

Swimming Science Optimizing Training And Performance

Complete Conditioning for Swimming
Swim Speed Strokes for Swimmers and Triathletes
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Swimming Science

Complete Conditioning for Swimming

Swim better—and enjoy every lap—with Total Immersion, a guide to improving your swimming from an expert with more than thirty years of experience in the water. Terry Laughlin, the world's #1 authority on swimming success, has made his unique approach even easier for anyone to master. Whether you're an accomplished swimmer or have always found swimming to be a struggle, Total Immersion will show you that it's mindful fluid movement—not athletic ability—that will turn you into an efficient swimmer. This new edition of the bestselling Total Immersion features:

- A thoughtfully choreographed series of skill drills—practiced in the mindful spirit of yoga—that can help anyone swim more enjoyably
- A holistic approach to becoming one with the water and to developing a swimming style that's always comfortable
- Simple but thorough guidance on how to improve fitness and form
- A complementary land-and-water program for achieving a strong and supple body at any age

Based on more than thirty years of teaching, coaching, and research, Total Immersion has dramatically improved the physical and mental experience of swimming for thousands of people of all ages and abilities.

Swim Speed Strokes for Swimmers and Triathletes

In Swim Speed Secrets, 4-time Olympian, gold medalist, and triathlon world champion Sheila Taormina reveals the swim technique used by the world's fastest swimmers. Over the course of 4 Olympic Games and throughout her career as a world champion triathlete, Taormina refined her exceptional technique as a student of the sport, studying the world's best swimmers using underwater photographs and video analysis. From Johnny Weissmuller to Michael Phelps, the world's fastest swimmers share two common elements: high stroke rate and a high-elbow underwater pull. Many swimmers and triathletes neglect the underwater pull, distracted by stroke count or perfecting less critical details like body position, streamlining, and roll. Swim Speed Secrets focuses on producing power—the most crucial element of swimming—to help triathletes and swimmers overhaul their swim stroke and find the speed that's been eluding them. With a commonsense approach that comes from decades of practice and years of hands-on coaching experience, Taormina shows swimmers how to transition to faster swimming. Swim Speed Secrets includes:

- The best drills to cultivate a more sensitive feel for the water
- Dryland and strength building exercises to develop arm position and upper body musculature
- Crisp photos of Olympic swimmers and variations in their high-elbow underwater pull
- Clear descriptions of the key moments of the underwater pull
- Tips that helped her perform at a world-class level for two decades

Sheila Taormina's Swim Speed Secrets brings the focus back where it belongs—to a powerful underwater stroke. With this approach, triathletes and swimmers can stop swimming for survival and break through

to new levels of speed and confidence in the water.

The Art of Resilience

Monitoring Training and Performance in Athletes provides practitioners with the information needed in order to oversee an athlete monitoring system and to collect, analyze, and interpret monitoring data so that training programs can be adjusted to achieve optimal athlete preparation and performance.

The I in Team

The use of antioxidants in sports is controversial due to existing evidence that they both support and hinder athletic performance. Antioxidants in Sport Nutrition covers antioxidant use in the athlete's basic nutrition and discusses the controversies surrounding the usefulness of antioxidant supplementation. The book also stresses how antioxidants may affect immunity, health, and exercise performance. The book contains scientifically based chapters explaining the basic mechanisms of exercise-induced oxidative damage. Also covered are methodological approaches to assess the effectiveness of antioxidant treatment. Biomarkers are discussed as a method to estimate the bioefficacy of dietary/supplemental antioxidants in sports. This book is useful for sport nutrition scientists, physicians, exercise physiologists, product developers, sport practitioners, coaches, top athletes, and recreational athletes. In it, they will find objective information and practical guidance.

Science of Sport: Swimming

High Performance Youth Swimming provides an in-depth view of the physiological, biomechanical, and multifaceted underpinning of swimming success, with a focus on youth. Considerations of both growth and maturation processes and the intricacies of the swimming training environment are core throughout the book. Divided into sections on physiology of swimming, motor control, biomechanics, and long-term well-being, the book also includes chapters from international contributors on: Strength and conditioning Skill acquisition Overtraining Burnout Respiratory health This volume is for those interested in enhancing their art of coaching through a deeper understanding of the science of swimming, including swimming coaches, those who wish to and question how to best support youth swimming performance, or anyone interested in swimming science more generally.

