Volume 20, Number 1

January 2014

ISSN 1355-6177

Journal of the International Neuropsychological Society

EDITOR-IN-CHIEF

Stephen M. Rao

ASSOCIATE EDITORS

Julie C. Stout
Giuseppe Vallar
Mieke Verfaellie
Guy Vingerhoets
John L. Woodard
Keith Owen Yeates







Journal of the International Neuropsychological Society

EDITOR-IN-CHIEF

Stephen M. Rao Cleveland Clinic

ASSOCIATE EDITORS

Julie C. Stout

Monash University, Australia

Giuseppe Vallar

Università degli Studi di Milano-Bicocca, Italy

Mieke Verfaellie

VA Boston Healthcare System & Boston University School of Medicine

Guy Vingerhoets

Ghent University, Belgium

John L. Woodard

Wayne State University

Keith Owen Yeates Nationwide Children's Hospital The Ohio State University, USA

Editorial Assistant

Maria Stadtler Cleveland Clinic

EDITORIAL BOARD

Peter A. Arnett
Pennsylvania State University

Ida Sue Baron
Independent Private Practice,
Potomas MD & Fairfay VA

Potomac, MD & Fairfax, VA

Russell M. Bauer

University of Florida & Malacket

University of Florida & Malcolm Randall Veterans' Affairs Medical Center

Ralph H.B. Benedict State University of New York at Buffalo School of Medicine and Biomedical Sciences

Erin D. Bigler
Brigham Young University

Mark W. Bondi

VA San Diego Healthcare System & University of California San Diego Aaron Bonner-Jackson Cleveland Clinic

Adam M. Brickman

Taub Institute for Research

Columbia University

Randy L. Buckner Harvard University

Roberto Cabeza

Duke University

Giovanni A. Carlesimo
University of Rome Tor Vergata &
IRCCS S. Lucia Foundation,

Cathy Catroppa Murdoch Childrens Research Institute Royal Children's Hospital University of Melbourne

Gordon Chelune University of Utah Health Care

Michael C. Corballis
University of Auckland,
New Zealand

Fergus I.M. Craik Rotman Research Institute at Baycrest, Canada

Bruce A. Crosson

Emory University & Atlanta VA

Medical Center

Jeffrey L. Cummings Cleveland Clinic

Sureyya Dikmen University of Washington

Deborah A. Fein University of Connecticut

Christopher M. Filley
University of Colorado School of

Igor Grant
University of California,
San Diego

John Gunstad

Kent State University

Kathleen Y. Haaland

New Mexico VA Healthcare System & University of New Mexico

Thomas A. Hammeke
Milwaukee VA Medical Center &
Medical College of Wisconsin

Benjamin M. Hampstead Atlanta VA Medical Center Emory University

Deborah L. Harrington
VA San Diego Healthcare System &
University of California,
San Diego

Sterling C. Johnson
University of Wisconsin-Madison
& Wm. S. Middleton Memorial VA
Hospital

Michael D. Kopelman King's College London, England

Scott A. Langenecker The University of Illinois at Chicago

Harvey Levin

Baylor College of Medicine &
Michael E. DeBakey VA Medical
Center

Bonnie E. Levin University of Miami Miller School of Medicine

Jennifer J. Manly

Columbia University Medical

Center

Andrew R. Mayer
University of New Mexico &
The Mind Research Network

Michael McCrea Medical College of Wisconsin

Skye McDonald

The University of New South Wales,

Australia

Kristy A. Nielson

Marquette University & Medical

College of Wisconsin

Michael W. Parsons Cleveland Clinic

Jennie Ponsford Monash University & Epworth Hospital, Australia

Naftali Raz

Wayne State University

Andrew J. Saykin Indiana University School of Medicine

Maureen Schmitter-Edgecombe Washington State University

Michael Seidenberg Rosalind Franklin University of Medicine and Science

Larry J. Seidman
Harvard Medical School &
Beth Israel Deaconess Medical
Center

Carlo Semenza University of Padova, Italy

J. Carson Smith University of Maryland

Yaakov Stern

Columbia University Medical
Center

William S. Stone
Harvard Medical School &
Beth Israel Deaconess Medical
Center

Daniel Tranel University of Iowa

Alexander I. Tröster

Barrow Neurological Institute

Elizabeth W. Twamley University of California, San Diego & VA San Diego Healthcare System

Frederick W. Unverzagt
Indiana University School of
Medicine

Kathleen A. Welsh-Bohmer Duke University

Aims and Scope: The Journal of the International Neuropsychological Society welcomes original, creative, high quality research papers covering all areas of neuropsychology. The focus of articles may be primarily experimental, more applied or clinical. Contributions will broadly reflect the interest of all areas of neuropsychology, including but not limited to: development of cognitive processes, brain-behavior relationships, adult neuropsychology, child neuropsychology, developmental neuropsychology, disorders of speech and language, and the interfaces of neuropsychology with related areas such as behavioral neurology, neuropsychiatry, neuroimaging, and electrophysiology. Book Reviews will also be published.

