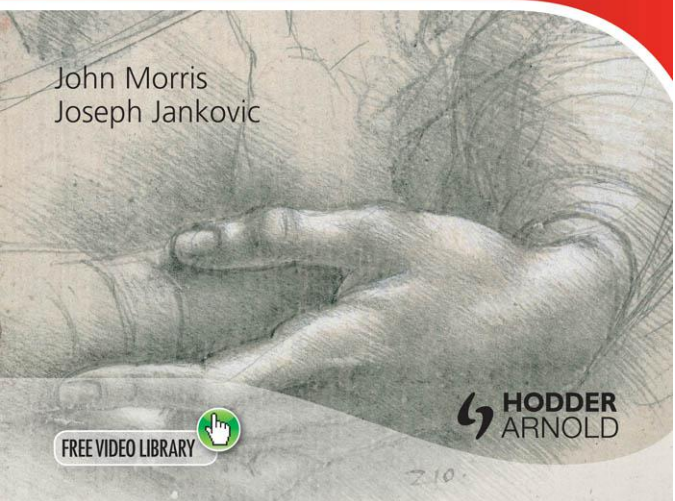




# Neurological Clinical Examination

John Morris  
Joseph Jankovic



FREE VIDEO LIBRARY 

 **HODDER  
ARNOLD**

210

---

# Neurological Clinical Examination

---

*This page intentionally left blank*

---

# Neurological Clinical Examination

**Professor John GL Morris DM (OXON) FRACP FRCP**

Clinical Professor, University of Sydney

Past Chairman of the Education and Training Committee of the Australian and New Zealand Association of Neurologists

Past Examiner for the Royal Australasian College of Physicians

Past Head of the Neurology Department, Westmead Hospital, Past President of the Australian Association of Neurologists, Sydney, Australia

**Professor Joseph Jankovic MD**

Professor of Neurology

Distinguished Chair in Movement Disorders

Director, Parkinson's Disease Center and Movement Disorders Clinic

Co-Director, Parkinson's Disease Research Laboratory,

Past President of the Movement Disorders Society,

Department of Neurology, Baylor College of Medicine, Houston, Texas, USA

 **HODDER  
ARNOLD**  
AN HACHETTE UK COMPANY

---

CRC Press  
Taylor & Francis Group  
6000 Broken Sound Parkway NW, Suite 300  
Boca Raton, FL 33487-2742

© 2012 by Taylor & Francis Group, LLC  
CRC Press is an imprint of Taylor & Francis Group, an Informa business

No claim to original U.S. Government works  
Version Date: 20150220

International Standard Book Number-13: 978-1-4441-4539-7 (eBook - PDF)

This book contains information obtained from authentic and highly regarded sources. While all reasonable efforts have been made to publish reliable data and information, neither the author[s] nor the publisher can accept any legal responsibility or liability for any errors or omissions that may be made. The publishers wish to make clear that any views or opinions expressed in this book by individual editors, authors or contributors are personal to them and do not necessarily reflect the views/opinions of the publishers. The information or guidance contained in this book is intended for use by medical, scientific or health-care professionals and is provided strictly as a supplement to the medical or other professional's own judgement, their knowledge of the patient's medical history, relevant manufacturer's instructions and the appropriate best practice guidelines. Because of the rapid advances in medical science, any information or advice on dosages, procedures or diagnoses should be independently verified. The reader is strongly urged to consult the relevant national drug formulary and the drug companies' and device or material manufacturers' printed instructions, and their websites, before administering or utilizing any of the drugs, devices or materials mentioned in this book. This book does not indicate whether a particular treatment is appropriate or suitable for a particular individual. Ultimately it is the sole responsibility of the medical professional to make his or her own professional judgements, so as to advise and treat patients appropriately. The authors and publishers have also attempted to trace the copyright holders of all material reproduced in this publication and apologize to copyright holders if permission to publish in this form has not been obtained. If any copyright material has not been acknowledged please write and let us know so we may rectify in any future reprint.

Except as permitted under U.S. Copyright Law, no part of this book may be reprinted, reproduced, transmitted, or utilized in any form by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying, microfilming, and recording, or in any information storage or retrieval system, without written permission from the publishers.