Heart Rate Training

"Heart Rate Training" takes the guesswork out of training and explains how, when, and why heart rate monitors should be incorporated into training and conditioning programs. A comprehensive guide for endurance athletes, the guidebook explains the merits, factors, and techniques of training with a heart rate monitoring system.

Swimming Anatomy

In the years immediately following Napoleon's defeat, French thinkers in all fields set their minds to the problem of how to recover from the long upheavals that had been set into motion by the French Revolution. Many challenged the Enlightenment's emphasis on mechanics and questioned the rising power of machines, seeking a return to the organic unity of an earlier age and triggering the artistic and philosophical movement of romanticism. Previous scholars have viewed romanticism and industrialization in opposition, but in this groundbreaking volume John Tresch reveals how thoroughly entwined science and the arts were in early nineteenth-century France and how they worked together to

unite a fractured society. Focusing on a set of celebrated technologies, including steam engines, electromagnetic and geophysical instruments, early photography, and mass-scale printing, Tresch looks at how new conceptions of energy, instrumentality, and association fueled such diverse developments as fantastic literature, popular astronomy, grand opera, positivism, utopian socialism, and the Revolution of 1848. He shows that those who attempted to fuse organicism and mechanism in various ways, including Alexander von Humboldt and Auguste Comte, charted a road not taken that resonates today. Essential reading for historians of science, intellectual and cultural historians of Europe, and literary and art historians, *The Romantic Machine* is poised to profoundly alter our understanding of the scientific and cultural landscape of the early nineteenth century.

Swim Speed Secrets for Swimmers and Triathletes

Eat Right, Swim Faster is the ultimate nutrition resource for competitive swimmers of all ages. It is a smartly written book of highly practical and very accessible information for swimmers interested in what food can do for them in their pursuit of maximum performance in the water. Rather than insisting that readers wade through a tangle of highly technical terminology, *Eat Right, Swim Faster* provides an abundance of sound, practical advice, in a straightforward, non-academic tone. *Eat Right, Swim Faster* draws on the very latest sports nutrition research as well as the very personal experience of the author—a registered dietitian, sports nutritionist, swim coach, athlete, and mother of three competitive swimmers. Readers can therefore be confident they're receiving the smartest, most up-to-date information on the foods and drinks that will serve them—and their swimming performance—best.

Running Science

"*Heart Rate Training, 2E* helps the endurance athlete to understand how best to use the overwhelming amount of data that can be captured by heart rate monitoring equipment. The authors offer both general and sport-specific guidance in how to customize training plans in a way that effectively uses the latest technology and research"--

Missy Franklin: Swimming Sensation: Y Not Girl

In her best-selling book *Swim Speed Secrets*, 4-time Olympian and gold medalist Sheila Taormina revealed the freestyle swimming technique used by the world's fastest swimmers. Now in *Swim Speed Strokes* Taormina shows swimmers and triathletes how they can swim with elite technique in all four swimming strokes--butterfly, backstroke, breaststroke, and freestyle. Using crystal-clear photographs and her engaging, straightforward style, Coach Taormina explains the science behind power and speed in the water, explores the elements common to every stroke, and examines stroke technique in detail in individual stroke chapters. *Swim Speed Strokes* goes deep into the fastest swimming technique for each stroke, breaking down the pull, kick, core movement, and timing of 13 elite swimmers and Olympians including Peter Vanderkaay, Rebecca Soni, Aaron Peirsol, Rowdy Gaines, Ashley Whitney, Vlad Morozov, Ariana Kukors, Andrew Gemmell, Laura Sogar, Nicolas Fink, Elizabeth Beisel, Doug Reynolds, and Melanie Margalis. Taormina interviews each athlete and analyzes underwater photos and race stroke data to break down their technique in butterfly, backstroke, breaststroke, and freestyle. From the catch through the curvilinear path and diagonal phase to the power-packed finish phase, Taormina explores the pull patterns to show how any swimmer can improve their own swimming. As Taormina shows in *Swim Speed Strokes*, the fastest technique for all four swimming strokes is remarkably similar. One-stroke swimmers will find big improvements in practicing the others, refining their feel for the water, coordination, and stroke efficiency. Whether you want to master every stroke or simply improve on your best one, *Swim Speed Strokes* will show you how to become the strongest swimmer you can be.

