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Stereotactic pallidotomy in Parkinson's disease

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Hoehn & Yahr score

Hoehn MM, Yahr MD. Parkinsonism: onset, progression and mortality. *Neurology* 1967; 17: 427-442.

Stage 0	No signs of disease.
Stage 1	Unilateral disease.
Stage 1,5	Unilateral plus axial involvement.
Stage 2	Bilateral disease, without impairment of balance.
Stage 2,5	Mild bilateral disease, with recovery on pull test.
Stage 3	Mild to moderate bilateral disease; some postural instability; physically independent.
Stage 4	Severe disability; still able to walk or stand unassisted.
Stage 5	Weelchair bound or bedridden unless aided.

Unified Parkinson's disease rating scale, motor examination section

Fahn S, Elton RL, Members of the UPDRS Development Committee. Unified Parkinson's disease rating scale. In: Fahn S, Marsden CD, Calne DB, eds. Recent developments in Parkinson's disease, Vol 2. Florham Park, NJ: Macmillan Healthcare Information, 1987:153-163, 293-304.

18. *Speech:*
 0 = Normal.
 1 = Slight loss of expression, diction and/or volume.
 2 = Monotone, slurred but understandable; moderately impaired.
 3 = Marked impairment, difficult to understand.
 4 = Unintelligible.
19. *Facial expression:*
 0 = Normal.
 1 = Minimal hypomimia, could be normal 'poker face'.
 2 = Slight but definitely abnormal diminution of facial expression.
 3 = Moderate hypomimia; lips parted some of the time.
 4 = Masked or fixed facies with severe or complete loss of facial expression; lips parted ¼ inch or more.
20. *Tremor at rest:*
 0 = Absent.
 1 = Slight and infrequently present.
 2 = Mild in amplitude and persistent. Or moderate in amplitude, but only intermittently present.
 3 = Moderate in amplitude and present most of the time.
 4 = Marked in amplitude and present most of the time.
21. *Action or postural tremor of hands:*
 0 = Absent.
 1 = Slight; present with action.
 2 = Moderate in amplitude; present with action.
 3 = Moderate in amplitude with posture holding as well as action.
 4 = Marked in amplitude; interferes with feeding.
22. *Rigidity: (Judged on passive movement of major joints with patient relaxed in sitting position, cogwheeling to be ignored)*
 0 = Absent.
 1 = Slight or detectable only when activated by mirror or other movements.
 2 = Mild to moderate.
 3 = Marked, but full range of motion easily achieved.
 4 = Severe, range of motion achieved with difficulty.
23. *Finger taps: (Patient taps thumb with index finger in rapid succession with widest amplitude possible, each hand separately.)*
 0 = Normal.
 1 = Mild slowing and/or reduction in amplitude.
 2 = Moderately impaired. Definite and early fatiguing. May have occasional arrests in movement.
 3 = Severely impaired. Frequent hesitation in initiating movements or arrests in ongoing movement.
 4 = Can barely perform the task.

