

DEPARTMENT OF NEUROLOGY, NIMHANS, BANGALORE, INDIA

Post Doctoral Fellowship in Movement Disorders

Program Director: Dr. Pramod Kumar Pal

1. **Qualification:**

DM (neurology) or equivalent degree recognized institution in India.

2. **Method of Selection:**

Application will be called for twice a year by All India advertisement on the NIMHANS website, and in major national newspapers. Selection will be done by a Multiple Choice Questions test in the last week of March (for July session) and last week of September (for January session).

3. **Duration:** The Program is for **one year**, starting on 1st July and 1st January.

4. **Number of Fellows per year:**

(a) July session:

a. One (Stipend as per the Senior Resident salary of DM residents in Neurology)

b. One (Deputed/sponsored)

(b) January session:

a. One (Stipend as per the Senior Resident salary of DM residents in Neurology)

5. **Brief curriculum:**

The goal of the Movement Disorder Fellowship is to train Neurologists to become Movement Disorders Specialists by possessing specialized knowledge in the science, clinical evaluation and management of patients with common and rare movement disorders. The fellow should gain knowledge of the pathophysiology, pathology, diagnosis, and treatment of these disorders at a level that is significantly beyond the training and knowledge of a general neurologist. He/ she should be able to independently undertake research in Movement Disorders.

(a) Clinical Training (only guidelines):

- (i) A fellow in Movement Disorder will attend **at least twice a week** outpatient clinic (Movement Disorder clinic and General Neurology clinic) and do primary work up and follow up of patients with a variety of Movement Disorders. He/ she will see both adult and paediatric patients with Movement Disorders and he/she will be supervised by one of the Movement Disorder Specialist. He/ she will learn the scales used to evaluate a variety of Movement Disorders. In the Movement Disorder clinic, he/she will focus on detail evaluation with **scales and questionnaires**. He/she will be expected to do detailed work up of ***at least 8 new patients and 16 follow up patients in a week.***
- (ii) The fellow will manage the patients with Movement Disorders admitted in the ward see and present to his supervisor.
- (iii) He/she will be seeing and managing Movement Disorder Emergencies in the Casualty and Ward, under supervision.
- (iv) He/she will learn video recording of the patients and later edit and present the recordings in the Video sessions.
- (v) He/she will also be involved in regular entry of clinical data in the existing Movement disorder database, which will be integrated with Videos of patients, electrophysiology, Botulinum Toxin injections and functional Neurosurgery wherever available.

(b) Hands on training in giving Botulinum Toxin Injection:

- a. In the first 3 months, the Fellow will be trained on how to give injections of Botulinum Toxin in dystonias, spasticity, and other conditions. He will assist his supervisor in the Botulinum Toxin Injection sessions, which is currently once a week (3 hours). He/she will also be trained in giving ***EMG guided injection.***
- b. In the next 3 months he/she will be allowed to give injections under direct supervision.
- c. In the last 6 months, the Fellow should be able to give injections independently.

(c) Involvement and training in stereotactic surgery for Movement Disorders

The Fellow will actively participate in the Functional Neurosurgery program in treating patients with Parkinson's disease, tremor and dystonia. He will learn selection of patients for surgery and pre- and post-operative assessments of patients with scales and videos. He will attend the Operation Theatre during the operations, and will also learn how to do target selection and later programming in case of DBS.

(d) Training in Human Motor Physiology Laboratory-Electrophysiological Evaluation of Movement Disorders and Transcranial Magnetic Stimulation.

- a. In the first 3 months, the Fellow will be taught, in the electrophysiology session (once a week, approximately 2 hours) how to do, analyze and interpret:
 - i. Multichannel surface recording and use of accelerometer in evaluation of different types of tremor
 - ii. Evaluation of dystonia using recording of surface EMG (multichannel)
 - iii. Evaluation of myoclonus/ jerks using surface EMG, accelerometer, long loop latencies, somatosensory evoked potentials, pre-movement potentials, jerk locked EEG, etc.
 - iv. Using transcranial magnetic stimulation:
 1. Use of circular and figure-of-eight coils
 2. Recording motor threshold
 3. Motor Unit Potential Recruitment
 4. Calculating central motor conduction time
 5. Basic principles of paired stimulation to determine short intracortical facilitation and short intracortical inhibition
 6. Basic principles of rTMS-both low and high frequency
 7. Measuring contralateral and ipsilateral silent periods
 - v. In the last 9 months of Fellowship, he/she should be able to carry out the above procedures independently and write reports.