For permission to photocopy or use material electronically from this work, please access [www.copyright.com](http://www.copyright.com) (<http://www.copyright.com/>) or contact the Copyright Clearance Center, Inc. (CCC), 222 Rosewood Drive, Danvers, MA 01923, 978-750-8400. CCC is a not-for-profit organization that provides licenses and registration for a variety of users. For organizations that have been granted a photocopy license by the CCC, a separate system of payment has been arranged.

**Trademark Notice:** Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

**Visit the Taylor & Francis Web site at**  
<http://www.taylorandfrancis.com>

**and the CRC Press Web site at**  
<http://www.crcpress.com>

---

To study ... disease without books is to sail an uncharted sea, while  
to study books without patients is not to go to sea at all.

*William Osler*

William B. Bean (ed.) (1950) *Sir William Osler Aphorisms*. Henny  
Schuman, Inc., New York. p.76.

---

*This page intentionally left blank*

---

# Contents

Foreword to the Third Edition	ix
Foreword to the First Edition	xi
Preface to the Third Edition	xiii
Preface to the First Edition	xv
Acknowledgements	xvii
Abbreviations	xix
Picture credits	xxi
Using this book	xxiii
Introduction	xxv
<b>1 The wasted hand</b>	<b>1</b>
<b>2 Wrist drop</b>	<b>9</b>
<b>3 Proximal weakness of the arm(s)</b>	<b>13</b>
<b>4 Proximal weakness of the leg(s)</b>	<b>20</b>
<b>5 Foot drop</b>	<b>24</b>
<b>6 Ataxia and gait disturbance</b>	<b>30</b>
<b>7 Facial palsy</b>	<b>40</b>
<b>8 Ptosis</b>	<b>48</b>
<b>9 Abnormalities of vision or eye movement</b>	<b>53</b>
<b>10 Tremor and cerebellar signs</b>	<b>67</b>
<b>11 Other abnormal involuntary movements</b>	<b>75</b>
<b>12 Speech disturbance</b>	<b>88</b>
<b>13 Higher function testing</b>	<b>95</b>
<b>14 Assessment of coma</b>	<b>103</b>
<b>15 Psychogenic disorders</b>	<b>109</b>
Index of videos	<b>115</b>
Index	<b>123</b>

This book includes QR codes which give you instant access to useful video clips. To use the QR codes you need to have a smartphone which has a camera and a QR code reader app installed.



---

*This page intentionally left blank*

---

# Foreword to the Third Edition

The rites of passage from student to graduation, acceptance as a physician and then neurologist, follow much the same pattern in Australia, the United Kingdom and the United States of America. Whereas in practice the history directs physical examination, candidates in a clinical examination may be confronted with a problem as a 'short case', perhaps a single physical sign, to interpret and present a spot diagnosis or a logical approach to investigations and management. Quick thinking is aided by a mental autocue to be rolled out of our brain when required.

In the many years I have known John Morris, he has assiduously recorded physical signs, the history and their significance. When the affected part was stationary, he photographed it. If it moved he took a video. In this way he has built up a collection of clinical signs that has added to his reputation as a teacher and examiner. Earlier editions of this book have proved popular as a supplement to practical work in the ward and clinic as well as being useful as a refresher course before clinical examinations.

John Morris' teaming with Joseph Jankovic in presenting this new edition is a particularly happy one because of their mutual interest in movement disorders which culminated in the video collection presented here.

James W Lance  
AO CBE MD FRCP FRACP FAA

Professor Emeritus of Neurology, University of New South Wales and Honorary Consultant Neurologist at the Prince of Wales Hospital, Sydney, Australia

Past president of the Australian Association of Neurologists is (now the Australian and New Zealand Association of Neurologists).

Fellow of the Australian Academy of Science

Past Vice President of the World Federation of Neurology

Honorary Member of the American Neurological Association and the Association of British Neurologists

Corresponding International Member of the European Federation of Neurological Societies

Regent Member of the American Headache Society, Past President of the International headache Society

---

# Foreword to the First Edition

If medical professional life were the Grand National, the MRCP (or FRACP) would be Beecher's Brook – a daunting obstacle approached with caution, attempted with panic and surmounted with relief. Anything which makes this barrier less formidable, even to those on their third or fourth circuit of the course, is to be welcomed.

