

Journal of Hand Therapy

Official Journal of the American Society of Hand Therapists

EDITOR

Joy C. MacDermid, BScPT, MSc, PhD
Woodstock, Ontario, Canada
e-mail: editor.macdermid@gmail.com

ASSOCIATE EDITOR - EDUCATION
Victoria Priganc, OTR/L, PhD, CHT

ASSOCIATE EDITOR - CASE REPORTS
Susan L. Michlovitz, PT, PhD, CHT

ASSISTANT EDITOR - CLINICAL RELEVANCE COMMENTARY
Mike Szekeres, OT Reg (Ont.), PhD, CHT

ASSISTANT EDITOR - PRACTICE FORUM
Kristin Valdes, OTR, OTD, CHT

EDITOR-IN-CHIEF EMERITUS
Paul LaStayo, PT, PhD, CHT
Kenneth R. Flowers, PT, CHT
Evelyn J. Mackin, PT

EDITORIAL BOARD MEMBERS
Dorit H. Aaron, OTR, MA, CHT, FAOTA
Peter C. Amadio, MD
Jane Bear – Lehman, OTR, PhD, FAOTA
Susan Blackmore, OTR/L, MS, CHT
Donna E. Breger Stanton, OTR/L, OTD, FAOTA

Arlene P. Brown, PT, MPH, CHT
Nancy Byl, PT, PhD
Carla Cleary, PT, DPT, CHT
Susan Duff, PT, OT, EdD, CHT
Roslyn B. Evans, OTR, CHT
Lynne Feehan, PT, PhD, CHT
Peggy Filion, OTR, CHT
Barbara Gladson, OTR, PT, PhD
Maureen Hardy, PT, MS, CHT
Jack R. Hurov, PT, PhD, CHT
Carolyn W. Jansen, PT, PhD, CHT
James W. King, OTR, MA, CHT
Scott Kozin, MD
John A. McAuliffe, MD
Philip McClure, PT, PhD
Lisa O'Brien, BAppSci (OT), PhD
A. Lee Osterman, MD
Robert Ross, MPT, CHT
Jean-Sébastien Roy, PT, PhD
Orit Shechtman, OTR, PhD
Terri M. Skirven, OTR/L, CHT
Jennifer Stevens – Chisar, PT, MS, CHT
Carol Stoddard, OTR/L, CHT
Aviva Wolff, EdD, OT, CHT

EXECUTIVE ASSISTANT
Katrina Munro

INTERNATIONAL CORRESPONDING EDITORS

Rosemary Prosser, BAppSc Phy, CHT
Australia

Katleen Meeus, OTR/L
Belgium

Christina Jerosh-Herold, DipCOT, MSc, PhD
United Kingdom

Tarja Rantala, PT
Finland

Jean-Noel Theron, LPT
France

Susanne Breier, OTR
Germany

Angelos Poulis, MCSP
Greece

Mayumi Nakada, PhD, OTR
Japan

Gwendolyn Van Strien, LPT, MSc, CHT
Andrea Moss, PT
New Zealand

Antonio Jose Arsenio Duarte, OT
Portugal

Corriane van Velze, OT
South Africa

Margareta Persson, OT
Sweden

Birgitta Waldner-Nilsson, OTR/L
Switzerland

Firdevs Kul Tetik, RPT
Turkey

Mary E. Naughton, CSOT/CHT
Ireland

PUBLISHER

Elsevier
Chris Baumle
(215) 239-3731
e-mail: c.baumle@elsevier.com

ISSUE MANAGER

Elavenil Elangovan
e-mail: e.elangovan@elsevier.com

Publication information: *Journal of Hand Therapy* (ISSN: 0894-1130) is the official publication of the American Society of Hand Therapists and is published quarterly by Elsevier, 230 Park Avenue, Suite 800, New York, NY 10169. Months of issue are January/March, April/June, July/September, and October/December. Periodicals Postage Paid at New York, NY, and at additional mailing offices.

USA POSTMASTER: Send change of address to *Journal of Hand Therapy*, Elsevier Customer Service Department, 3251 Riverport Lane, Maryland Heights, MO 63043, USA.

Annual subscription rates: United States and possessions: individual, \$217. All other countries: individual, \$244.

Orders, claims, and journal inquiries: Please contact the Elsevier Customer Service Department nearest you:

St. Louis: Elsevier Customer Service Department, 3251 Riverport Lane, Maryland Heights, MO 63043, USA; phone: (800) 654-2452 [toll free within the USA]; (+1) (314) 447-8871 [outside the USA]; fax: (+1) (314) 447-8029; e-mail: JournalCustomerService-usa@elsevier.com.

Oxford: Elsevier Customer Service Department, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, UK; phone: (+44) (1865) 843434; fax: (+44) (1865) 843970; e-mail: JournalsCustomerServiceEMEA@elsevier.com.

Tokyo: Elsevier Customer Service Department, 4F Higashi-Azabu, 1-Chome Bldg, 1-9-15 Higashi-Azabu, Minato-ku, Tokyo 106-0044, Japan; phone: (+81) (3) 5561 5037; fax: (+81) (3) 5561 5047; e-mail: JournalsCustomerServiceJapan@elsevier.com.

Singapore: Elsevier Customer Service Department, 3 Killiney Road, #08-01 Winsland House I, Singapore 239519; phone: (+65) 63490222; fax: (+65) 67331510; e-mail: JournalsCustomerServiceAPAC@elsevier.com.

