INTERNATIONAL CO-OPERATIVE ATAXIA RATING SCALE

I: POSTURE AND GAIT DISTURBANCE		SCORE:
1. **WALKING CAPACITIES** observed during a 10 meter test including a half-turn, near a wall, at about 1,5meter.	**0:** normal **1:** almost normal naturally, but <u>unable</u> to walk with feet in <u>tandem position</u> **2:** Walking <u>without support</u>, but clearly abnormal and irregular **3:** Walking <u>without support</u> but with considerable staggering, diffculties in half turn **4:** Walking with autonomous support no longer possible, the patient uses <u>episodic support of the wall</u> for a 10 meter test **5**: Walking only possible <u>with one stick</u> **6**: Walking only possible <u>with two special sticks or with a stroller</u> **7**: Walking only <u>with accompanying person</u> **8:** walking <u>impossible</u> even with accompanying person (wheelchair)	
2: **GAIT SPEED** observed in patients with preceeding scores 1-3, preceeding score 4 and up gives automatically score 4 in this test.	**0:** normal **1:** <u>slightly</u> reduced **2:** <u>markedly</u> reduced **3:** <u>extremely</u> slow **4:** walking with autonomous support no longer possible	
3: **STANDING CAPACITIES,** *EYES OPEN* the patient is asked first to stand on one foot <u>if impossible</u> , to stand with feet in tandem position <u>if impossible</u> to stand with feet together for the natural position the patient is asked to find a comfortable standing position	**0:** normal, able to stand <u>on one foot</u> more than 10 sec **1:** able to stand <u>with feet together</u>, but <u>no</u> longer able to stand on <u>one foot more than 10 sec</u>. **2:** able to stand <u>with feet together</u>, but <u>no</u> longer able to stand in <u>tandem position</u> **3:** <u>no longer</u> able to stand <u>with feet together</u>, but able to stand in <u>natural position without support,</u> with no or moderate sway **4:** standing <u>in natural position without support,</u> with considerable sway and considerable corrections	

	5: <u>unable</u> to stand in natural position without strong support of the arms	
	6: <u>unable to stand at all</u>, even with string support of the arms	
4: **SPREAD OF FEET IN NATURAL POSITION WITHOUT SUPPORT** ***EYES OPEN*** the patient is asked to find a comfortable position, then the distance between medial malleoli is measured.	**0:** normal <u><10cm</u> **1:** slightly enlarged <u>>10cm</u> **2:** clearly enlarged <u>25cm < spread <35cm</u> **3:** severely enlarged <u>>35cm</u> **4:** standing in natural position impossible	
5: **BODY SWAY WITH FEET TOGETHER** ***EYES OPEN***	**0:** normal **1:** <u>slightly oscillations</u> **2:** <u>moderate oscillations</u> (<10cm at the level of head) **3:** <u>severe oscillations</u> (>10cm at the level of head), threatening the upright position **4:** immediate <u>falling</u>	
6: **BODY SWAY WITH FEET TOGETHER** ***EYES CLOSED***	**0:** normal **1:** <u>slight oscillations</u> **2:** <u>moderate oscillations</u> (<10cm at the level of head) **3**: <u>severe oscillations</u> (>10cm at the level of head), threatening the upright position **4:** immediate <u>falling</u>	
7: **QUALITY OF SITTING POSITION** thighs together, on a hard surface, arms folded	**0:** normal **1:** with <u>slight oscillations</u> of the trunk **2:** with <u>moderate oscillations</u> of the trunk and legs **3:** with <u>severe dysequilibrium</u> **4:** <u>impossible</u>	
POSTURE AND GAIT SCORE (STATIC SCORE)		___**/ 34**

II: KINETIC FUNCTIONS		SCORE:
8: **KNEE-TIBIA TEST decomposition of movement and intention tremor.** The test is performed in the supine position, but the head is tilted, so that visual control is possible. The patient is requested to raise one leg and place the heel on the knee, and then slide the heel down the anterior tibial surface of the resting leg towards the ankle. On reaching the ankle joint, the leg is again raised in the air to a height of approximately 40 cms and the action is repeated. At least 3 movements of each limb must be performed for proper assessment.	**0:** normal **1:** lowering of <u>heel in continuous axis</u>, but the movement is decomposed in several phases, without real jerks, or abnormally slow **2:** lowering jerkily <u>in the axis</u> **3:** lowering jerkily with <u>lateral movements</u> **4:** lowering jerkily <u>with extremely strong lateral movements or test impossible</u>	R: L:
9: **ACTION TREMOR in the HEEL-TO-KNEE Test** Same test as preceeding one: the action tremor of the heel on the knee is specifically observed when the patient holds the heel on the knee for a few seconds before sliding down the anterior tibial surface; visual control is required	**0:** No trouble **1:** Tremor stopping immediately when the heel reaches the knee **2**: Tremor stopping in less than 10 seconds after reaching the knee **3**: Tremor continuing for more than 10 seconds after reaching the knee **4:** uninterrupted tremor or test impossible	R: L:
10: **FINGER-TO-NOSE TEST** <u>**decomposition and dysmetria**</u> the subject sits on a chair, the hand is resting on the knee before the beginning of the movement, visual control is required. Three movements of each limb must be performed for proper assessment.	**0:** no trouble **1:** Oscillating movement without decomposition of the movement **2:**Segmented movement in more than 2 phases and/or moderate dysmetria in reaching nose **3:** segmented movement in more than 2 phases and /or considerable dysmetria in reaching nose **4:** Dysmetria preventing the patient from reaching the nose	R: L:

