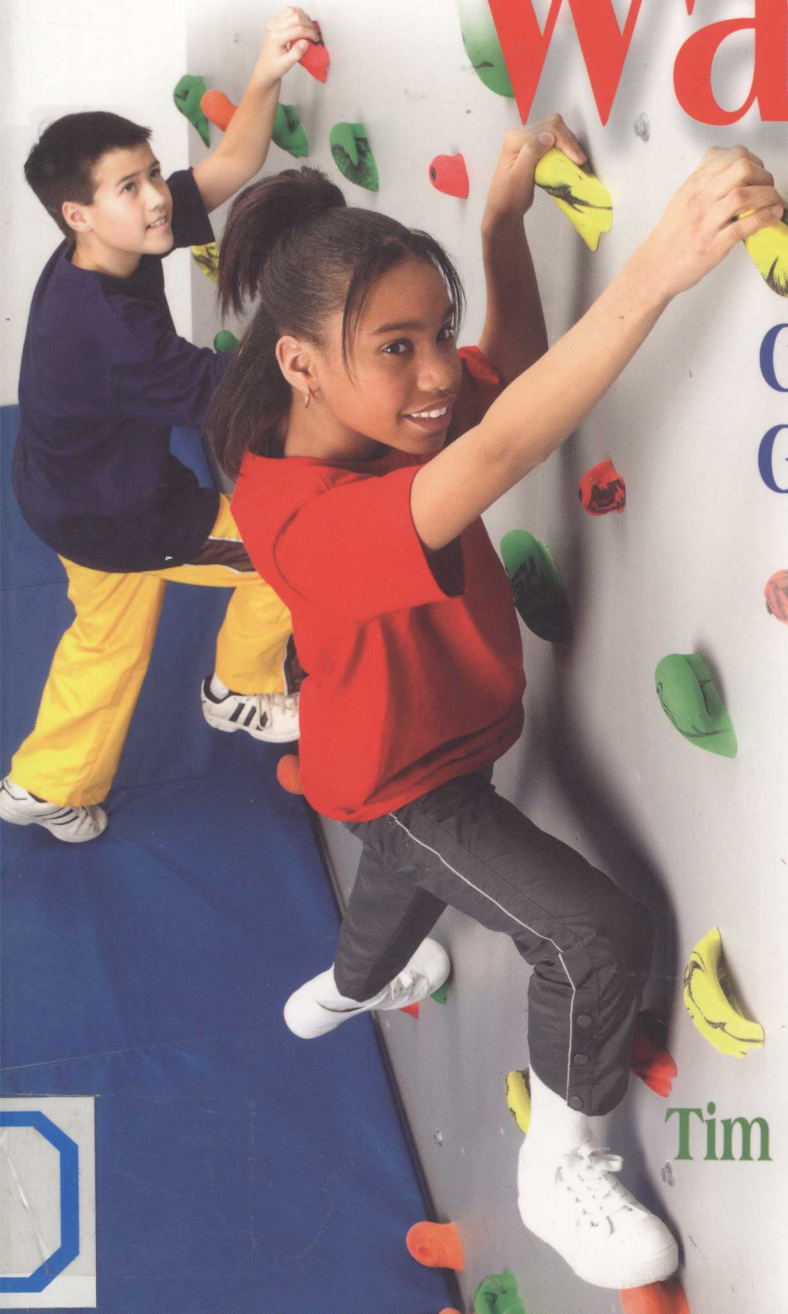
Climbing Walls



A Complete Guide

Jim Stiehl
Tim B. Ramsey

Climbing Walls

a complete guide

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攀岩墙指南

Climbing walls: a complete guide.

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preface

Over the past few years, interest in climbing has reached new heights—so to speak. Observing Sylvester Stallone dangling over a steep abyss in the movie *Cliffhanger,* or following the exploits of the mighty Lynn Hill, the first person to complete a free ascent of "The Nose" route on Yosemite's famous El Capitan, you might assume that climbing is the sole province of strong, brave, and perhaps somewhat foolish athletes.

