

Closed Kinetic Chain Exercise. A Comprehensive Guide to Multiple-Joint Exercises
 By Todd S. Ellenbecker, and George J. Davies.
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Closed kinetic chain exercises have played a role in patient rehabilitation and conditioning for many years. Their popularity, although having faded slightly in the 1980's, has increased and recent studies have produced evidence supporting the inclusion of closed kinetic chain exercises in a well-balanced rehabilitation or conditioning patient management plan.

Closed Kinetic Chain Exercise: A Comprehensive Guide to Multiple-Joint Exercises was written to present both the theoretical aspects and practical applications of closed chain kinetic exercise principles. Developed for use by clinicians and students, this text combines evidence from recent research with experience from the authors' clinical encounters to present a good introduction to, and review of, the use of closed kinetic chain exercises in clinical practice.

The book is well written and is organized logically, presenting information in a well thought-out manner. Early chapters focussing on the theory of closed kinetic chain principles support later chapters that present detailed exercises which demonstrate how to transform the theory into practical application. The book is concise, with 58 pages of text and 40 pages of closed kinetic chain exercises, and is supplemented with easy-to-understand tables, charts and photos that facilitate learning and increase comprehension on the part of the reader. A partial list of topics covered within the 8 chapters includes:

- Biomechanics and physiology of closed kinetic chain exercises
- The kinetic link principle
- Comparison of open and closed kinetic chain exercise
- Closed kinetic chain exercises for rehabilitation of the extremities

Ellenbecker and Davies have constructed a text with a number of strengths. The authors have done a commendable job in presenting a very well-balanced assessment of the evidence surround closed kinetic chain exercises, although their literature review is not ex-

haustive. Their critical analysis of research findings is well done and their suggestions for the integration of those findings into practice are rational and well reasoned.

A gem can be found in chapter 4 where the authors present a functional testing algorithm (FTA) for knee rehabilitation. The FTA presented combines both closed and open kinetic chain activities in a systematic, objective and quantitative protocol to guide patient progression from injury to functional activity. At each step in the algorithm, clear objective outcomes are defined that the patient must reach before progressing to the next stage of rehabilitation. This is a good learning tool for students, and a good reminder to clinicians, that a structured approach to rehabilitation with clearly defined goals and objectives will help the patient progress quickly while minimizing risk.

Chapters 7 and 8 are very well done and present closed kinetic chain and functional rehabilitation exercises in detail. Each exercise is shown by a photograph and is described in terms of its purpose, primary muscles utilized, performance, indications and contraindications. For most exercises, the authors also include "pearls of performance" describing how to modify the exercise to accomplish alternate goals, e.g., sport-specific results.

The primary regret I had while reading this text was the fact that the chapter on biomechanics and physiological principles focussed almost exclusively on the ACL and the knee joint. Based on the manner in which the material was presented, I found it difficult to apply the presented theoretical principles to other areas of the body. Although this concern was partially addressed in subsequent chapters, a more generalized theoretical approach in Chapter 2 would have been appreciated.

The authors have done a commendable job in presenting and integrating the theoretical aspects and practical applications of closed kinetic chain exercises in this book. This text will provide students with a solid introduction to closed kinetic chain exercises and will provide a concise review and a number of clinical pearls for the practicing health-care professional.

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