

RESEARCH ARTICLE

Manual muscle testing and hand-held dynamometry in people with inflammatory myopathy: An intra- and interrater reliability and validity study

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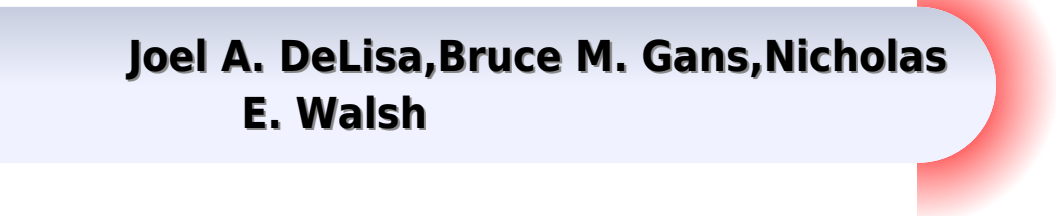
Abbreviations: IM, inflammatory myopathy; DM, dermatomyositis; PM, polymyositis; MMT, manual muscle testing; MMT8, short version of the of the

Abstract

Manual muscle testing (MMT) and hand-held dynamometry (HHD) are commonly used in people with inflammatory myopathy (IM), but their clinimetric properties have not yet been sufficiently studied. To evaluate the reliability and validity of MMT and HHD, maximum isometric strength was measured in eight muscle groups across three measurement events. To evaluate reliability of HHD, intra-class correlation coefficients (ICC), the standard error of measurements (SEM) and smallest detectable changes (SDC) were calculated. To measure reliability of MMT linear Cohen's Kappa was computed for single muscle groups and ICC for total score. Additionally, correlations between MMT8 and HHD were evaluated with Spearman Correlation Coefficients. Fifty people with myositis (56±14 years, 76% female) were included in the study. Intra- and interrater reliability of HHD yielded excellent ICCs (0.75–0.97) for all muscle groups, except for interrater reliability of ankle extension (0.61). The corresponding SEMs% ranged from 8 to 28% and the SDCs% from 23 to 65%. MMT8 total score revealed excellent intra- and interrater reliability (ICC>0.9). Intrarater reliability of single muscle groups was substantial for shoulder and hip abduction, elbow and neck flexion, and hip extension (0.64–0.69); moderate for wrist (0.53) and knee extension (0.49) and fair for ankle extension (0.35). Interrater reliability was moderate for neck flexion (0.54) and hip abduction (0.44); fair for shoulder abduction, elbow flexion, wrist and ankle extension (0.20–0.33); and slight for knee extension (0.08). Correlations between the two tests were low for wrist, knee, ankle, and hip extension; moderate for elbow flexion, neck flexion and hip abduction; and good for shoulder abduction. In conclusion, the MMT8 total score is a reliable assessment to consider general muscle weakness in people with myositis but not for

Validity Reliability Manual Muscle Testing

**Joel A. DeLisa, Bruce M. Gans, Nicholas
E. Walsh**



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Validity and Reliability of Manual Muscle Testing Lam-Quynh Nguyen, 2005 Daniels and Worthingham's Muscle Testing - E-Book Marybeth Brown, Helen Hislop, Dale Avers, 2013-01-25 A practical handbook on evaluating muscular strength and function Daniels and Worthingham's Muscle Testing Techniques of Manual Examination and Performance Testing 9th Edition makes it easy to understand and master procedures in manual muscle testing and performance testing Clear illustrated instructions provide a guide to patient positioning direction of motion and direction of resistance In addition to muscle testing of normal individuals and others with weakness or paralysis this edition includes new coverage of alternative strength tests and performance tests for older adults and others with functional decline such as the inactive and obese Written by educators Helen J Hislop Dale Avers and Marybeth Brown this classic physical therapy reference now features an Evolve companion website with video clips demonstrating key muscle testing techniques Drawings and arrows along with clear written directions make it easy to understand and perform muscle testing procedures allowing you to assess deficits in strength balance and range of motion More than 600 illustrations clearly show testing sequences muscle anatomy and muscle innervation Video clips of over 100 muscle tests on the Evolve companion website demonstrate the art and technique of muscle testing in a clinical setting Details of muscle anatomy and innervation help in linking muscle topography with function Helpful Hints and Substitutions boxes provide additional tips and highlight muscle substitutions that may occur during a test to ensure greater accuracy in testing A constant reference number clearly identifies each muscle in the body indexed in the Alphabetical List of Muscles by Region as well as in the Ready Reference Anatomy Manual on Evolve to speed cross referencing and help you quickly identify any muscle NEW chapters on performance testing cover functional strength testing in older adults and those with functional decline and testing muscle performance in various clinical settings NEW chapters on manual muscle testing address when to use manual muscle testing the limitations of manual muscle testing and alternatives to manual muscle testing UPDATED references for each chapter include the most current evidence based information NEW An Evolve companion website helps you hone your manual testing skills with video clips of over 100 muscle tests and with the Ready Reference Anatomy Guide Daniels and Worthingham's Muscle Testing - E-Book Dale Avers, Donovan J. Lott, Marybeth Brown, 2024-02-06 Daniels and Worthingham's Muscle Testing 11th Edition offers the clear information needed to master procedures and enhance clinical decision making in manual muscle testing and performance testing Comprehensive discussion of the value of strength testing with clear illustrated instructions provide a detailed guide to patient positioning clinician instructions and application of skill In addition to updated muscle testing of normal individuals and others with weakness or paralysis this edition includes updated information on alternative strength and performance tests for all adult populations Updated comprehensive coverage for muscle dynamometry and ideal exercises enhances this text's relevance for today's clinician An eBook version included with print purchase provides access to all the text figures and