But all of us are natural climbers. As soon as we learn to walk, we try to climb anything and everything: chairs, stairs, ladders, trees, and fences. Now, with the increased availability of artificial climbing walls in gyms and recreation centers around the country, enjoyable climbing experiences can be provided to novices and veterans, kids and adults, and fit and not-so-fit individuals.

Once deemed a fringe, extreme sport, climbing has evolved into a fun-filled activity, an educational medium, and a continually growing sport that attracts preschoolers through senior citizens. In all regions of the country, climbing walls are appearing in schools, at camps, on university and college campuses, in health clubs and community centers, and even in retail stores. In attempts to convert existing structures into climbing walls, some inspired individuals have even bolted artificial holds onto silos, office buildings, and bridges. And although beyond the scope of this book, there are commercial gyms designed exclusively for climbing. Some of these gyms include enormous freestanding boulders, caves, and structures that replicate real rocks from famous climbing areas around the world.

Clearly, climbing walls have become popular in schools, universities, recreation centers, camps, and other settings. According to the Sporting Goods Manufacturers Association, climbing on artificial walls has increased by 27 percent since the year 2000. It is one of the fastest developing activities. Some climbing facilities are geared toward developing fitness or preparing a person for climbing outdoors. Some are designed as part of a challenge course. Others place emphasis on fun and the thrill of

climbing. Since climbing activities foster enjoyment and self-satisfaction, climbing appeals to a variety of participants—not just athletes.

Climbing Walls: A Complete Guide is a resource for those of you who are already involved with climbing walls, and for those who might be thinking about doing so. We have designed this book to support those who supervise or provide instruction on a wall, as well as for anyone planning to construct or expand an existing wall or program. As mentioned earlier, the nuances and complexities of commercial climbing gyms are beyond the scope and intent of this book. Furthermore, some walls now include opportunities for lead climbs; that is, ascending a wall using intermediate anchors instead of the benefit of a solid anchor system at the top of a climb. This type of climbing involves much more risk and skill than most supervisors and instructors care to include. Thus, our comments about lead climbing are not extensive, but are included where basic knowledge could be useful for safety and instructional purposes (especially if you inherit a climbing wall with lead routes). Nonetheless, our emphasis is on bouldering (climbing close to the ground without anchors, ropes, and harnesses) and top-roping (using a rope and anchoring system for higher climbs that, in the event of a fall, could result in serious injury or worse).

In any wall climbing program, safety is paramount. Whereas the perceived risks associated with climbing can impart excitement and adventure among participants, the potential actual risks can be a major source of anxiety among administrators and instructors. In an effort to preserve the excitement associated with perceived risks while simultaneously avoiding real hazards, we will identify potential risks and how to address them so that you can be vigilant in creating a challenging yet safeguarded environment for your clientele.

This book is organized into six chapters. Following an introductory chapter, chapters 2, 3, and 4 address design, construction, and equipment considerations. Chapters 5 and 6 provide basic operating guidelines and activities.

Chapter 1: Introduction to Climbing. Following some introductory comments about climbing walls, this chapter emphasizes the goals and benefits that participants can achieve.

Chapter 2: Designing a Climbing Wall. This chapter examines essential considerations during the planning phase for a climbing wall. Included are examples of the wide spectrum of wall designs and features (e.g., overhangs, lead climb protection anchors, characteristics of holds) along with information to assist individuals in seeking answers to specific design questions and problems.

Chapter 3: Constructing a Climbing Wall. In addition to describing procedures for constructing various types of walls, this chapter presents factors to consider such as industry standards and local specifications and

codes. Also included are discussions of contractor skills and experience, liability coverage, and factors affecting costs.

Chapter 4: Selecting Climbing Equipment. In this chapter, besides pointing out technical aspects of each piece of equipment, there is discussion of how the equipment functions with other equipment and the climbing structure. Included are suggestions for documenting use of ropes, harnesses, carabiners, and other common types of equipment.

Chapter 5: Developing and Managing a Climbing Program. Ensuring that staff will supervise effectively and provide sound, meaningful experiences for participants is the next step. This chapter covers information about basic operating guidelines and general emergency procedures. It also includes a discussion of standards for administrators, staff, and participants as well as how program staff can assist in serving the needs of a diverse clientele. The chapter ends with an explanation of the basic skills needed by participants before they can actually begin climbing.

