Essentials of Rehabilitation Research: A Statistical Guide to Clinical Practice

Richard P. Di Fabio

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Essentials of Rehabilitation Research: A Statistical Guide to Clinical Practice achieves a level of knowledge translation that the rehabilitation science field has been waiting for to strengthen the link between clinical and research environments. Written for a clinical audience to help facilitate evidence-based practice, this volume unifies clinical practice and rehabilitation research through a common understanding and appreciation for statistics. Its 11 chapters are designed to address clear clinical questions: “How much change must a patient demonstrate to be functionally meaningful?”; “Do clinical tests accurately determine the patient’s classification for diagnoses?”; “Does my clinical assessment adequately identify changes in the patient’s status?” Author Richard P. Di Fabio guides the reader through the evaluative process, illustrating the application of the appropriate statistical methods through relevant examples that reflect the current practice environment. As the chapters progress, so does the detail of the statistical content. Each chapter presents an exercise, accompanied by an experimental data set, so that readers can test the application of their knowledge. The accompanying DVD augments this statistical content with video tutorials detailing the steps of statistical analysis.

This clear and well-organized book is both a useful reference for individuals involved in clinical care, programme management, and evaluation and a helpful resource for novice researchers seeking an overview of quantitative methodology. Clinical questions at the beginning of each chapter provide perspective for the reader and highlight the clinical applicability of the chapter. Each chapter builds on the concepts covered in earlier chapters and refers back to them for definitions and concepts when necessary. Statistical topics, including contingency tables, correlation coefficients, and linear predictions, are covered at foundation level and presented through a clinical lens. The concepts of sensitivity, specificity, and validity are demonstrated through examples using relevant clinical measures, including the Functional Independence Measure (FIM), the timed up-and-go (TUG) test, the Roland–Morris Questionnaire (RMQ), and clinical decision rules for spinal manipulation. By capturing the breadth of the profession through the selection of outcome measures, Di Fabio has designed a resource that relates to all areas of clinical practice.

Essentials of Rehabilitation Research offers clinicians an immediate means to self-evaluate both their practice and their assessment strategies, elevating anecdotal evidence to statistically sound results. Where appropriate, appendices on statistical foundations allow the reader to explore concepts in greater detail. This design is ideal for a clinical audience: the intricacies of

the statistical foundation do not distract from the primary objective of each chapter, which is to apply the statistics to clinical practice. Furthermore, it provides clinicians with a critical lens through which they can effectively understand, appraise, and apply results from the rehabilitation literature.

Overall, *Essentials of Rehabilitation Research* is a valuable resource not only for clinicians but for the profession as a whole. Health care demands evidence-based practice, and Di Fabio’s book equips the physical therapy profession with a resource to translate its wealth of clinical knowledge into research evidence. Armed with this resource, clinicians and managers will be able to use statistical knowledge to support protocols and highlight the effectiveness of policies and procedures used in the clinical setting.

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Physical Therapy Case Files: Orthopaedics

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US\$41.95

This paperback handbook compiles 34 case reviews of orthopaedic conditions that physiotherapists are likely to encounter in the outpatient clinical setting. Author Jason Brumitt and series editor Erin E. Jobst are assistant and associate professors, respectively, in the School of Physical Therapy, College of Health Professions, Pacific University, in Hillsboro, Oregon. Brumitt contributed eight of the case reviews; the remainder were contributed by “top physical therapy researchers, educators, and master clinicians” (p. 2), all of them from different parts of the United States with the exception of one contributor from Scotland. Each case is presented in seven sections: “Key Definitions”; “Understanding the Health Conditions,” which provides background information about the condition or impairment; “Physical Therapy Patient/Client Management”; “Examination, Evaluation and Diagnosis”; “Plan of Care and Interventions”; “Evidence-Based Clinical Recommendations,” which rates clinical recommendations by the strength of the evidence; and “Comprehension Questions and Answers,” which reviews the highlights of the case and reinforces the take-home messages presented.

