

des empreintes en charge par le biais du podoscope ou des empreintes encrées, et les radiographies du pied de face et de profil en charge.

Plusieurs études attestent de la fiabilité et de la reproductibilité des mesures de la plate-forme de marche. Cette fiabilité est accentuée par l'étalonnage de l'appareil avant toute étude et par trois passages successifs et sans hésitation du patient sur la trame barosensible.

Le diagnostic de certaines pathologies affectant le pied et l'évaluation des traitements de celles-ci représentent les deux principaux champs d'application des mesures dynamiques des pressions plantaires au cours de la marche.

Pour en savoir plus

Shaw JE et al. An analysis of dynamic forces transmitted through the foot in diabetic neuropathy. *Diabetes Care* 1998;21:1955–9.

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Posters

English version

P031-e

Coupled analysis of the kinetic data of gait and functional MRI of the amputee. A case of brain plasticity and late acquisition of gait from a patient with congenital lower limbs atrophy



M. Thomas-Pohl^{a,*}, D. Rogez^a, F. Gelbert^b, C. Nioche^b, H. Pillet^c, F. Genet^d, E. Lapeyre^a

^a *Hôpital d'Instruction des Armées Percy, 101, avenue Henri-Barbusse, 92140 Clamart, France*

^b *Hôpital d'Instruction des Armées, Val de Grace, France*

^c *École Nationale des arts et métiers, Paris, France*

^d *Hôpital Raymond-Poincaré, Garches, France*

*Corresponding author.

E-mail address: thomas_marie@hotmail.com

Keywords: Congenital lower limb atrophy; Functional MRI; Brain plasticity

Introduction.– In France, 7800 new cases of amputation have been identified in 2005, with a small proportion of congenital amputations. Most of the patients reach adulthood either having been taken care in rehabilitation or using prosthesis. Mapping in functional MRI (fMRI) of an adult who never walked has, to our knowledge, never been studied in the literature.

Objectives.– Describe the modifications of the cortical representation with fMRI during the gait learning with prostheses of a patient with congenital lower limb atrophy and correlate these modifications with kinetic and kinematic parameters of gait analysis

Patient.– A 17-year-old girl, with congenital lower limbs atrophy, who underwent a double distal trans-femoral amputation, moving inside on her two stumps or with a manual wheelchair.

Materials and methods.– fMRI (active contraction, nociceptive stimulation and mental imagery) and gait analysis before prosthesis (M0) and 6 months after (M6).

Results.– All motor sequences of the initial fMRI present an activation of contralateral central regions and supplementary motor area (SMA). Mental imagery activates those same areas, with a more intense activation in the SMA and an additional activation of the parietal, left frontal and left temporal cortex. Somatosensory stimulation activates the post-central region.

At 6 months, fMRI mapping is identical as at M0 with a slightly more intense and extensive activation of motor areas and an additional activation of frontal and prefrontal cortex. Kinetic and kinematic parameters of gait were improved between M0 and M6.

Discussion.– For traumatic amputees [1], the representation of the lost limb is still part of the body schema, with an incomplete reorganization and an expansion of the contiguous zone. For the agenesics¹ as for our patient, the activation is substantially identical to the healthy subjects, without reorganization or telescoping areas.

At M6, the data of gait and fMRI show the acquisition of learning to walk by the improvement of the parameters of the analysis of walking and the concomitant activation of frontal and prefrontal areas.

Reference

[1] Kew JJ, et al. Reorganization of cortical blood flow and transcranial magnetic stimulation maps in human subjects after upper limb amputation. *J Neurophysiol* 1994;72:2517–24.

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Hunting prosthesis for a upper limb amputation



B. Guerin^{*}, A. Jouvion, Mme G. De Brier, T. Trappier, L. Theffenne
Hôpital d'Instruction des Armées Laveran, boulevard Laveran, 13013 Marseille, France

*Corresponding author.

E-mail address: beneguerin@yahoo.fr

Keywords: Prosthesis; Upper-limb amputees; Hunting

Introduction.– We report an original prothetisation. It depends on the wishes of upper limb amputation patients.

Case report.– Mrs J is a 67-year-old woman. She is right-handed, retired farmer. She loves hunting, walking and cycling. In December 5, 2010, she had a hunting accident. She is amputated at the upper quarter of the left humerus. At first, an esthetic prosthesis is made. It is suspended from a chest strap. It is finalized in March 2011. In May 2012, a myoelectric prosthesis was performed. After a learning phase, it is used in the daily activities (cooking, ironing, gardening). Now, she hopes to resume hunting and therefore be able to adapt the prosthesis accordingly.

Discussion.– We present the results of the development of the prosthesis through specifications laid down. Constraints are multiple related to amputation, related to hardware, related to hunting. Each constraint had to be taken into account to obtain the expected result.

Conclusion.– The upper limb prosthesis is designed to meet the aesthetic and functional aspect of the amputated limb. Sometimes she has a specific function to allow the resumption of a professional activity or leisure.

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Prothesis and surgery in purpura fulminans sequelae



M. Fahmy, F. Clavier^{*}, M. Fiat, D. Pilliard, G. Penneçot
Hopitaux de Saint-Maurice, 14, rue du Val-d'Osné, 94410 Saint-Maurice, France

*Corresponding author.

E-mail address: cerefam@hopitaux-st-maurice.fr

Keywords: Purpura fulminans; Growth; Amputation; Prothesis

Since the progress of medical resuscitation, the number of children having had a purpura fulminans with amputations of members has increased. We followed 15 children with a severe involvement of the limbs.

This involvement is stereotyped enough, for lower limbs, amputations are almost done in middle of tibia both sides and present difficult problems for prothesis.

We present you the case of Adrien, 18-year-old, followed in the department for 15 years for the after effects of purpura arisen at the age of 5 months.

Because of this purpura, he presented an amputation of the left forearm and hand, of the middle of right tibia and septic arthritis of the left ankle.

The first equipment was made at the age of 11 months.

For the right lower limb, a prothesis with ischiatique support and for the left one, an articulated orthosis.

During the first years we noticed the existence of severe injuries of the growth plates leading to predict a very reduced final height. More over asymmetric hurts of the lower tibial growth plate ended a varus deviation having required a surgical correction on two occasions.

At the age of 13, our fears about his fine size were proved exact, Adrien wished to have a size more tall. To do so, we decided to perform femoral prothesis both sides.

To facilitate this equipment, it was necessary to realize a partial amputation of the left foot. The articular state of the knees was very damaged, the prothesis in femoral allowed to avoid their too important request.