Editorial Office: Stephen M. Rao, Ph.D., Editor-in-Chief, *Journal of the International Neuropsychological Society*, Cleveland Clinic, Neurological Institute, 9500 Euclid Avenue / U10, Cleveland, OH 44195. E-mail: jins@cambridge.org; Telephone: (216) 444-2330; Fax: (216) 445-0331.

Publishing, Advertising, Subscription Offices, and Indexing: Cambridge University Press, 32 Avenue of the Americas, New York, NY 10013-2473. Telephone: (212) 337-5000; Fax (212) 337-5959. Outside the USA, Canada, and Mexico: Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 8RU, England (Telephone: 144(0) 1223 312-393; Fax: 144(0)1223 315-052. For advertising rates and data, contact the Journals Advertising Coordinator at the appropriate Cambridge University Press office. The Journal of the International Neuropsychological Society is covered by the major abstracting and indexing services, including Index Medicus, ISI Current Contents/Clinical Medicine, PubMed, Science Citation Index, SciSearch (also known as the Science Citation Index-expanded), Research Alert, the Neuroscience Citation Index, and PsycInfo.

Subscription Information: Published ten times a year: January, February, March, April, May, July, August, September, October and November. Annual institutional print and electronic subscription rates: US \$1,000.00 in the USA, Canada, and Mexico; UK £572.00 + VAT elsewhere. Institutional electronic rates only: US \$700.00 in the USA, Canada, and Mexico; UK £421.00 + VAT elsewhere. Print Only subscription no longer available in 2014 for Institutions. Please order bundle if print is required. Individual print rates only: US \$261.00 in the USA, Canada, and Mexico; UK £145.00 + VAT elsewhere. Single part rates: US \$145.00 in the USA, Canada, and Mexico; UK £81.00 + VAT elsewhere. Prices include surface postage and insurance.

Member Subscription: The Journal of the International Neuropsychological Society is an official publication of The International Neuropsychological Society. Members of the Society automatically receive the Journal of the International Neuropsychological Society as part of their annual membership dues. For further information on membership, please visit the INS website http://www.the-ins.org. INS office contact: Robert A. Bornstein, Ph.D., Executive Secretary, International Neuropsychological Society, Suite 625, 700 Ackerman Road, Columbus, OH 43202. E-mail: ins@osu.edu; Telephone: (614) 263-4200; Fax: (614) 263-4366.

Information on Journal of the International Neuropsychological Society and all other Cambridge journals is available via http://www.cambridge.org/ in North America and in the UK. Full text for this journal can be found at http://journals.cambridge.org/

Copyright © 2014 The International Neuropsychological Society

Cambridge University Press, except when permission is obtained through a bona fide copyright clearinghouse, such as the Copyright Clearance Center (USA) or the Copyright Licensing Agency (UK). For further information please visit http://us.cambridge.org/information/rights/ or http://www.cambridge.org/uk/information/rights/. The CCC Item-Fee Code for this publication is 1355-6177/13 \$25.00. Specific written permission must be obtained for all other copyring. Photocopying for Classroom Use: Permission to reproduce parts of this publication for course anthologies may be obtained directly from Cambridge University Press or through duly authorized services such as the Academic Permissions Service of the CCC, 222 Rosewood Drive, Danvers, MA 01923 and the Copyright Permissions Service of the National Association of College Stores, or through any photoduplication service that properly secures permission from Cambridge or the CCC.

Periodicals postage paid at New York, NY, and additional mailing offices. Return Postage Guaranteed. **Postmaster:** Send address changes in the USA and Canada to: **Journal of the International Neuropsychological Society**, Cambridge University Press, Journals Fulfillment Dept., 100 Brook Hill Drive, West Nyack, NY 10994-2133.

Printed in the United States of America.

This publication is printed on acid-free paper.