

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 EDITORS

Victoria Priganc, OTR/L, PhD, CHT
Mike Szekeres, OT Reg (Ont.), PhD, CHT
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
Caroline W. Stegink Jansen, PT, PhD, CHT
Christos Karagiannopoulos, MPT, PhD, CHT
James W. King, OTR, PhD, CHT
Scott Kozin, MD
Philip McClure, PT, PhD
Corey McGee, PhD, MS, OTR/L, CHT
Lisa O'Brien, BAppSci (OT), PhD
Tara L. Packham, OT(Reg)Ont, PhD
Jean-Sébastien Roy, PT, PhD
Orit Shechtman, OTR, PhD
Terri M. Skirven, 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
Corrianne 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 Bauml
(215) 239-3731
e-mail: c.bauml@elsevier.com

ISSUE MANAGER

Siva M
e-mail: s.m@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>.

© 2019 by Hanley & Belfus, an imprint of Elsevier Inc. All rights reserved. This journal and the individual contributions contained in it are protected under copyright, and the following terms and conditions apply to their use in addition to the terms of any Creative Commons or other user license that has been applied by the publisher to an individual article: **Photocopying:** Single photocopies of single articles may be made for personal use as allowed by national copyright laws. Permission is not required for photocopying of articles published under the CC BY license nor for photocopying for non-commercial purposes in accordance with any other user license applied by the publisher. 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:** Users may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions or companies. Other than for articles published under the CC BY license, permission of the publisher is required for resale or distribution outside the subscribing institution or company. For any subscribed articles or articles published under a CC BY-NC-ND license, permission of the publisher is required for all other derivative works, including compilations and translations. (please consult www.elsevier.com/permissions).

Storage or Usage: Except as outlined above or as set out in the relevant user license, 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 (please consult www.elsevier.com/permissions).

Permissions: For information on how to seek permission visit www.elsevier.com/permissions or call: (+1) 800-525-4069 x 3808.

Author rights: Author(s) may have additional rights in their articles as set out in their agreement with the publisher (more information at <http://www.elsevier.com/authorsrights>).

Notice: Practitioners and researchers must always rely on their own experience and knowledge in evaluating and using any information, methods, compounds or experiments described herein. Because of rapid advances in the medical sciences, in particular, independent verification of diagnoses and drug dosages should be made. To the fullest extent of the law, 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.

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
2018-2019 Board of Directors**

PRESIDENT

Linda Klein, OTR, CHT

PRESIDENT-ELECT

Mo Herman, MA, OTR/L, CHT

SECRETARY/TREASURER

Diane Coker, DPT, CHT

SECRETARY/TREASURER-ELECT

Kendyl Brock Hunter, OTR/L, CHT

BOARD MEMBER-AT-LARGE

Marsha Lawrence, PT, DPT, CHT

BOARD MEMBER-AT-LARGE

Hannah Gift, OTR/L, CHT, COMT UE, CEAS

IMMEDIATE PAST PRESIDENT

Kris Valdes, OTD, OTR, CHT

PRACTICE DIVISION DIRECTOR

Lesley Addison Khan-Farooqi, OTD, OTR/L, CHT

Vice Practice Division Director

Ekta Pathare, FACHE, MBA, OTR, CHT

EDUCATION DIVISION DIRECTOR

Kimberly Masker, OTD, OTR/L, CHT

Research Division Director

Cindy Clare Ivy, M.ED, OTD, 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.

Sign up for eAlerts today!



Elsevier publishes the **most respected, influential information sources** in every medical and scientific field. Our **eAlerts** let you know about new products, special offers, and promotions in your specialty. You'll also get occasional surveys to help us better meet your information needs.

It's the **best way to stay connected** with
the **latest resources** in your field!

eAlert

BE THE FIRST TO KNOW



SIGN UP TODAY

www.us.elsevierhealth.com

We respect your privacy and do not disclose, rent, or sell your personal information to any non-affiliated third party without your consent, except as may be stated in the Elsevier Privacy Policy. For additional information, please visit www.us.elsevierhealth.com.