Dr Morris is a master of the old-fashioned art of clinical observation and examination, and is renowned as a teacher of the subject. His wide experience both as practising clinician, instructor and examiner, makes him a particularly suitable choice as an author of a book of this kind.

It is clearly written, well-illustrated and full of sensible, practical guidance, not only to those taking examinations for whom the neurology case is a particular dread, but for general physicians faced with everyday clinical problems. Even professional neurologists could scan its pages with profit and enjoyment.

Dr RW Ross Russell  
Past President of the Association of British Neurologists

---

*This page intentionally left blank*

---

# Preface to the Third Edition

Time is short and the neurological examination can be long. To make the best use of your time, you need to be able to tailor the examination to the problem in hand. That is what distinguishes the neurological examination from those involving the cardiovascular, respiratory or gastro-intestinal systems where the same general system of examination suffices in most cases. This book outlines an approach to seeking the key clinical signs relevant to those problems uncovered in the course of taking the history. This approach is based on the most likely diagnoses as well as neuro-anatomical considerations.

In its first two editions, the book was aimed primarily at candidates sitting for clinical examinations (in its other sense). It has now been broadened to provide guidance for anyone seeking to improve their skills in the neurological examination. Chapters on assessment of the comatose patient and on psychogenic disorders have been added. These changes have been made in collaboration with my distinguished colleague, Joseph Jankovic, of Baylor College of Medicine, Houston, Texas, who is known throughout the world as a master clinician, particularly in the field of movement disorders.

---

*This page intentionally left blank*

---

# Preface to the First Edition

Most people studying for clinical vivas in medicine dread the neurology case. Unlike cardiology, respiratory medicine or gastroenterology, there is no standard approach in neurology which is appropriate for most cases. In its entirety, the neurological examination is very time consuming; the skill lies in knowing which aspects of the examination deserve particular attention in a given case. This little book offers a simple approach to the assessment of a number of neurological problems which crop up in examinations and everyday practice.



---

*This page intentionally left blank*

---

# Acknowledgements

John Morris thanks his colleagues for their help in producing The Neurology Short Case, out of which this book has grown: Dr Elizabeth McCusker, Professor John King, Professor Christian Lueck, Dr Rick Boyle, Dr Mariese Hely, Dr Susie Tomlinson, Professor Philip Thompson, Dr Nicholas Cordato, Professor Victor Fung (who also helped greatly with the video material); Shanthi Graham (funded in part by the Westmead Charitable Trust), who worked with him over many years on the video database and produced the video clips; Dr Roly Bigg who, through his Movement Disorder Foundation, provided financial support and encouragement to build the video database; ANZAN for helping with the funding of the video database; Faith Oxley for the figures which she drew and the following colleagues for their comments and advice on the first edition: Dr Leo Davies, Dr Jonathon Ell, Dr Ron Joffe, Dr Michael Katekar, Dr Jonathon Leicester, Dr Ivan Lorentz, Professor James McLeod, Dr Dudley O'Sullivan, Dr Ralph Ross Russell, Dr Tom Robertson, Dr Raymond Schwartz, Dr Ernest Somerville and Dr Grant Walker.

Drs Grant Walker, Jon Leicester, Professors Alasdair Corbett, Yugan Mudaliar and Richard Stark provided helpful comments on the new chapter on coma.

Professor Jankovic thanks John Morris for inviting him to join in the writing of this guide to the clinical examination and to contribute additional illustrative and instructive videos. These videos were selected from a library of over 30 000 videos collected at the Parkinson's Disease Center and Movement Disorders Clinic, Baylor College of Medicine over more than three decades.