24. *Hand movements: (Patient opens and closes hands in rapid succession with widest amplitude possible, each hand separately)*
0 = Normal.
1 = Mild slowing and/or reduction in amplitude.
2 = Moderately impaired. Definite and early fatiguing. May have occasional arrests in movement.
3 = Severely impaired. Frequent hesitation in initiating movements or arrests in ongoing movements.
4 = Can barely perform the task.
25. *Rapid alternating movements of hands: (Pronation-supination movements of hands, vertically or horizontally, with as large an amplitude as possible, both hands simultaneously)*
0 = Normal.
1 = Mild slowing and/or reduction in amplitude.
2 = Moderately impaired. Definite and early fatiguing. May have occasional arrests in movement.
3 = Severely impaired. Frequent hesitation in initiating movements or arrests in ongoing movement.
4 = Can barely perform the task.
26. *Leg agility: (Patient taps heel on ground in rapid succession, picking up entire leg. Amplitude should be about 3 inches)*
0 = Normal.
1 = Mild slowing and/or reduction in amplitude.
2 = Moderately impaired. Definite and early fatiguing. May have occasional arrests in movement.
3 = Severely impaired. Frequent hesitation in initiating movements or arrests in ongoing movement.
4 = Can barely perform the task.
27. *Arising from chair: (patient attempts to arise from a straight-back wood or metal chair with arms folded across chest)*
0 = Normal.
1 = Slow; or may need more than one attempt.
2 = Pushes self up from arms of seat.
3 = Tends to fall back and may have to try more than one time, but can get up without help.
4 = Unable to rise without help.
28. *Posture:*
0 = Normal erect.
1 = Not quite erect, slightly stooped posture; could be normal for older person.
2 = Moderately stooped posture, definitely abnormal; can be slightly leaning to one side.
3 = Severely stooped posture with kyphosis; can be moderately leaning to one side.
4 = Marked flexion with extreme abnormality of posture.
29. *Gait:*
0 = Normal.
1 = Walks slowly, may shuffle with short steps, but no festination or propulsion.
2 = Walks with difficulty, but requires little or no assistance; may have some festination, short steps, or propulsion.
3 = Severe disturbance of gait, requiring assistance.
4 = Cannot walk at all, even with assistance.

30. *Postural stability: (Response to sudden posterior displacement produced by pull on shoulders while patient erect with eyes open and feet slightly apart. Patient is prepared.)*
- 0 = Normal.
 - 1 = Retropulsion, but recovers unaided.
 - 2 = Absence of postural response; would fall if not caught by examiner.
 - 3 = Very unstable, tends to lose balance spontaneously.
 - 4 = Unable to stand without assistance.
31. *Body bradykinesia and hypokinesia: (Combining slowness, hesitancy, decreased armswing, small amplitude, and poverty of movement in general)*
- 0 = None.
 - 1 = Minimal slowness, giving movement a deliberate character; could be normal for some persons. Possibly reduced amplitude.
 - 2 = Mild degree of slowness and poverty of movement which is definitely abnormal. Alternatively, some reduced amplitude.
 - 3 = Moderate slowness, poverty or small amplitude of movement.
 - 4 = Marked slowness, poverty or small amplitude of movement.

Dyskinesia rating scale

Goetz CG, Stebbins GT, Shale HM, et al. Utility of an objective dyskinesia rating scale for Parkinson's disease: inter- and intrarater reliability assessment. *Mov Disord* 1994; 9: 390-394.

Langston JW, Widner H, Goetz CG, et al. Core assessment program for intracerebral transplantations (CAPIT). *Mov Disord* 1992; 7: 2-13.

Directions:

- 1 View the patient walk, drink from a cup, put on a coat and button clothing.
- 2 Rate the severity of dyskinesias. These may include chorea, dystonia, and other dyskinetic movements in combination. Rate the patient's worst function.
- 3 Check which dyskinesias you see (more than one response possible).
- 4 Check the type of dyskinesia that is causing the most disability on the tasks seen on the tape (only one response is permitted).

Severity rating code:

- 0 absent
- 1 minimal severity, no interference with voluntary motor acts
- 2 dyskinesias may impair voluntary movements but patient is normally capable of undertaking most motor acts
- 3 intense interference with movement control and daily life activities are greatly limited
- 4 violent dyskinesias, incompatible with any normal motor task

Barthel activities of daily living index - Nederlandse versie

de Haan R, Limburg M, Schuling J, Broeshart J, Jonkers L, van Zuylen P. Clinimetric evaluation of the Barthel Index, a measure of limitations in daily activities [Klinimetriche evaluatie van de Barthel-index, een maat voor beperkingen in het dagelijks functioneren]. Dutch, Abstract in English. Ned Tijdschr Geneesk 1993; 137: 917-921.