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Musculoskeletal Assessment Hazel M. Clarkson, 2000 Completely revised and updated this edition presents the principles and methodology of assessing both joint range of motion ROM goniometry and manual muscle strength for the head neck trunk and extremities Each chapter is devoted to a separate anatomical region and provides knowledge of pertinent surface anatomy and deep anatomy Excellent photography and illustrations enhance comprehension of techniques and serve as a self learning tool New to this edition New vertical format second color added to line art 200 new photographs detailed coverage of ROM and muscle length assessment and measurement for each body region comprehensive coverage of end feels for each joint motion and chapter relating assessment methods to treatment techniques and activities of daily living A useful resource for assessment and treatment

Guidelines for Chiropractic Quality Assurance and Practice Parameters Scott Haldeman, David Chapman-Smith, Donald M. Petersen, 2005 The first ever practice guidelines by and for the profession These proceedings are the result of the landmark Mercy Center Consensus Conference in which chiropractic practitioners in the academic clinical political and regulatory sectors met to reach agreement on standards of practice producing guidelines for practice that provide a major step toward addressing the needs of the patient and assuring

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Campbell's Physical Therapy for Children Expert Consult - E-Book Robert Palisano, Margo Orlin, Joseph Schreiber, 2022-08-20 Selected for Doody's Core Titles 2024 with Essential Purchase designation in Physical Therapy Gain a solid foundation in physical therapy for infants children and adolescents Campbell's Physical Therapy for Children 6th Edition provides essential information on pediatric physical therapy practice management of children with musculoskeletal neurological and cardiopulmonary conditions and special practice settings Following the APTA's Guide to Physical Therapist Practice this text describes how to examine and evaluate children select evidence based interventions and measure outcomes to help children improve their body functions activities and participation What also sets this book apart is its emphasis on clinical reasoning decision making and family centered care Written by a team of PT experts led by Robert J Palisano this book is ideal for use by students and by clinicians in daily practice Comprehensive coverage provides a thorough understanding of foundational knowledge for pediatric physical therapy including social determinants of health development motor control and motor learning as well as physical therapy management of pediatric disorders including examination evaluation goal setting the plan of care and outcomes evaluation Focus on the elements of patient client management in the APTA's Guide to Physical Therapist Practice provides a framework for clinical decision making Focus on the International Classification of Functioning Disability and Health ICF of the World Health Organization WHO provides a standard language and framework for the description of health and health related states including levels of a person's capacity and performance Experienced expert contributors help you prepare to become a Board Certified Pediatric Clinical Specialist and to succeed on the job NEW New chapter on social determinants of health and pediatric healthcare is added to this edition NEW New chapter on Down syndrome is added NEW 45 case scenarios in the ebook offer practice with clinical reasoning and decision making and 123 video clips depict children's movements examination procedures and physical therapy interventions NEW An ebook version is included with print purchase providing access to all the text figures and references plus the ability to search customize content make notes and highlights and have content read aloud

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Daniels and Worthingham's Muscle Testing, First South Asia Edition E Book Dale Avers, Marybeth Brown, 2018-11-13 Daniels and Worthingham's Muscle Testing First South Asia Edition E Book

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replicate the measurements and tests This text guides students in learning how to utilize case information and documentation furnished by the PT to assist in the follow up treatment *Muscle and Sensory Testing - E-Book* Nancy Berryman Reese,2020-04-21 NEW Techniques of Functional Muscle Testing chapter includes completely revised content to give you a strong foundation of testing techniques UPDATED Expanded clinical notes and case vignettes challenge you to apply your knowledge to real world situations and think creatively about clinical problems UPDATED Consistent chapter layout by joint and muscle system allows you to easily locate important information UPDATED References throughout the book enable you to quickly find the most up to date sources on specific topics UNIQUE 185 Video clips on the companion Evolve website reinforce your understanding of key techniques such as muscle tests handheld dynamometry pediatric handheld dynamometry sensory and neurologic testing proper patient and clinician positioning and force application