Triathlon Science

The Science of Sport - Swimming is a complete guide for swimming training through the application of physiological, biomechanical, psychological, strength and conditioning, nutritional and injury management methods that can be used to optimize performance. Practical examples are included on the components of swimming conditioning, technical and mental training, and how they relate to the various swimming speciality events. The text provides details on mental and strength conditioning training exercises and racing day preparation methods for various abilities, including speciality swimmers who seek performance improvement constantly. The book includes contributions from leading coaches and sport scientists, sport psychologists, sports medical practitioners and Olympic, world and national champion swimmers. Illustrated throughout with 110 colour photographs.

High Performance Youth Swimming

"Recovery for Performance in Sport "encompasses the latest scientific research in the study of recovery and draws from the experience of applied sport scientists working with elite athletes in leading performance and recovery centers around the globe.

Antioxidants in Sport Nutrition

Updated and expanded with more than 80 pages of new content! Improve your athletic performance, extend your athletic career, treat stiffness and achy joints, and prevent and rehabilitate injuries—all without having to seek out a coach, doctor, chiropractor, physical therapist, or masseur. In *Becoming a Supple Leopard*, Dr. Kelly Starrett—founder of MobilityWOD.com—shares his revolutionary approach to mobility and maintenance of the human body and teaches you how to hack your own movement, allowing you to live a healthier, more fulfilling life. This new edition of the New York Times and Wall Street Journal bestseller has been thoroughly revised to make it even easier to put to use. Want to truly understand the principles that guide human movement? *Becoming a Supple Leopard* lays out a blueprint for moving safely and effectively through life and sport. Want to learn how to apply those principles to specific movements, whether you are doing squats in the gym or picking up a bag of groceries? Hundreds of step-by-step photos show you not only how to perform a host of exercise movements, such as the squat, deadlift, pushup, kettlebell swing, clean, snatch, and muscle-up, but also how to correct the common faults associated with those movements. Frustrated because you can't perform a certain movement correctly due to range of motion restrictions? Breaking the body down into 14 distinct areas, Starrett demonstrates hundreds of mobilization techniques that will help you resolve restrictions and reclaim your mobility. Unsure how to put it all together into a program that addresses your individual needs? This updated edition lays out dozens of prescriptions that allow you to hone in on a specific limitation, a nagging injury, or an exercise fault that you just can't seem to get right. It even offers a 14-day full-body mobility overhaul. Performance is what drives us as human beings, but dysfunctional movement patterns can bring the human body to an abrupt halt. Often, the factors that impede performance are invisible even to seasoned athletes and coaches. *Becoming a Supple Leopard* makes the invisible visible. Whether you are a professional athlete, a weekend warrior, or simply someone wanting to live healthy and free from physical restrictions, this one-of-a-kind training manual will teach you how to harness your athletic potential and maintain your body. Learn how to perform basic maintenance on your body, unlock your athletic potential, live pain-free—and become a Supple Leopard. This step-by-step guide to movement and mobility will show you how to: - Move safely and efficiently in all situations - Organize your spine and joints in optimal, stable positions - Restore normal function to your joints and tissues - Accelerate recovery after training sessions and competition - Properly perform strength and conditioning movements like the squat, bench press, pushup, deadlift, clean, and snatch -

Build efficient, transferable movement patterns and skill progressions from simple to more advanced exercises - Identify, diagnose, and correct inefficient movement patterns - Treat and resolve common symptoms like low back pain, carpal tunnel, shoulder pain, and tennis elbow - Prevent and rehabilitate common athletic injuries - Use mobilization techniques to address short and stiff muscles, soft tissue and joint capsule restriction, motor control problems, and joint range of motion limitations - Create personalized mobility prescriptions to improve movement efficiency