1. Darm

- incontinent 0
- af en toe een ongelukje 1
- continent 2

2. Blaas

- incontinent of catheter en niet in staat daarmee om te gaan 0
- af en toe een ongelukje (max. 1 keer per 24 uur) 1
- continent (gedurende meer dan 7 dagen) 2

3. Uiterlijke verzorging

- heeft hulp nodig 0
- onafhankelijk; gezicht, haar, tanden, scheren 1

4. Toiletgebruik

- afhankelijk 0
- heeft enige hulp nodig, maar kan sommige dingen zelf 1
- onafhankelijk (op en af, uit- en aankleden, afvegen) 2

5. Eten

- niet in staat 0
- hulp nodig bij snijden, smeren van boter, enz. 1
- onafhankelijk 2

6. 'Transfer'

- niet in staat 0
- veel hulp (1-2 mensen, lichamelijk) 1
- weinig hulp (met woorden of lichamelijk) 2
- onafhankelijk 3

7. Mobiliteit

- kan zich niet verplaatsen 0
- onafhankelijk met rolstoel inclusief hoeken enz. 1
- loopt met hulp van 1 persoon (met woorden of lichamelijk) 2
- onafhankelijk (maar mag gebruik maken van een hulpmiddel b.v. stok) 3

8. Aan- en uitkleden

- afhankelijk 0
- heeft hulp nodig maar kan ongeveer de helft zelf 1
- onafhankelijk 2

9. Trappen

- niet in staat 0
- heeft hulp nodig (met woorden, lichamelijk, het dragen van hulpmiddel) 1
- onafhankelijk naar boven en naar beneden 2

10. Baden/douchen

- afhankelijk 0
- onafhankelijk 1

Barthel activities of daily living index - English version

Mahoney FI, Barthel DW. Functional evaluation: The Barthel Index. *Md State Med J* 1965; 14: 61-65.

1. Bowels

- incontinent (or needs to be given enamata) 0
- occasional accident (once/week) 1
- continent 2

2. Bladder

- incontinent, or catheterized and unable to manage 0
- occasional accident (max. once per 24 hours) 1
- continent (for over 7 days) 2

3. Grooming

- needs help with personal care 0
- independent face/hair/teeth shaving (implements provided) 1

4. Toilet use

- dependent 0
- needs some help, but can do something alone 1
- independent (on and off, dressing, wiping) 2

5. Feeding

- unable 0
- needs help cutting, spreading butter, etc. 1
- independent (food provided in reach) 2

6. Transfer

- unable (no sitting balance) 0
- major help (one or two people, physical), can sit 1
- minor help (verbal or physical) 2
- independent 3

7. Mobilitieit

- immobile 0
- wheel chair independent including corners, etc. 1
- walks with help of one person (verbal or physical) 2
- independent (but may use any aid, e.g. stick) 3

8. Dressing

- dependent 0
- needs help, but can do about half unaided 1
- independent (including button, zips, laces, etc.) 2

9. Stairs

- unable 0
- needs help (verbal, physical, carrying aid) 1
- independent up and down 2

10. Bathing

- dependent 0
- independent (or in shower) independent 1

Unified Parkinson's disease rating scale, activities of daily living section

Fahn S, Elton RL, Members of the UPDRS Development Committee. Unified Parkinson's disease rating scale. In: Fahn S, Marsden CD, Calne DB, eds. Recent developments in Parkinson's disease, Vol 2. Florham Park, NJ: Macmillan Healthcare Information, 1987:153-163, 293-304.

5. *Speech:*
 - 0 = Normal.
 - 1 = Mildly affected. No difficulty being understood.
 - 2 = Moderately affected. Sometimes asked to repeat statements.
 - 3 = Severely affected. Frequently asked to repeat statements.
 - 4 = Unintelligible most of the time.