Chapter 6: Climbing Activities and Games. This chapter provides a variety of climbing activities for participants with a wide range of abilities and interests. From specific activities to games that build upon concepts in *Changing Kids' Games* (Morris and Stiehl 1999), the chapter offers strategies for staff and participants to discover and invent endless variations of games and activities for climbing walls.

Appendixes provide further information: In appendix A, you will find climbing wall program forms that an instructor and administrator can use for risk management and operation of the climbing wall. In appendix B, we list sources and resources for additional information on topics such as liability, equipment, and construction.

Advocates claim that climbing strengthens the body, challenges the mind, and uplifts the spirit. *Climbing Walls: A Complete Guide* presents the complete guide for everyday use in school, recreation, camp, and community settings so that instructors and administrators can provide a healthy, fun activity in which everyone can participate.

acknowledgments

Prior to writing this book together, our paths were quite different. But converging paths permitted us to climb and work side-by-side. Our acknowledgments, therefore, are mutual and separate.

Together we thank our colleagues and staff at the University of Northern Colorado for allowing us to practice what we preach—that is, climbing can be a fun, educational activity for everyone (or in their words, "And you guys get paid to do this?"). Also Nate Postma of the Climbing Wall Association deserves our deep gratitude. He has kept us abreast of the climbing industry's most up-to-date thinking. This is a challenging task in the rapidly changing world of climbing. Finally, we appreciate the untiring support of the Human Kinetics staff, particularly Gayle Kassing, Chris Johns, and Derek Campbell who, in each communication with us, conveyed a genuine interest in every aspect of climbing which, in turn, inspired us to work and climb harder.

Jim expresses gratitude to his friend and colleague, Jeff Steffen, for introducing him to the joys of *calculated* risk-taking ("there's old climbers, and bold climbers; but no old bold climbers") and for laying the foundation for the continuing outdoor and adventure programs at UNC. He also thanks another long-time friend and colleague, Cheryl Kent, who was the driving force in acquiring UNC's climbing wall. She has refuted those naysayers who once declared it "just a fad." Finally, thanks to those many school and community partners who have supported kids' growth through climbing.

Tim wishes to thank his parents for introducing him to the world of nature and outdoor pursuits, out of which recreational and professional experiences grew. He also thanks his long-time climbing partner, Pete Helmetag, for sharing their many adventures in rock climbing and the mountain world; and his friend and colleague, Steve Roberts, Director of the Slippery Rock University Outdoor Adventures Program, for his unfailing willingness to share professional information and outdoor adventures. Special thanks goes to all the students of Tim's rock climb-

ing classes whose enthusiasm for learning to climb keeps him involved in the educational and recreational joys of climbing. Most importantly, deepest thanks go to Jim (his co-author) for taking up the writing slack and guiding Tim along the writing path when he ventured into the more familiar and comfortable world of the outdoors.

As a final point, we thank publicly our respective companions, Julie Trujillo and Missy Parker. While not accompanying us on every climbing foray, they at least indulge the two of us in our need to visit the backcountry together (and we're afraid to ask what they do while we're gone).

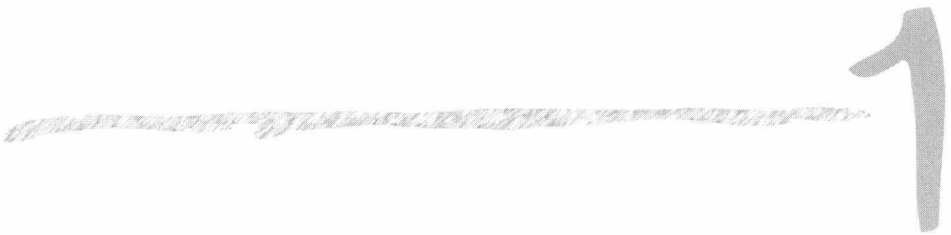
a note about safety

Despite all of the technological advances in artificial wall climbing during recent years, climbing is still an inherently dangerous activity involving risk of serious injury or even death. Though indoor climbers are not susceptible to many of the hazards that may be present in outdoor rock climbing (e.g., weather, falling rocks, poison ivy, wasps, and rattlesnakes), indoor climbing still presents potential dangers. Among these are loose or damaged holds; falling to the ground or onto other participants; abrasions from walls, ropes, or the floor; equipment failure or belay failure; or climbing out of control or beyond one's personal limits.