The Romantic Machine

Long-Term Athlete Development describes how to systematically develop sporting excellence and increase active participation in local, regional, and national sport organizations. This resource describes the long-term athlete development (LTAD) model, an approach to athlete-centered sport that combines skill instruction with long-term planning and an understanding of human development. By learning about LTAD, sport administrators and coaches will gain the knowledge and tools to enhance participation and improve performance and growth of athletes. This text offers the first in-depth and practical explanation of the LTAD model. Long-Term Athlete Development integrates current research on talent development and assessment into practice to help sport leaders plan athletic development across the life span or design detailed programs for a particular group, including those with physical and cognitive disabilities. Authors Balyi, Way, and Higgs—pioneers and veteran LTAD facilitators—critique current talent development models, discuss the limitations of the LTAD model, and demonstrate the benefits of LTAD as a new approach. By integrating knowledge of these models, readers are able to analyze their own programs and take steps to improve sport and coaching philosophies and reach adherence and performance goals. Explanations and visuals of concepts help readers understand the state of knowledge in talent identification and long-term athlete development. Chapter-opening vignettes offer examples of how the LTAD model can be used to alleviate common issues. Listings at the end of each chapter offer sources for further study, and reflection questions guide readers in applying the content. The text offers a logical presentation of current research: □ Key factors that guide and shape the LTAD model, such as physical literacy, the differences between early- and late-specialization sports, and variations in trainability across the life span □ Information on the time needed to develop excellence in sport and how periodization of training is related to the developmental stage of the athlete □ The seven stages of LTAD, from development of fundamental movement skills to training for elite competition and the transition to lifelong physical activity □ Considerations in the development of optimal programs for participants passing through each of the seven stages Long-Term Athlete Development is an essential guide to improving the quality of sport, developing high-performance athletes, and creating healthy, active citizens. It offers parents, coaches, and sport administrators a deeper understanding of the LTAD model, helping them create an enjoyable, developmentally appropriate environment for both competitive athletes and enthusiastic participants.

Routledge Handbook of Ergonomics in Sport and Exercise

Periodization of resistance training -- Training principles -- Acute program variables -- Practical considerations -- Workout design -- Assessment -- Training tips and tools -- Case studies.

Body by Science

An illustrated guide to competitive swimming containing detailed overviews of the four primary strokes; racing strategies; and the most effective training methods and the science behind why they work.

Running Science

A Definitive Guide to Implementing Race Pace Training and Produce Faster Competitive Swimmers This book is a definitive guide on how to implement race pace training into your swimming workout program. Over five years of implementing race pace training and through trial and error to correct the race pace training process. I was able to coach swimmers to achieve state, regionals, sectionals, futures and winter juniors time standards. It is only a matter of time until my swimmers achieve the junior national and national level time standards. I was also able to coach state and regional record breakers for age group swimming. This is a standardized race pace program that you and the swimmers will enjoy as they train with race pace training. This program keeps swimmers motivated and prevents burn outs from happening. If you are ready to coach faster swimmers in a shorter period of time, please read this book.

Recovery for Performance in Sport

A biography of the swimming champion, Missy Franklin.

Eat Right, Swim Faster

Golf is perhaps the most complicated simple game ever invented. Watching the professionals gives you only a glimpse of the complexity of what is happening, with each shot involving biomechanics, aerodynamics, ballistics, materials science, probability, even meteorology. Golf Science takes a timely new look at the game by investigating the scientific wonders that transfer the ball from tee to hole. Each chapter investigates a different area of the game and is organized around a series of Q&As. What is the optimum length for a driver? How does backspin work? The answers and the data are presented through illuminating info-graphics. The perfect way to analyse your own kit and technique, by studying the techniques of the professionals and the latest innovations in design and coaching. Golf Science is the ultimate accessory for any golfer wishing to understand their craft.

Becoming a Supple Leopard 2nd Edition

Monitoring Training and Performance in Athletes

Science and Practice of Strength Training addresses the complexity of strength training programs while providing advice in customizing programs for athletes and other populations. It covers velocity training, intensity, timing, exercises, injury prevention, overtraining, and athlete monitoring.

Total Immersion

Ergonomics is concerned with the "fit" between people and their work. With an increasing number of people becoming conscious about their health and participating in sport or physical activity, ergonomics has become an increasingly prominent concern within the sport and exercise sciences. From the design of footwear and artificial playing surfaces, to studies of proprioception by obese children, the way in which people interact with their environment - designed and natural - has important implications for performance sport and for the design of safe and beneficial forms of physical activity. The Routledge Handbook of Ergonomics in Sport and Exercise is the first book to offer a comprehensive and in-depth survey of cutting-edge scientific research into ergonomics in sport and exercise. Written by world-leading international scientists and researchers, the book explores key topics such as: Musculoskeletal adaptation to sports and exercise Environmental factors of injury and fatigue Load weight and performance Ergonomics in adapted sports and exercise Measurement in sports and exercise Modeling

and simulation in ergonomics design Influence of playing surface, footwear and equipment design Bridging the gap between fundamental scientific research in sport and exercise and applications in sport and exercise contexts, this is an important reference for all advanced students, researchers and professionals working in sport and exercise science, kinesiology, sports technology, sports engineering, ergonomics, and product design.

