Immune Responses in the Nervous System
Nancy J. Rothwell (ed.)

Published in print: 1997 Published Online: March 2012
Item type: book

This new edition covers recent advances in understanding immunological and inflammatory responses in the nervous system, research driven by the potential to use knowledge of the molecules and mechanisms involved to intervene in, and arrest, neurodegenerative disease processes. This book covers developmental aspects of immune/inflammatory responses in the CNS and basic aspects of glial function, as well as inflammatory mediators and their mechanisms of action, clinical importance, and sites of infection. There is also coverage of the major diseases of the CNS, including stroke, brain injury, multiple sclerosis, and Alzheimer's disease. Throughout, the focus is on the underlying basic neuroscience, clinical relevance and the potential for therapeutic interventions. This book aims to contribute to the understanding and improving of the diagnosis of neuroimmune diseases and determining therapeutic measures.

Immune and Inflammatory Responses in the Nervous System
Nancy Rothwell and Sarah Loddick (eds)

Published in print: 2002 Published Online: March 2012
Item type: book

This new edition covers advances in understanding immunological and inflammatory responses in the nervous system, research driven by the potential to use knowledge of the molecules and mechanisms involved to intervene in, and arrest, neurodegenerative disease processes. This book covers developmental aspects of immune/inflammatory responses in the central nervous system (CNS), basic aspects of glial function, as well as inflammatory mediators, their mechanisms of action, clinical importance, and sites of infection. There is also coverage of the major diseases of the
CNS, including stroke, brain injury, multiple sclerosis, and Alzheimer's disease. Throughout, the focus is on the underlying basic neuroscience, clinical relevance, and the potential for therapeutic interventions. The book will be useful for improving the diagnosis of neuroimmune diseases and determining therapeutic measures.

Emerging Principles in the Learning and Generalization of New Walking Patterns
Erin V. L. Vasudevan, Amy J. Bastian, and Gelsy Torres-Oviedo
in Motor Control: Theories, Experiments, and Applications
Published in print: 2010 Published Online: January 2011
Item type: chapter

Human locomotion is remarkably flexible. We can quickly adapt our stepping pattern to temporary changes in the environment, such as icy sidewalks or uneven terrain. Additionally, long-term adaptations can result from more permanent changes produced by growth or damage. Both short- and long-term adaptive processes can be studied with a split-belt treadmill, a device that has two belts that control the speed of each leg independently. Practicing split-belt walking changes the coordination between the legs, and this new coordination is stored as a modified walking pattern. Recently, this experimental paradigm was used to investigate the generalization of a newly learned walking pattern to other tasks and environments. This learning was disrupted by cerebellar damage, but was undisturbed by cerebral damage following a stroke or hemispherectomy. This evidence suggests that the cerebellum, but not the cerebrum, is critical for predictive locomotor adjustments and offers the exciting possibility of improving locomotor patterns of people with cerebral damage through adaptive processes. Indeed, by using the split-belt treadmill to exaggerate a gait asymmetry, hemiparesis due to stroke or hemispherectomy can be corrected. The exaggeration of the deficit drives the nervous system to correct it, thus improving walking symmetry. This chapter discusses current research investigating locomotor adaptation and how to optimize adaptive processes for the purpose of rehabilitation.
Marijuana in the Brain
Gary L. Wenk

in Your Brain on Food: How Chemicals Control Your Thoughts and Feelings
Published in print: 2010 Published Online: September 2010
Publisher: Oxford University Press DOI: 10.1093/acprof:oso/9780195388541.003.0005
Item type: chapter

The brain makes its own marijuana. Of course, no one knew this until recently. Thus, for many thousands of years our ancestors harvested or cultivated marijuana-producing plants in order to experience euphoria, which is the brain's response to the stimulation of its own marijuana neurotransmitter system. Marijuana also has analgesic, i.e., pain relief, and anti-inflammatory effects which may become the basis for its medical use in the future. The discovery of your brain's own marijuana neurotransmitter, called anandamide, has demonstrated how important this neurotransmitter system is to normal brain function. Cannabinoid neurons control the release of dopamine; this action explains the ability of marijuana to produce euphoria. The stimulation of cannabinoid function in your brain's feeding centers may underlie the classic side-effect known as “the munchies.” Once again, it can be seen that understanding the distribution of a neurotransmitter in the brain provides clues to its function and insight into why we consume certain plants.