---

*This page intentionally left blank*

# Abbreviations

<b>ADM</b>	abductor digiti minimi
<b>ANA</b>	antinuclear antibody
<b>ANCA</b>	anti-neutrophil cytoplasmic autoantibodies
<b>ANF</b>	anti-nuclear factor
<b>APB</b>	abductor pollicis brevis
<b>A-R</b>	Argyll Robertson
<b>ASOT</b>	anti-streptolysin-O-antibody
<b>AVM</b>	arteriovenous malformation
<b>COMT</b>	catechol-ortho-methyltransferase
<b>CPAP</b>	continuous positive airway pressure
<b>CPK</b>	creatine phosphokinase
<b>CRP</b>	C-reactive protein
<b>CSF</b>	cerebrospinal fluid
<b>CT</b>	computed tomography
<b>DCI</b>	decarboxylase inhibitor
<b>DI</b>	dorsal interosseous
<b>DLBD</b>	diffuse Lewy body disease
<b>DVT</b>	deep vein thrombosis
<b>ECG</b>	electrocardiograph
<b>EEG</b>	electroencephalography
<b>EMG</b>	electromyography
<b>ENA</b>	extractable nuclear antigens
<b>ESR</b>	erythrocyte sedimentation rate
<b>FBP</b>	full blood picture
<b>HIV</b>	human immunodeficiency virus
<b>INO</b>	internuclear ophthalmoplegia
<b>LFTs</b>	liver function tests
<b>MND</b>	motor neurone disease
<b>MRA</b>	magnetic resonance angiography
<b>MRI</b>	magnetic resonance imaging
<b>MSA</b>	multiple system atrophy
<b>PEG</b>	percutaneous endoscopic gastrostomy
<b>PSP</b>	progressive supranuclear gaze palsy
<b>SCA</b>	spinocerebellar ataxia
<b>SLE</b>	systemic lupus erythematosus
<b>SPECT</b>	single-photon emission computed tomography
<b>SSEPs</b>	somatosensory evoked potentials
<b>SSPE</b>	subacute sclerosing panencephalitis
<b>SSRIs</b>	selective serotonin re-uptake inhibitors
<b>VDRL</b>	Venereal Disease Research Laboratories (test)

---

*This page intentionally left blank*

# Picture credits

- Fig. 1.6** Adapted with permission from Fig. 27 of *Aids to the Examination of the Peripheral Nervous System*, London, BaillièreTindall, 1986.
- Fig. 1.7** Adapted with permission from Fig. 4.78a of Spillane JD and Spillane JA, *An Atlas of Clinical Neurology*, 3rd edn, Oxford, OUP, 1982.
- Fig. 1.8** Adapted with permission from Fig. 76 of *Aids to the Examination of the Peripheral Nervous System*, London, BaillièreTindall, 1986.
- Fig. 1.9** Adapted with permission from Fig. 36 of *Aids to the Examination of the Peripheral Nervous System*, London, BaillièreTindall, 1986.
- Fig. 1.11** Adapted with permission from Fig. 87 of *Aids to the Examination of the Peripheral Nervous System*, London, BaillièreTindall, 1986.
- Fig. 2.1** Adapted with permission from Fig. 15 of *Aids to the Examination of the Peripheral Nervous System*, London, BaillièreTindall, 1986.
- Fig. 2.3** Adapted with permission from Fig. 72 of *Aids to the Examination of the Peripheral Nervous System*, London, BaillièreTindall, 1986.
- Fig. 3.1** Adapted with permission from Fig. 11 of Jamieson EB, *Illustration of Regional Anatomy*, Section VI, Edinburgh, E& S Livingston.
- Fig. 3.2** Adapted with permission from Fig. 1 of Jamieson EB, *Illustration of Regional Anatomy*, Section VI, Edinburgh, E& S Livingston.
- Fig. 4.1** Adapted with permission from Fig. 46 of *Aids to the Examination of the Peripheral Nervous System*, London, BaillièreTindall, 1986.
- Fig. 5.1** Adapted with permission from Fig. 4.34d of Spillane JD and Spillane JA, *An Atlas of Clinical Neurology*, 3rd edn, Oxford, OUP, 1982.
- Fig. 5.2** Adapted with permission from Fig. 47 of *Aids to the Examination of the Peripheral Nervous System*, London, BaillièreTindall, 1986.
- Fig. 5.3** Adapted with permission from Fig. 83 of *Aids to the Examination of the Peripheral Nervous System*, London, BaillièreTindall, 1986.
- Fig. 5.4** Adapted with permission from Fig. 84 of *Aids to the Examination of the Peripheral Nervous System*, London, BaillièreTindall, 1986.
- Fig. 5.5** Adapted with permission from Fig. 2.11 of Donaldson JO, *Neurology of Pregnancy*, 2nd edn, WB Saunders, 1989.
- Fig. 5.6** Adapted with permission from Fig. 89 of *Aids to the Examination of the Peripheral Nervous System*, London, BaillièreTindall, 1986.
- Fig. 5.7** Adapted with permission from Fig. 90 of *Aids to the Examination of the Peripheral Nervous System*, London, BaillièreTindall, 1986.
- Fig. 6.1** Adapted with permission from figures in Inman V, Human locomotion, *Canadian Medical Association Journal*, 1966;94: 1047–54.
- Fig. 6.3** Both adapted with permission from Fig. 18.2 of Mumenthaler M, *Neurological Differential Diagnosis*, New York, Thieme-Stratton, 1985.