Beneath the Surface

Before 1970, scientific research in swimming was poor and anecdotal, and the improvements of performance were linked firstly to the swimmer's experience and, secondly, as a result of permanent research for speed. Before and after the Second World War, scientific studies were conducted by pioneers and marked the beginning of research in stroke mechanics and swimming physiology exercise. This book reviews research on the body of knowledge available for the improvement of sports coaching and training practice in swimming, which seems to be relevant, numerous, and diversified enough to help swimming coaches bridge the gap between theory and practice.

Swim Better, Swim Faster

It's very rare that a book can mean so much for professional sporting; Prof. Dr. Jan Olbrecht's book does! - He has a Ph. D. in physiology and biomechanics and is training adviser to numerous world class athletes - His method is based upon careful planning and a unique method of lactate testing to assess and optimize the athlete's conditioning and potential - His book should be considered as a manual for the modern coach who wants to know before planning and periodizing what kind of conditioning adaptations he may expect - It provides knowledge and shares experience in a very understandable and applicable to every training situation - It advances some new important concepts, most notably that training at anaerobic threshold speeds is not the most effective way to improve aerobic endurance and that aerobic and anaerobic metabolism must be developed to optimum, not maximum, levels in order to perform well in competition. (Based on refined outcomes following a re-analysis of the characteristics of anaerobic capacity exercises, some changes have been made regarding their description for long distance swimmers in comparison with previous publications (see Classification of Training Exercises).

Swimming Fastest

Provides expertise for triathlon athletes seeking to raise their game by fine-tuning their physique, developing a race strategy, and setting personal goals.

The Physiology of Physical Training

See how to achieve stronger starts, more explosive turns, and faster times! Swimming Anatomy will show you how to improve your performance by increasing muscle strength and optimizing the efficiency of every stroke. Swimming Anatomy includes 74 of the most effective swimming exercises, each with step-by-step descriptions and full-color anatomical illustrations highlighting the primary muscles in action. Swimming Anatomy goes beyond exercises by placing you on the starting block, in the water, and into the throes of competition. Illustrations of the active muscles for starts, turns, and the four competitive strokes (freestyle, breaststroke, butterfly, and backstroke) show you how each exercise is fundamentally linked to swimming performance. You'll also learn how exercises can be modified to target specific areas, improve your form in the water, and minimize common swimming injuries. Best of all, you'll learn how to put it all together to develop a training program based on your individual needs and goals. Whether you are training for a 50-meter freestyle race or the open-water stage of a triathlon,

Swimming Anatomy will ensure you enter the water prepared to achieve every performance goal.

Secrets of Race Pace Swimming

The Physiology of Physical Training provides complete coverage of the physiological and methodological aspects of physical training, providing essential knowledge for anyone involved in exercise physiology. Physiological processes at the cellular level and for the whole organism are discussed to better explain particular training methods and to convey a deeper knowledge and understanding of training techniques. Coverage of exercise training-induced adaptive responses and the most appropriate and up to date training methods to bring about targeted adaptive changes are also included. This is the perfect reference for researchers of physiology/kinesiology and human kinetics, practicing coaches, graduate students and sports medicine specialists. Fully describes exercise-induced adaptation from the cell to the whole body Demonstrates practical application of exercise for injury and disease prevention as well as improved physical performance Fully integrates the knowledge of molecular exercise physiology and training methods

Optimizing Strength Training

Running can encompass the absolute extremes of human performance, from speed to endurance. Running Science uncovers the fundamental science that underpins this ubiquitous sport, bringing together the study of biomechanics, nutrition, psychology, health and injury prevention, and the technical development of shoes and running surfaces: it's a complete reference.

World Book of Swimming

Outlines a comprehensive training program for swimmers, covering warming up, cooling down, training for specific strokes, building endurance, core stability, developing explosive power, enhancing flexibility, preventing and coping with injury, nutrition, hydration, and strength conditioning.

The science of winning

Building muscle has never been faster or easier than with this revolutionary once-a-week training program In Body By Science, bodybuilding powerhouse John Little teams up with fitness medicine expert Dr. Doug McGuff to present a scientifically proven formula for maximizing muscle development in just 12 minutes a week. Backed by rigorous research, the authors prescribe a weekly high-intensity program for increasing strength, revving metabolism, and building muscle for a total fitness experience.

The Hidden Game of Baseball

Describes in simple language how children with ADHD live in and interact with the world. The writer is an executive at an agency for the differently abled who has four adopted sons with ADHD.