Critical to minimizing such risks is education, and this book provides a reasonable starting point. However, you should not depend solely on information gleaned from this book for safety. No document can address the particulars of every situation. Facility operators and instructors must remember that their best judgment and discretionary actions may differ from what is written in this book. Moreover, there is no substitute for personal instruction when it comes to learning climbing safety techniques and operational practices. If you misinterpret a concept expressed in this book, someone may be seriously injured as a result of the misunderstanding. Therefore, the information provided in this book should be used only to supplement competent instruction and guidance from qualified and experienced climbing instructors and climbing facility operators. Even as you become proficient in climbing safety, occasional use of a climbing instructor is a recommended way to raise your climbing standards and to acquire advanced information about accepted industry practices.

In summary, artificial wall climbing can never be guaranteed as safe. However, maintaining a reasonable margin of safety can minimize the inherent dangers. With proper education and adherence to accepted risk management and operational practices, indoor climbing can be relatively safe for persons of all ages.

contents



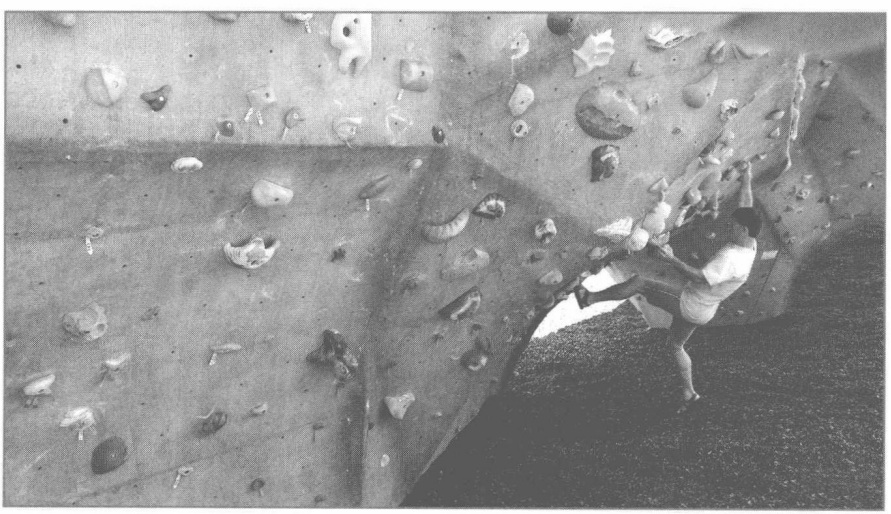
Introduction to Climbing

"A climbing wall is not just a one-shot carnival ride with a fifty-dollar bill taped to the top of it."

Michael Popke (2003)

Over the past two decades, interest in climbing has gone "sky high," as has the proliferation of commercial companies that manufacture climbing walls and equipment. Climbing walls have become ingrained into the fitness and recreation culture. On college campuses, climbing is being introduced to new legions of participants. Many public schools are now incorporating climbing walls into their physical education programs. Indeed, the federal government, through its Physical Education Program (PEP) bill, recommends a traverse climbing wall as one of the pieces of equipment that can be used to help initiate, expand, and improve physical education programs for kindergarten through grade 12 students. Corporate groups often make climbing walls one component of leadership training. Hosting climbing competitions, throwing birthday parties, creating a training environment for local climbers preparing for a major ascent, and providing athletic opportunities for youngsters (climbing's next generation) who might not otherwise participate in organized sports are all becoming commonplace at climbing walls.

So what accounts for the skyrocketing popularity of climbing walls? For starters, they're conspicuous if not striking. Today's climbing walls are far more varied and beautiful than those of just a few years ago. There are self-paced, rotating walls; climbing towers with rocklike texture; custom walls featuring cracks and lead routes; innovative playground climbing structures; racquetball court conversions; and portable, durable walls



Climbing's rising popularity can be attributed, in part, to the outstanding design and construction of today's climbing walls.

and towers that can be hauled on custom trailers to various locations. People sometimes know about a particular school, recreation center, or health club because of its climbing wall. The wall serves as a landmark and generates interest not only in climbing but in other activities at that site as well.