- Fig. 7.1** Adapted with permission from Fig. 7.69 of Williams PL, Warwick R, *Functional Neuroanatomy of Man*, Edinburgh, Churchill Livingstone, 1986.
- Fig. 9.1** Adapted with permission from Fig. 8.3 of McLeod J, Munro J (eds), *Clinical Examination*, 7th edn, Edinburgh, Churchill Livingstone, 1986.
- Fig. 9.3** Adapted with permission from Fig. 3.9 of Duus P, *Topical Diagnosis in Neurology*, 2nd rev edn, Stuttgart, Georg ThiemeVerlag, 1983.
- Fig. 12.1** Adapted with permission from Goodglass H, Kaplan E, *The Boston Diagnostic Aphasia Examination Booklet*, Philadelphia, Lea and Febinger, 1983.

---

# Using this book

The boxes throughout this book alert you to the free-to-access accompanying video content available online.

You can view these through your usual internet browser by going to [www.hodderplus.com/nce](http://www.hodderplus.com/nce) and clicking on the video of your choice, or you can access the videos directly, using a QR Code reader.

There are many free QR Code readers available dependent on the smartphone/tablet you are using. We have supplied some suggestions below of well-known QR readers, but this is not an exhaustive list and you should only download software compatible with your device and operating system. We do not endorse any of the third-party products listed below and downloading them is at your own risk:

**iphone/ipad** Qrafter - <http://itunes.apple.com/app/qrafter-qr-code-reader-generator/id416098700>

**Android** QR Droid - <https://market.android.com/details?id=la.droid.qr&hl=en>

**Blackberry** QR Scanner Pro - <http://appworld.blackberry.com/webstore/content/13962>

**Windows/Symbian** Upcode - <http://www.upc.fi/en/upcode/download/>



- [read online \*Mecha Rogue: A Novel of the Armor Wars \(Armor Wars, Book 2\)\*](#)
- [click The DASH Diet Cookbook: Quick and Delicious Recipes for Losing Weight, Preventing Diabetes, and Lowering Blood Pressure here](#)
- [download \*What Would You Do If You Knew You Could Not Fail?: How to Transform Fear into Courage pdf\*](#)
- [\*\*read \*A Shakespearian Grammar: An Attempt to Illustrate Some of the Differences Between Elizabethan and Modern English\* online\*\*](#)
- [read online \*La vida privada de los Árboles\*](#)
- [\*\*click \*The Southern French Nobility and the Albigensian Crusade\*\*\*](#)
  
- <http://omarnajmi.com/library/Mecha-Rogue--A-Novel-of-the-Armor-Wars--Armor-Wars--Book-2-.pdf>
- <http://deltaphenomics.nl/?library/The-DASH-Diet-Cookbook--Quick-and-Delicious-Recipes-for-Losing-Weight--Preventing-Diabetes--and-Lowering-Blood>
- <http://fitnessfatale.com/freebooks/The-Greatest-Secret-of-All--Moving-Beyond-Abundance-to-a-Life-of-True-Fulfillment.pdf>
- <http://sidenoter.com/?ebooks/Polio-Wars--Sister-Kenny-and-the-Golden-Age-of-American-Medicine.pdf>
- <http://metromekanik.com/ebooks/Black-Edelweiss--A-Memoir-of-Combat-and-Conscience-by-a-Soldier-of-the-Waffen-SS.pdf>
- <http://interactmg.com/ebooks/Enhancing-Trader-Performance--Proven-Strategies-From-the-Cutting-Edge-of-Trading-Psychology--Wiley-Trading-.pdf>