

**ELECTRONIC GUIDE TO THESES APPROVED BY  
PHYSICAL THERAPY DEPARTMENT FOR CADIOPULMONARY  
DISORDER AND GERIATRICS AND ITS SURGERY  
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## Physical Therapy Department for Cardiopulmonary Disorder and Geriatrics and Its Surgery

Doctoral Degree  
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<b>Title</b>	:	Comparative analysis of gait in normal subjects and in patients with spasticity and intermittently raised pressure hydrocephalus.
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<b>Abstract</b>	:	
<p>Movement of the lower limbs during walking have been studied using electrogoniometers to record continuously the angles at the hip and knee joint, microswitches to record heel and toe contact with the ground, and surface electromyograms of the quadriceps, hamstrings, anterior tibial and calf muscles. Eighteen normal subjects were recorded walking at different speeds and the changes associated with changes in speed were analysed. Twelve patients with spasticity were also studied, eight of whom were recorded again during a course of physiotherapy and antispastic medication. Their gait was characterised by flexion and extension synergies and excessive coactivation between flexor and extensor muscles; treatment improved the modulation of the hamstrings and calf muscles in some patients. Twenty two patients with hydrocephalus were also studied, twenty with a clinical diagnosis of intermittently raised pressure hydrocephalus and nine of these were recorded again after insertion of a shunt. Their gait was characterised by excessive coactivation of the quadriceps and hamstrings muscles, and a lack of the normal coactivation between anterior tibial and calf muscles during stance. In some patients these abnormal coactivation of the proximal muscles disappeared after shunting. In both groups of patients the major abnormalities appeared during stance suggesting that the integration of voluntary movement with postural control is particularly impaired in these conditions .</p>		
<b>Key words</b>	1.	Gait analysis.
	2.	Spasticity.
	3.	intermittently raised pressure
	4.	hydrocephalus.
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