

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

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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

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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

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tools required to interpret the physical therapy evaluation and 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

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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

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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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