Palliative Care for Non-cancer Patients
Julia Addington-Hall and Irene Higginson (eds)
Published in print: 2001 Published Online: November 2011
Publisher: Oxford University Press DOI: 10.1093/acprof:oso/9780192629609.001.0001
Item type: book

The specialty of palliative care has traditionally grown out of oncology and there has been little research into the needs of patients dying from causes other than cancer. Few non-cancer patients receive hospice in-patient, home care, or day care although a good proportion of hospices say that their services are available to non-cancer patients. As a result, the importance of palliative care for non-cancer patients is now being increasingly recognized internationally, and in the UK a committee reporting to the Department of Health recommended that palliative care should be accessible to all patients who need such care. This book considers the needs and experiences of patients dying from, for example, stroke, heart disease, or dementia by drawing on a range of disciplines and specialties in medicine. The provision of palliative care for patients dying from causes other than cancer raises a number of important
questions for policy makers and purchasers. This book summarizes what is known about the needs of and appropriate service provision for people dying of causes other than cancer and begins to set a research agenda.

Articulation and Expression
Clive Brown

in Classical and Romantic Performing Practice 1750-1900

Published in print: 1999 Published Online: May 2008
Publisher: Oxford University Press
DOI: 10.1093/acprof:oso/9780198161653.003.0006
Item type: chapter

This chapter examines the expressive element of articulation. It is often difficult to determine whether unmarked notes require a specific style of delivery or whether they are merely unmarked because a particular type of delivery is assumed from the context. Similarly, the use of particular symbols, such as staccato dots or strokes, are not always a reliable guide to the articulation envisaged by the composer. The question of what staccato, legato, and ‘non-legato’ or perhaps ‘non-staccato’ may have envisaged is discussed in relation to theoretical writings and specific examples from the music of the period. Instances where unmarked notes may have been intended to be slurred are considered. The meaning of scioltto and non legato is investigated; so too are circumstances in which non legato or non staccato may have been intended where nothing was specified.

The Notation of Articulation and Phrasing
Clive Brown

in Classical and Romantic Performing Practice 1750-1900

Published in print: 1999 Published Online: May 2008
Publisher: Oxford University Press
DOI: 10.1093/acprof:oso/9780198161653.003.0007
Item type: chapter

This chapter investigates the implications of individual signs for different types of articulation. The use of staccato dots and strokes is examined. Issues interrogated are whether particular composers intended two staccato marks with differentiated meanings, what the range of functions of the staccato mark may have been, and how musical context (including the practices of individual composers) may be a clue to execution in particular circumstances. The meanings of other articulation marks are considered. The extent to which the use of slurs may be associated with articulation is also discussed, together with consideration of the nuanced
slur, the relationship between slurs and legato, and the slur as a phrasing mark. The range of meanings associated with articulated slurs (portato) is also investigated, with examples from the music of the period.

**Assertion**

Michael Potter

in *Wittgenstein's Notes on Logic*

Published in print: 2008 Published Online: January 2009


This chapter begins with a discussion of the judgment stroke as force indicator. It then covers asserted and unasserted propositions, assertion as psychological, and psychology.

**Reprogramming the Cerebral Cortex**

Stephen Lomber and Jos Eggermont (eds)

Published in print: 2006 Published Online: September 2009


The brain has a remarkable ability to adapt in the event of damage — in many cases shifting responsibility for specific cognitive functions to other non-damaged brain regions. This ‘plasticity’ can be crucial in aiding recovery from stroke, trauma, and peripheral damage such as eye or ear damage. Over the past thirty years our view of cortical plasticity has evolved greatly. Early studies suggested that changes to cortical function due to peripheral lesions could only occur during development and that these plastic changes were specific to a particular temporal window or ‘critical period’. Over time, it has been demonstrated that cortical modifications as a consequence of either peripheral or central lesions can induce adaptive, or beneficial, changes in cortical function in an effort to preserve or enhance function. More recently, studies have identified that many of these adaptive changes, once thought only possible in the developing brain, are also possible in the mature or developed brain. At present, many laboratories are defining the beneficial capabilities of cerebral cortex plasticity, upon which many proactive and therapeutic strategies may be developed in order to maximise the ‘reprogramming’ capabilities of the cerebrum. This book describes these exciting studies and examines adaptive cortical plasticity in a variety of systems (visual, auditory, somatomotor, cross-modal, language, and cognition).
Neuroglia
Helmut Kettenmann and Bruce R. Ransom (eds)