The majority of the cases are between 10 and 13 pages in length, including references. Readers can choose any case of interest as a starting point. It is, however, unfortunate that the

full list of cases and health conditions appears at the end of the book rather than at the beginning. The cases cover a wide range of scenarios, including paediatric conditions, sports injuries, overuse syndromes, chronic conditions, post-cancer surgeries, and spinal impairments. Uniquely valuable to readers is that this book helps to integrate current evidence in the examination, assessment, and management of musculoskeletal conditions, thus facilitating the principles of evidence-based practice that have been emphasized in recent physiotherapy education and as the recommended approach in clinical practice.

This book is a good reference for determining the varying levels of support that exist in the literature for different client management strategies. Cases 15–18, for example, illustrate four different approaches to diagnosing and treating a client with a herniated nucleus pulposus, and the supporting evidence for each. Elsewhere, cases present emerging evidence in the form of clinical prediction rules (CPR), developed from research, that help guide the selection of a certain intervention that has a high probability of success. For example, case 14 presents the CPR for choosing regional lumbopelvic manipulation based on a specific combination of signs, symptoms, and aspects of history and physical examination in the treatment of low back pain; case 16 presents the CPR for selecting traction as the most effective approach to treating a herniated disc in the lumbar spine. At times, the book presents surprising and enlightening research evidence in its clinical recommendations, such as the evidence-based recommendation in case 7 that “stretching exercises (self-mobilization) are superior to manual therapy techniques in increasing shoulder range of motion and improving function in patients with adhesive capsulitis” (p. 102). This recommendation points to the importance of effective patient education and design of home exercise programmes.

Physical Therapy Case Files: Orthopaedics features clear photos demonstrating different manual therapy techniques, therapeutic exercises, and stretches. However, more anatomic diagrams illustrating the impairments in question are needed; where present, these are very helpful as a review of the locations of various anatomic structures being discussed, especially the ligaments. As well, the book’s cover would be more appealing to its target audience had it featured images reflecting physical therapy practice—for instance, images of a physical therapist measuring joint range of motion with a goniometer or performing a manual therapy technique.

The book discusses most topics in reasonable depth. However, case 23 on patellofemoral pain—a very common problem

among adolescent and young women—could benefit from a more comprehensive discussion. For example, the authors could elaborate on how structural alignment at the hip (e.g., wide pelvis) or the ankle and foot (e.g., pronated feet), or muscle imbalance in the knee extensor complex, can contribute to patellofemoral tracking malalignment. Besides focusing on strengthening the hip musculature as a clinical recommendation, the chapter could further explore, with an evaluation of the associated evidence, other potential conservative remedies such as kinesiotaping, knee muscle re-training using biofeedback, or correcting alignment with the aid of foot orthotics.

Tables outlining different special tests are particularly useful for the clinical diagnosis and, in certain cases, differential diagnosis of many conditions, but even more helpful would be a concluding summary case of a condition for each joint or body part to encourage readers to apply the information and assimilate the knowledge presented earlier in the book. This summary case could present signs and symptoms only and avoid revealing a diagnosis at the beginning urging the reader, instead, to find out the results of certain special tests that would then facilitate clinical reasoning to arrive at a final diagnosis and subsequent evidence-based treatment approach.

Physical Therapy Case Files: Orthopaedics provides a quick musculoskeletal review and an evidence-based overview of assessments and interventions for many orthopaedic conditions encountered in clinical practice. This book is ideal as a study tool for entry-level physical therapy students, as well as for early-career physical therapists looking for evidence-based resources for therapeutic exercise design. Although more advanced and specialized orthopaedic physical therapists may find the section “Understanding the Health Condition” unnecessary and “Physical Therapy Patient/Client Management” too basic, the current research evidence provided in this book may still be helpful in supporting clinicians’ choices of intervention strategies.

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