6. *Salivation:*
 - 0 = Normal.
 - 1 = Slight but definite excess of saliva in mouth; may have nighttime drooling.
 - 2 = Moderately excessive saliva; may have minimal drooling.
 - 3 = Marked excess of saliva with some drooling.
 - 4 = Marked drooling, requires constant tissue or handkerchief.

7. *Swallowing:*
 - 0 = Normal.
 - 1 = Rare choking.
 - 2 = Occasional choking.
 - 3 = Requires soft food.
 - 4 = Requires NG tube or gastrostomy feeding.

8. *Handwriting:*
 - 0 = Normal.
 - 1 = Slightly slow or small.
 - 2 = Moderately slow or small; all words are legible.
 - 3 = Severely affected; not all words are legible.
 - 4 = The majority of words are not legible.

9. *Cutting food and handling utensils:*
 - 0 = Normal.
 - 1 = Somewhat slow and clumsy, but no help needed.
 - 2 = Can cut most foods, although clumsy and slow; some help needed.
 - 3 = Foods must be cut by someone, but can still feed slowly.
 - 4 = Needs to be fed.

10. *Dressing:*
 - 0 = Normal.
 - 1 = Somewhat slow, but no help needed.
 - 2 = Occasional assistance with buttoning, getting arms in sleeves.
 - 3 = Considerable help required, but can do some things alone.
 - 4 = Helpless.

11. *Hygiene:*
 - 0 = Normal.
 - 1 = Somewhat slow, but no help needed.
 - 2 = Needs help to shower or bathe; or very slow in hygienic care.
 - 3 = Requires assistance for washing, brushing teeth, combing hair, going to bathroom.
 - 4 = Foley catheter or other mechanical aids.

12. *Turning in bed and adjusting bed clothes:*
0 = Normal.
1 = Somewhat slow and clumsy, but no help needed.
2 = Can turn alone or adjust sheets, but with great difficulty.
3 = Can initiate, but not turn or adjust sheets alone.
4 = Helpless.
13. *Falling: (Unrelated to freezing)*
0 = None.
1 = Rare falling.
2 = Occasionally falls, less than once per day.
3 = Falls an average of once daily.
4 = Falls more than once daily.
14. *Freezing when walking:*
0 = None.
1 = Rare freezing when walking; may have start-hesitation.
2 = Occasional freezing when walking.
3 = Frequent freezing; occasionally falls from freezing.
4 = Frequent falls from freezing.
15. *Walking:*
0 = Normal.
1 = Mild difficulty. May not swing arms or may tend to drag leg.
2 = Moderate difficulty, but requires little or no assistance.
3 = Severe disturbance of walking, requiring assistance.
4 = Cannot walk at all, even with assistance.
16. *Tremor: (Symptomatic complaint of tremor in any part of body)*
0 = Absent.
1 = Slight and infrequently present.
2 = Moderate; bothersome to patient.
3 = Marked interferences with many activities.
4 = Severe interferences with most activities.
17. *Sensory complaints related to parkinsonism:*
0 = None.
1 = Occasionally has numbness, tingling, or mild aching.
2 = Frequently has numbness, tingling, or mild aching.
3 = Frequent painful sensations.
4 = Excruciating pain.

Schwab and England activities of daily living scale

Fahn S, Elton RL, Members of the UPDRS Development Committee. Unified Parkinson's disease rating scale. In: Fahn S, Marsden CD, Calne DB, eds. Recent developments in Parkinson's disease, Vol 2. Florham Park, NJ: Macmillan Healthcare Information, 1987: 153-163, 293-304.