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Publisher: Oxford University Press
DOI: 10.1093/acprof:oso/9780195152227.001.0001
Item type: book

This book details the basic biology and function of glial cells. It covers the entire field of glial research from the basic molecular and cellular properties of these cells to their involvement in neurological diseases including stroke, Alzheimer's Disease, and multiple sclerosis. This edition includes new chapters on transmitter release by extocytosis from glia, glia derived stem cells, glia synaptic transmission, glia and axon guidance, an entirely new section on mechanisms of glial injury, and several new chapters on the roles of glia in different diseases. It covers the fields of neuroanatomy, neurochemistry, neurophysiology, molecular neurobiology, neurology, neurosurgery, psychiatry, neuropathology, neuro-oncology, and physiatry.

Stroke
Lorene M. Nelson, Caroline M. Tanner, Stephen K. Van Den Eeden, and Valerie M. McGuire

in Neuroepidemiology: From principles to practice

Published in print: 2004 Published Online: September 2009
Publisher: Oxford University Press
DOI: 10.1093/acprof:oso/9780195133790.003.09
Item type: chapter

Stroke is a leading cause of disability and mortality in the United States and other industrialized countries. This chapter discusses important issues that arise in the enumeration of stroke and how differences between studies can often be explained by differences in diagnostic or case definition criteria. It describes geographic variations in stroke incidence and mortality, and summarizes a vast literature on stroke risk factors. The chapter is split into two primary sections: ischemic stroke and hemorrhagic stroke and, for each stroke type, non-modifiable risk factors (i.e., genetics, age, sex, race/ethnicity) and modifiable risk factors (smoking, diet, physical activity, hypertension) are discussed. Based on the estimated prevalence of risk factors and their attributable risk for stroke in the United States, it is estimated that a significant proportion of strokes could be prevented through the control of modifiable stroke risk factors. Therefore, part of the chapter is devoted to the design of studies of primary and secondary prevention, and to studies identifying predictors of stroke recurrence.
Neuronal plasticity after stroke
Randolph J. Nudo and Ines Eisner-Janowicz

in Reprogramming the Cerebral Cortex: Plasticity following central and peripheral lesions

Published in print: 2006 Published Online: September 2009
DOI: 10.1093/acprof:oso/9780198528999.003.0012
Item type: chapter

This chapter begins by reviewing the sequence of events that results in neuronal injury after stroke. It then reviews the advantages and disadvantages of various animal models used to model stroke and ischemic cortical injury. It considers the relationship of various aspects of behavioral assessment and the understanding of post-stroke plasticity and recovery. After a brief review of the organization of the motor cortex, the chapter reviews the evidence that neurophysiological and neuroanatomical plasticity occurs after cortical injury, emphasizing the role of postinjury behavior in the modulation of injury-induced changes. The cellular and synaptic basis for postinjury plasticity is briefly reviewed. Finally, the role of the intact hemisphere in recovery of function after unilateral cortical injury is discussed.

Reprogramming surviving motor cortex after stroke
Wolf Muellbacher and Mark Hallett

in Reprogramming the Cerebral Cortex: Plasticity following central and peripheral lesions

Published in print: 2006 Published Online: September 2009
DOI: 10.1093/acprof:oso/9780198528999.003.0013
Item type: chapter

This chapter discusses neural remapping after a stroke with respect to maximal recovery, considering the effectiveness of current therapies, including TMS, physical therapy, pharmacological therapies and their own work on inhibition therapies, in purposefully generating a new map following stroke-induced damage.
Cerebral reprogramming underlying functional recovery following stroke
Nick S. Ward and Richard S. J. Frackowiak

in Reprogramming the Cerebral Cortex: Plasticity following central and peripheral lesions
Published in print: 2006 Published Online: September 2009
Publisher: Oxford University Press DOI: 10.1093/acprof:oso/9780198528999.003.0014
Item type: chapter

This chapter uses functional magnetic resonance imaging (fMRI) to study reorganization following motor cortex damage resulting from a stroke. It describes high activity soon after the stroke followed by a gradual decrease, and activity patterns correlated to an increased or decreased behavioral outcome.