11: **FINGER-TO-NOSE TEST** **intention tremor** of the **finger** the studied tremor is that appeared during the ballistic phase of the movement; the patient is sitting comfortably, with his hands resting on his/her thigh; visual control is requires; three movements of each limb must be performed as proper assessment	**0:** No trouble **1:** simple swerve of the movement **2:** moderate tremor with estimated amplitude <10cm **3:** Tremor with estimated amplitude between 10cm und 40cm **4:** severe tremor with estimated amplitude >40cm	R: L:
12: **FINGER-FINGER-TEST** **action tremor and/or instability** the sitting patient is asked to maintain medially his/her index fingers pointing at each other for about 10 sec, at a distance of about 1cm, at the level of the thorax, under visual control.	**0:** normal **1:** mild instability **2:** moderate oscillations of finger with estimated amplitude <10cm **3:** considerable oscillations of finger with estimated amplitude between 10 and 40cm **4:** Jerky movement >40cm of amplitude	R: L:
13: **PRONATION-SUPINATION** **altering movements** the subject, comfortably sitting on a chair, is asked to raise his/her forearm vertically and to make alternative movements of the hand. Each hand is moved and assessed separately.	**0:** normal **1:** slightly irregular and slowed **2:** clearly irregular and slowed, but without sway of the elbow **3:** extremely irregular and slowed movement, with sway of the elbow **4:** movement completely disorganized or impossible	R: L:
14: **DRAWING the Archimedes spiral on a predrawn pattern** the subject is comforly setttled in front of the table, the sheet of paper is being fixed to avoid artefacts. The subject is asked to perform the task without timing requirements. The same condition of examination must be used at each examination.	**0:** normal **1:** impairment and decomposition, the line quitting the pattern slightly, but without hypermetric swerve **2:** line completely out of the pattern without recrossing and/or hypermetric swerves **3:** major disturbance due to hypermetria and decomposition **4:** drawing completely disorganised or impossible	
KINETIC SCORE (limb coordination):		___/52

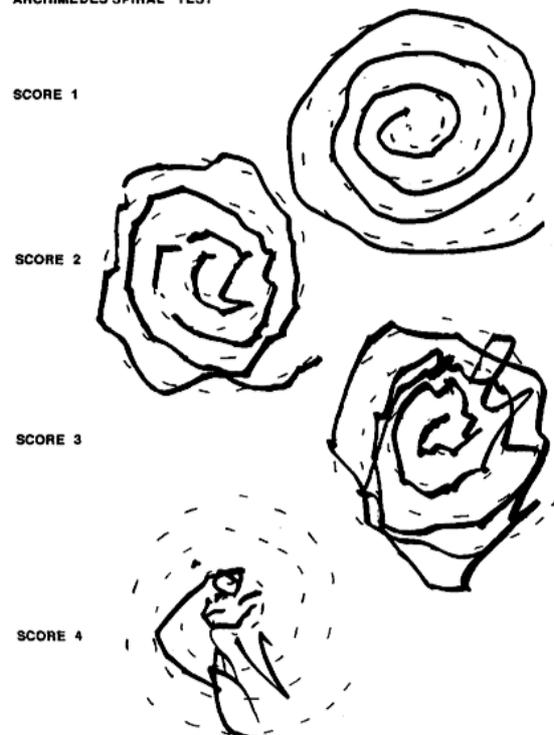SCORING OF THE DISTURBANCES OF DRAWING IN THE
ARCHIMEDES'SPIRAL TEST

SCORE 1

SCORE 2

SCORE 3

SCORE 4

Fig. 1. Scoring of the disturbances of drawing in the Archimedes' spiral
test.

III: SPEECH DISORDERS		SCORE:
15: **DYSARTHRIA: fluency of speech** The patient is asked to repeat several times a standard sentence, always the same.	**0:** normal **1:** mild modification of fluency **2:** moderate modification of fluency **3:** considerably slow and dysarthric speech **4:** no speech	
16: **DYSARTHRIA: clarity of speech**	**0:** normal **1:** suggestion of slurring **2:** definite slurring, most words understandable **3:** severe slurring, speech not understandable **4:** no speech	
DYSARTHRIA SCORE:		___/8
IV: OCULOMOTOR DISORDERS		SCORE:
17: **GAZE EVOKED NYSTAGMUS** the subject is asked to look laterally at the finger of the examiner: the movement assessed are mainly horizontal, but they may be oblique, rotatory, or vertical.	**0:** normal **1:** transient **2:** persistent but moderate **3:** persistent as severe	
18: **ABNORMALITIES OF THE OCULAR PURSUIT** the subject is asked to follow the slow lateral movement, performed by the finger of the examiner	**0:** normal **1:** slightly saccadic **2:** clearly saccadic	
19: **DYSMETRIA OF THE SACCADE** the two index fingers of the examiner in each visual field, average overshoot/undershoot is estimated	**0:** absent **1:** bilateral clear overshoot or undershoot of the saccade	
OCULOMOTOR MOVEMENT SCORE:		___/6
TOTAL ATAXIA SCORE:		___/100