Fundamentals of Musculoskeletal Assessment Techniques M. Lynn Palmer,Marcia E. Epler,Marcia F. Epler,1998 Organized by region this text provides the fundamentals of evaluation and examination techniques of the musculoskeletal system Each region begins with step by step instructions for goniometry manual muscle testing muscle length joint accessory motions and special orthopedic tests Special discussions of posture and gait analysis are also included New in this edition is a chapter on Assessment of Pain The discussion on the Spine has been expanded to three chapters Cervical Thoracolumbar Spine and Sacroiliac Joint Compatibility BlackBerry OS 4 1 or Higher iPhone iPod Touch 2 0 or Higher Palm OS 3 5 or higher Palm Pre Classic Symbian S60 3rd edition Nokia Windows Mobile Pocket PC all versions Windows Mobile Smartphone Windows 98SE 2000 ME XP Vista Tablet PC **Physical Examination of the Shoulder** Ryan J. Warth,Peter J. Millett,2015-06-24 This text presents a comprehensive and concise evidence based and differential based approach to physical examination of the shoulder in a manner that promotes its successful application in clinical practice Additionally this book provides an integrated approach to the diagnosis of numerous shoulder pathologies by combining discussions of pathoanatomy and the interpretation of physical examination techniques and was written for any health care professional or student who may be required to evaluate patients who present with shoulder pain This information will allow the clinician to make informed decisions regarding further testing procedures imaging and potential therapeutic options Physical Examination of the Shoulder will serve as an invaluable resource for practicing orthopedic surgeons sports medicine specialists physical therapists residents in training and medical students interested in the field of clinical orthopedics

Kinesiology for Occupational Therapy Melinda F. Rybski,2024-06-01 Kinesiology for Occupational Therapy Third Edition covers the theoretical background for understanding the kinematics and kinetics of normal human physiological movement Each specific joint is assessed in terms of musculoskeletal function movements possible and an overview of pathology that may develop Dr Melinda Rybski covers four occupational therapy theories related to functional motion that are important for occupational therapists to know This Third Edition has been updated to reflect the current field and includes new information

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Musculoskeletal Assessment Hazel Clarkson, 2020-07-20 Develop the skills needed to proficiently evaluate a patient's present functional status and create effective range of motion and muscle strength goals This updated fourth edition of Hazel Clarkson's Musculoskeletal Assessment Joint Range of Motion Muscle Testing and Function A Research Based Practical Guide offers a straight forward student friendly approach to learning the clinical evaluation of Joint Range of Motion ROM Muscle Length and Manual Muscle Testing MMT Now in striking full color the fourth edition provides the right amount of detail students need to prepare for effective practice Each chapter is devoted to a separate anatomical region to help Physical Therapists and Occupational Therapists in training hone their understanding of pertinent surface and deep anatomy The clear narrative outlines the steps taken in the assessment techniques and interpreting the results and is enhanced by a strong art program with meticulously created color illustrations and photographs that demonstrate patient and therapist positions and instrument placement

Energetic Kinesiology Tania McGowan, Charles Krebs, 2013-12-01 Energetic Kinesiology is an emerging field internationally in the Complementary Health Sciences gaining more and more scientific support and recognition This fully referenced textbook describes the field and explains the techniques upon which it is built It covers the underlying principles the methods and scientific support for the efficacy of Energetic Kinesiology It also offers a unique history of Energetic Kinesiology based on the first hand experience of Charles Krebs who knew most of the originators of Energetic Kinesiology techniques personally The book is a unique well illustrated single source of a vast array of information research and clinical knowledge in a format that is both accessible and practical to clinicians and students

The Evidence-Based Practitioner Catana Brown, 2016-11-25 What is the evidence Why do you need it How do you evaluate it How do you use it to make decisions Put the evidence to work for your patients Become an effective evidence based practitioner Master the knowledge and clinical decision making skills you need to provide the very best care for your clients based on the evidence Step by step you'll learn how to find read understand critique and apply research evidence in practice

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Occupational Therapy for Physical Dysfunction Mary Vining Radomski, Catherine A. Trombly Latham, 2008 The definitive work on occupational therapy for physical dysfunction returns in its Sixth Edition with reputable co editors and clinical academic and consumer contributors This text provides a current and well rounded view of the field from theoretical rationale to evaluation treatment and follow up Through the Occupational Functioning Model OFM the Sixth Edition continues to emphasize the conceptual foundation and scientific basis for practice including evidence to support the selection of appropriate assessments and interventions NEW TO THIS EDITION Student DVD with video clips demonstrating range of motion manual muscle testing construction of hand splints and transferring patients Evidence Tables summarize the evidence behind key topics and cover Intervention Participants Dosage Type of Best Evidence Level of Evidence Benefit Statistical Probability and Reference Assessment Tables summarize key assessment tools and cover Instrument and Reference Description Time to Administer Validity Reliability Sensitivity and Strengths and Weaknesses

Physical Medicine and Rehabilitation Joel A. DeLisa, Bruce M. Gans, Nicholas E. Walsh, 2005 The gold standard physical medicine and rehabilitation text is now in its Fourth Edition with thoroughly updated content and a more clinical focus More than 150 expert contributors most of them new to this edition address the full range of issues in contemporary physical medicine and rehabilitation and present state of the art patient management strategies emphasizing evidence based recommendations This edition has two separate volumes on Physical Medicine and Rehabilitation Medicine Each volume has sections on principles of evaluation and management management methods major problems and specific disorders Treatment algorithms and boxed lists of key clinical facts have been added to many chapters

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