Atypical, Suboptimal, and Changing Synergies
Mark L. Latash

in Synergy
Published in print: 2008 Published Online: May 2009
Publisher: Oxford University Press DOI: 10.1093/acprof:oso/9780195333169.003.0006
Item type: chapter

The sixth part of the book reviews applications of the described approach to atypical and changing movements. It starts with a discussion of the notion of normality and its applicability to motor synergies. An argument is made that “normal synergies” do not exist. Further, plasticity within the central nervous system is discussed with a Digression on transcranial magnetic stimulation, a commonly used tool to study brain plasticity. The next three sections within this part deal with effects of healthy aging, atypical development (Down syndrome), and neurological disorder (stroke) on movement patterns and motor synergies. Finally, the effects of practice on motor synergies are discussed with examples that document two stages in motor learning, the creation and strengthening of appropriate synergies, and the apparent weakening of the synergies when movement patterns are optimized with respect to other factors such as energy expenditure, fatigue, esthetics, etc.
A general perception has emerged over the past two decades of research that astrocytes are relatively resistant to insults such as those caused by ischemia [oxygen/glucose deprivation (OGD)], and oxidative stress [e.g., reactive oxygen species (ROS)] damage. Recent work, however, points to significant astrocyte dysfunction in response to these injuries. This chapter focuses on the responses of astrocytes to hypoxia/ischemia and trauma. It argues that given the importance of astrocyte functioning to the microenvironment of the central nervous system (CNS), it is apparent that alterations in their physiology during pathological states (such as ischemia and traumatic brain injury) could have profound implications for the progression of these insults.

Focal Cerebral Ischemia: The Multifaceted Role of Glial Cells
Ulrich Dirnagl and Josef Priller

This chapter begins by looking at the principal mechanisms of ischemic damage and identifies what is known about the specific contribution of glial cells. It then changes the perspective from affected tissue to single cells and reassesses the specific contribution of the glial cell types (astroglia, microglia, oligodendrocytes) in this process. Glial cells are major contributors to damage, as well as to endogenous protection and repair after stroke. The fact that the same cell types partake in damaging as well as protective signaling precludes simple therapeutic approaches aimed at blocking or inducing the activities of glial cells. Nevertheless, the recent appreciation of the high susceptibility of oligodendrocytes to AMPA-mediated cell death and the successful pilot trial on the use of EPO in stroke in humans are examples of the outstanding clinical relevance of glial mechanisms in stroke.
The Stroke of Passion: Pascal and the Poets
Richard Scholar

in The Je-Ne-Sais-Quoi in Early Modern Europe: Encounters with a Certain Something

Published in print: 2005 Published Online: September 2008
Item type: chapter

It is commonly said that elusive forces draw individual human beings into passionate relations with one another. This chapter identifies three tendencies towards the je-ne-sais-quoi in the realm of the passions, and argues that these three tendencies correspond loosely to the term's history. The first part deals with Descartes and other philosophers who attempt to draw the je-ne-sais-quoi into, or to exclude it from, a systematic theory. The second part of the chapter is devoted to those early modern writers (Corneille, Pascal, La Rochefoucauld, Molière, Racine, and others) who describe a strange sympathy that springs not from any rational choice but from an inexplicable mutual passion. This falls upon the subject at one stroke and, or so the poets say at the term's moment of lexical currency, as a certain je-ne-sais-quoi. The third part of the chapter looks at those writers (Regnard among others) who come to exploit the term as a fashionable instrument of persuasion.

The Cutter of IG II2689
Stephen V. Tracy

in Athens and Macedon: Attic Letter-Cutters of 300 to 229 B.C.

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The cutter of IG II2 689 employs thin strokes and inscribes his letters rather lightly. Strokes rather frequently overlap or do not meet precisely. The lettering has an evanescent, somewhat sloppy, quality. The peculiarities of individual letters are provided. The stone of IG II2 711 is preserved blank for 0.13 m below line 13. There are only four inscriptions from this workman's hand, with a temporal spread of roughly thirty-five years. The four all reveal a striking regularity.
The lettering of the cutter of IG II2 776 has a somewhat uncertain appearance, perhaps because the letters are lightly incised. Another contributing factor is that his letter-strokes often do not quite meet, particularly the apex of alpha. The peculiarities of individual letters are shown. None of the cutter's texts presented are stoichedon. He is careful with word divisions and usually achieves syllabification. He does not leave vacats in his texts.