(e) Training in basic science/ allied programs:

Apart from the ongoing clinical services and research activities during which the Fellow will get involved in interacting with the following specialities, he/she will be posted (15 days each) in these Departments:

- a. Genetic laboratory
- b. Neurochemistry and Neuropathology
- c. Neuroimaging
- d. Neurorehabilitation/ balance and gait laboratory

(f) Academic activities and Research:

During the Fellowship Program, the Fellows will actively participate in academic programs and research:

- (i) Lectures by Faculty on the clinical and basic aspects of Movement Disorders
- (ii) Movement Disorder Journal Club (at least once a month)
- (iii) Video Sessions (at least once a month)
- (iv) Bedside case discussions (twice a month)
- (v) Neuroimaging of selected Movement disorders (twice a month) in collaboration with Department of Neuroimaging
- (vi) Involvement in ongoing research in Movement Disorders (Thesis or Project)
- (vii) Participate in the academic activities of the Neurology Department
- (viii) Write up a new proposal for research
- (ix) Chart reviews, and presenting scientific paper
- (x) Expected to write at least 2 original articles and one Review article during his/her one year tenure

Schedule of Training (Guidelines only)

Days	AM	PM
Monday	9.00 AM onwards: Neurology OPD (New cases)	Evaluation of patients admitted in the Ward
Tuesday	8.00 AM onwards: Ward Rounds, Assessment of patients (scales, video, pre- and post-surgical evaluation)	4.30-5.30 PM: Movement Disorders Teaching Program
Wednesday	9.00 AM onwards: Follow-up OPD	3.00 PM onwards: Evaluation of ward patients Video/ assessment/ electrophysiology of patients with Movement Disorders
Thursday	8.00-9.00 AM: Teaching program of Department of Neurology (Journal Club) 9.00 AM onwards: Neurology OPD (New cases)	3.30 PM: Teaching program of Department of Neurology (Subject Seminar)
Friday	8.00-9.00 AM: Teaching program of Department of Neurology 9.00 AM-12.00 noon: (1) Botulinum Toxin injection (2) Pre-and post surgical evaluation (3) Video and rating of patients (4) Tremor recording/ electrophysiological evaluation of patients with movement disorders	12.00 noon-2.00 PM: Neuroradiology rounds 2.00 PM onwards: (1) Patient evaluation (2) Assisting patients in OT for functional Neurosurgery (DBS and lesioning) when posted (3) Data analysis and paper writing 3.30 PM-4.30 PM: Teaching program of Department of Neurology (Basic Science Lecture)
Saturday	9.00 AM onwards: Mortality meeting 1st and 3rd Saturday: 10 AM onwards: Movement Disorders Clinic	3.30 PM onwards: Teaching program of Department of Neurology (Clinical Bedside)
Sunday	Brief Ward rounds	

Guidelines for Assessment

The candidate will be assessed at the end of 1 year. The evaluation (300 marks) will consist of:

(1) Internal assessment (100 marks) based on:

- a. Candidate's log book
- b. Fellowship Supervisor's assessment on candidate's overall performance during the training period (punctuality, patient care, academic activities, knowledge, enthusiasm to learn, aptitude, etc.)

(2) Theory examination on topics related to Movement Disorders (100 marks):

- a. 10 short notes of 10 marks each
- b. Time allotted: 2.5 hours

(3) Practical examination (100 marks):

- a. One long case (1 hour) in Movement Disorders (50 marks)
- b. Objective questions including imaging, graphs, videos, etc. (10 marks)
- c. Viva (40 marks)

Board of Examiners:

(1) Two internal examiners, comprising:

- a. Head of Department of Neurology
- b. Chief supervisor/ program coordinator of the Movement Disorders Fellowship Program in Neurology

(2) One external examiner (Neurologist)

The candidate should score at least 50% marks (i.e. 150 marks) for award of Certificate of Fellowship in Movement Disorders.