is often described in neuromuscular disease. The orthosis management has not been reported before. We assess the orthoses used for patients with this syndrome.

Methods.— Retrospective study of 6 patients. We analyzed: the muscular testing of the neck extensor, the gait, deglutition, and phonation disability before selection kind of orthoses. We described the different orthosis used, with or without molding. We measured the cervical lordosis, the dropped head with and without the orthosis. We precised how many hours each patient used the orthosis, the cervical pain, the QUEST.

Results/Discussion.— Cervical orthoses increased difficulties for swallowing, speaking. Some patients complaint about mandibular conflict zone and also social embarrassment.

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