- 100% Completely independent. Able to do all chores without slowness, difficulty or impairment. Essentially normal. Unaware of any difficulty.
- 90% Completely independent. Able to do all chores with some degree of slowness, difficulty and impairment. Might take twice as long. Beginning to be aware of difficulty.
- 80% Completely independent in most chores. Takes twice as long. Conscious of difficulty and slowness.
- 70% Not completely independent. More difficulty with some chores. Three to four times as long in some. Must spend a large part of the day with chores.
- 60% Some dependency. Can do most chores, but exceedingly slowly and with much effort. Errors; some impossible.
- 50% More dependent. Help with half, slower, etc. Difficulty with everything.
- 40% Very dependent. Can assist with all chores, but few alone.
- 30% With effort, now and then does a few chores alone or begins alone. Much help needed.
- 20% Nothing alone. Can be a slight help with some chores. Severe invalid.
- 10% Totally dependent, helpless. Complete invalid.
- 0% Vegetative functions such as swallowing, bladder and bowel functions are not functioning. Bed-ridden.

De Parkinson's Disease Quality of Life questionnaire

de Boer AGEM, Wijker W, Speelman JD, de Haes JCJM. Quality of life in patients with Parkinson's disease: development of a questionnaire. *J Neurol Neurosurg Psychiatry* 1996; 61: 70-74.

De vragen die nu volgen gaan over uw gezondheid, uw gevoelens en uw sociale activiteiten, meestal in verband met uw ziekte. Het gaat hier steeds om **hoe vaak in de afgelopen 3 maanden** iets voorkwam.

Hoe vaak in de **3 afgelopen maanden** heeft u last gehad van:

	Nooit	Soms	Regel- matig	Vaak	Heel vaak
1. stijfheid?	1	2	3	4	5
2. u gewoon niet lekker voelen?	1	2	3	4	5
3. dat u uw hobby's niet meer kunt doen?	1	2	3	4	5
4. gespannen zijn?	1	2	3	4	5
5. u onzeker voelen door uw lichamelijke beperkingen?	1	2	3	4	5
6. het beven van uw hand(en)?	1	2	3	4	5
7. een gevoel van vermoeidheid of u zonder energie voelen?	1	2	3	4	5
8. problemen om aan uw vrijetijds- of sportactiviteiten te doen?	1	2	3	4	5
9. onhandigheid?	1	2	3	4	5
10. in verlegenheid gebracht voelen door uw ziekte?	1	2	3	4	5
11. schuifelen?	1	2	3	4	5
12. dat u sociale activiteiten moest uitstellen of afzeggen door uw ziekte?	1	2	3	4	5
13. een gevoel van grote uitputting?	1	2	3	4	5
14. moeite met omdraaien?	1	2	3	4	5
15. bang zijn voor het mogelijk verder gaan van de ziekte?	1	2	3	4	5
16. moeite met schrijven?	1	2	3	4	5
17. dat u minder op vakantie kon dan voor uw ziekte?	1	2	3	4	5
18. u onzeker voelen in contact met anderen?	1	2	3	4	5
19. moeite om een goede nachtrust te krijgen?	1	2	3	4	5
20. 'on/off' perioden?	1	2	3	4	5
21. moeite met het aanvaarden van de ziekte?	1	2	3	4	5
22. moeite met praten?	1	2	3	4	5
23. moeite met het zetten van een handtekening in het openbaar?	1	2	3	4	5
24. moeite met lopen?	1	2	3	4	5
25. kwijlen?	1	2	3	4	5
26. u depressief of ontmoedigd voelen?	1	2	3	4	5
27. moeite met (lang) stil zitten?	1	2	3	4	5
28. urineverlies en/of vaak moeten plassen?	1	2	3	4	5
29. moeite met vervoer?	1	2	3	4	5
30. plotselinge grote bewegingen?	1	2	3	4	5
31. moeite met concentreren?	1	2	3	4	5
32. moeite met opstaan (bv. uit stoel)?	1	2	3	4	5
33. constipatie?	1	2	3	4	5
34. moeite met uw geheugen?	1	2	3	4	5
35. moeite met omdraaien in bed?	1	2	3	4	5
36. dat uw ziekte uw seksuele activiteit belemmert?	1	2	3	4	5
37. zorgen over (de eventuele gevolgen van) een operatie in verband met uw ziekte?	1	2	3	4	5