Advertising information: Advertising orders and inquiries can be sent to: USA, Canada and South America: Danny Wang, Elsevier, 230 Park Avenue, Suite 800, New York, NY 10169. Phone: (212) 633-3158; e-mail: d.wang@elsevier.com.

Classified ads: Brian Vishnupad. Phone (212) 633-3129; fax (212) 633-3820; e-mail: b.vishnupad@elsevier.com.

Reprints: To order 100 or more reprints for educational, commercial, or promotional use, contact the Commercial Reprints Department, Elsevier Inc., 230 Park Avenue, Suite 800, New York, NY 10169; E-mail: reprints@elsevier.com.

Guide for Authors: For a full and complete Guide for Authors, please go to: www.jhandtherapy.org/authorinfo.

Author inquiries: For inquiries relating to the submission of articles (including electronic submission) please visit this journal's homepage at <http://journals.elsevierhealth.com/periodicals/hanthe>. Contact details for questions arising after acceptance of an article, especially those relating to proofs, will be provided by the publisher. You can track accepted articles at <http://www.elsevier.com/trackarticle>. You can also check our Author FAQs at <http://www.elsevier.com/authorFAQ> and/or contact Customer Support via <http://support.elsevier.com>.

Funding body agreements and policies: Elsevier has established agreements and developed policies to allow authors whose articles appear in journals published by Elsevier, to comply with potential manuscript archiving requirements as specified as conditions of their grant awards. To learn more about existing agreements and policies please visit <http://www.elsevier.com/fundingbodies>.

© 2017 by Hanley & Belfus, an imprint of Elsevier Inc. All rights reserved. This journal and the individual contributions contained in it are protected under copyright by Elsevier Inc., and the following terms and conditions apply to their use:

Photocopying: Single photocopies of single articles may be made for personal use as allowed by national copyright laws. Permission of the Publisher and payment of a fee is required for all other photocopying, including multiple or systematic copying, copying for advertising or promotional purposes, resale, and all forms of document delivery. Special rates are available for educational institutions that wish to make photocopies for non-profit educational classroom use. For information on how to seek permission visit www.elsevier.com/permissions or call: (+44) 1865 843830 (UK) / (+1) 215 239 3804 (USA).

Derivative Works: Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. Permission of the Publisher is required for resale or distribution outside the institution. Permission of the Publisher is required for all other derivative works, including compilations and translations (please consult www.elsevier.com/permissions).

Electronic Storage or Usage: Permission of the Publisher is required to store or use electronically any material contained in this journal, including any article or part of an article (please consult www.elsevier.com/permissions). Except as outlined above, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior written permission of the Publisher.

Notice: No responsibility is assumed by the Publisher for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products, instructions or ideas contained in the material herein. Because of rapid advances in the medical sciences, in particular, independent verification of diagnoses and drug dosages should be made.

Although all advertising material is expected to conform to ethical (medical) standards, inclusion in this publication does not constitute a guarantee or endorsement of the quality or value of such product or of the claims made of it by its manufacturer.

The journal is indexed by Index Medicus, Medline, EMBASE/Excerpta Medica, and the Cumulative Index to Nursing and Allied Health Literature (CINAHL).

© The paper used in this publication meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper).

**American Society of Hand Therapists
2016-2017 Board of Directors**

PRESIDENT

Gary Solomon, MBA, MS, OTR/L, CHT

PRESIDENT-ELECT

Kristin Valdes, OTD, OTR, CHT

VICE PRESIDENT

Linda Klein, OTR, CHT

SECRETARY/TREASURER

Mo Herman, MA, OTR/L, CHT

SECRETARY/TREASURER-ELECT

Rachel Pigott, OTR/L, CHT

IMMEDIATE PAST PRESIDENT

Barbara Winthrop, OTR, MA, CVE, CHT, FAOTA

EDUCATION DIVISION DIRECTOR

Kim Kraft, PT, DPT, CHT

PRACTICE DIVISION DIRECTOR

Marsha Lawrence, PT, CHT

RESEARCH DIVISION DIRECTOR

Aviva Wolff, EdD, OTR, CHT

BOARD MEMBER-AT-LARGE

Diane Coker, DPT, CHT

BOARD MEMBER-AT-LARGE

Karol Spraggs-Young, OTD, OTR/L, CHT

AMERICAN SOCIETY OF HAND THERAPISTS

1120 Route 73, Suite 200

Mount Laurel, NJ 08054

Telephone: 856 380 6856 • Fax: 856 439 0525

E-mail: asht@asht.org • Web site: www.asht.org

ASHT

AMERICAN SOCIETY OF HAND THERAPISTS™

Disclaimers: 1. No responsibility is assumed by the Publisher or by the American Society of Hand Therapists for any injury and/or damage to persons or property as a result of any actual or alleged libelous statements, infringement of intellectual property or privacy rights, or products liability, whether resulting from negligence or otherwise, or from any use or operation of any ideas, instructions, procedures, products, or methods contained in this issue of *Journal of Hand Therapy*. 2. The publication of an advertisement herein does not constitute on the part of the Publisher or the American Society of Hand Therapists a guarantee or endorsement of the quality or value of the advertised products or services described therein or of any of the representations or the claims made by the advertisers with respect to such products or services.