Climbing walls also have the advantage of being wonderfully versatile. For those people who have spent years getting fit and are bored with old machines, climbing walls can always present new challenges. Climbing holds can be repositioned to create a potentially unlimited variety of climbing routes. For example, easy routes placed adjacent to more challenging routes will attract beginners and increase their confidence. Similarly, color coding all the holds on a single route allows climbers with different skill levels to use the same route yet choose different holds. Thus, by varying the difficulty of various routes, a wide range of climbers can be served on a single wall—all of this occurring in a controlled environment.

Health and Social Benefits

Another advantage of a climbing wall is that it provides health benefits and cross-training potential. Wall climbing frequently becomes an alternative to more common indoor physical activities or, perhaps better, becomes a cross-training exercise that is balanced with other activities. Recognizing the health benefits of climbing, many programs couple their climbing technique classes with clinics on stretching, diet, avoiding overuse injuries, and weight training.

Specific physical benefits of climbing include (1) enhanced fine motor skills; (2) strengthened back, leg, shoulder, and forearm muscles; and (3) increased endurance and flexibility. But climbing a wall is a mental and emotional as well as a physical experience. Selecting an appropriate climbing route while undergoing physical exertion requires strategies and imagination. Many people who have never tried indoor climbing mistakenly believe that its primary prerequisite is extraordinary upper body strength. When climbing, however, technique is more important than strength—this is a pleasant surprise to the novice climber. Women in particular often become enamored with climbing when they realize that their performance will improve without even working on power and endurance. Other important aspects of climbing include footwork, coordination, balance, and concentration—all forms of positive power. Nonetheless, if someone is already in good physical condition, climbing is an excellent cross-training activity that promotes strength, endurance, body control, and precision of movement.

Benefits to Schools

In public schools, climbing activities have been used to make physical education more attractive. Some of today's youngsters, raised on the fast-paced entertainment of video games and television, find physical activity tedious or even humiliating. Some team sports discourage those who have the most to gain from physical activity. And an overdose of jumping jacks, sit-ups, and stretching routines can be boring even to the most enthused student. But boredom and embarrassment are seldom seen on the faces of kids who, like little sand crabs and with support from a classmate ("spotter"), stretch and grasp their way across appropriately challenging climbing routes.

In public schools, climbing walls can also be used as one way of addressing national physical education goals. For instance, climbing requires interpersonal skills (cooperation, communication, and sometimes conflict resolution), cognitive skills (planning, decision making, and problem solving), and physical skills (balance, coordination, strength, and flexibility). Climbing success can also enhance self-esteem, self-confidence, patience, perseverance, and courage. Thus, physical education teachers are teaching climbing alongside other less traditional activities (e.g., in-line skating) as well as traditional physical education units.

Other proponents of climbing walls call attention to the personal and social benefits of climbing: camaraderie, confidence, teamwork, trust, cooperation, pushing a person's limits to the maximum without significant danger, and, of course, fun and the inherent pleasure that climbing brings. Consider the following examples of climbing walls and their many advantages.

The Boston Children's Museum reached new heights by adding a climbing wall exhibit. The wall is intended to challenge youngsters' physical and mental abilities, as well as those of adults.

In Williamston, Michigan, the PTA bought a climbing wall for students at two elementary schools. Teachers assert that it will promote more than strength, flexibility, and confidence. Their goal is to weave the climbing wall into their curriculum, because it will develop team-building, leadership, and communication skills.

Scaling Mount Zot at the campus recreation center of the University of California at Irvine, university students step out of their comfort zone. Many students climb for the challenge of it, stress relief, and the mental benefits, as well as for fun.

Throughout the nation, schools, universities, and communities are working together to plan and fund climbing walls that will open their doors to students while providing access to community residents. The new $12 million fitness center addition at Lake Shore Senior High School in Evans, New York, features a climbing wall. Williams University's climbing wall offers activities to the students and is part of an outreach program to the community.