Heart Rate Training

Long before Moneyball became a sensation or Nate Silver turned the knowledge he'd honed on baseball into electoral gold, John Thorn and Pete Palmer were using statistics to shake the foundations of the game. First published in 1984, The Hidden Game of Baseball ushered in the sabermetric revolution by demonstrating that we were thinking about baseball stats—and thus the game itself—all wrong. Instead of praising sluggers for gaudy RBI totals or pitchers for wins, Thorn and Palmer argued in favor of more

subtle measurements that correlated much more closely to the ultimate goal: winning baseball games. The new gospel promulgated by Thorn and Palmer opened the door for a flood of new questions, such as how a ballpark's layout helps or hinders offense or whether a strikeout really is worse than another kind of out. Taking questions like these seriously—and backing up the answers with data—launched a new era, showing fans, journalists, scouts, executives, and even players themselves a new, better way to look at the game. This brand-new edition retains the body of the original, with its rich, accessible analysis rooted in a deep love of baseball, while adding a new introduction by the authors tracing the book's influence over the years. A foreword by ESPN's lead baseball analyst, Keith Law, details *The Hidden Game's* central role in the transformation of baseball coverage and team management and shows how teams continue to reap the benefits of Thorn and Palmer's insights today. Thirty years after its original publication, *The Hidden Game* is still bringing the high heat—a true classic of baseball literature.

The Science of Winnig

A comprehensive guide to all things running explains running physiology, biomechanics, medicine, genetics, biology, psychology, training, and racing.

The Science of Swimming and Aquatic Activities

There is one sound that will always be loudest in sports. It isn't the squeak of sneakers or the crunch of helmets; it isn't the grunts or even the stadium music. It's the deafening roar of sports fans. For those few among us on the outside, sports fandom—with its war paint and pennants, its pricey cable TV packages and esoteric stats reeled off like code—looks highly irrational, entertainment gone overboard. But as Erin C. Tarver demonstrates in this book, sports fandom has become extraordinarily important to our psyche, a matter of the very essence of who we are. Why in the world, Tarver asks, would anyone care about how well a total stranger can throw a ball, or hit one with a bat, or toss one through a hoop? Because such activities and the massive public events that surround them form some of the most meaningful ritual identity practices we have today. They are a primary way we—as individuals and a collective—decide both who we are who we are not. And as such, they are also one of the key ways that various social structures—such as race and gender hierarchies—are sustained, lending a dark side to the joys of being a sports fan. Drawing on everything from philosophy to sociology to sports history, she offers a profound exploration of the significance of sports in contemporary life, showing us just how high the stakes of the game are.

Swimming in a Pool of Peanut Butter

Golf Science

Prepare to peek into the mind of a champion, known as the most decorated Olympian of all time with 28 medals, including 23 gold, with this newly updated edition of Michael Phelps's autobiography, *Beneath the Surface*. In this candid memoir, Phelps talks openly about his battle with attention deficit disorder, the trauma of his parents' divorce, and the challenges that come with being thrust into the limelight. Readers worldwide will relive all the heart-stopping glory as Phelps completes his journey from the youngest man to ever set a world swimming record in 2001, to an Olympic powerhouse in 2008, to surpassing the greatest athlete of ancient Greece, Leonidas of Rhodes, with 13 triumphs in 2016. Athletes and fans alike will be fascinated by insights into Phelps's training, mental preparation, and behind-the-scenes perspective on international athletic competitions. A chronicle of Phelps's evolution from awkward teenager to record-breaking powerhouse, *Beneath the Surface* is a must-read for any

sports fan.

Long-Term Athlete Development

Author Paul Mason had worked with swimmers of most levels, ranging from national champions to untrained enthusiasts who couldn't understand why they couldn't go any faster. There are lots of swimmers out there who would like to improve, but don't really know how to progress from splashing up and down to gliding through the water. *Improve Your Swimming* explains seven simple things you can do to become a better swimmer. 1 Streamlining How to reduce the resistance you present to the water. 2 Breathing Learn to time when to take a breath, and how much breath to take on. 3 Body position This section looks at head angle, relative position of the chest and hips, body roll, and the energy-sapping evils of twist. 4 Flexibility This section will include information on the kind of flexibility that's crucial for swimming, plus exercises to improve flexibility. 5 Hold on the water This chapter explains hand entry into the water, hand shape, the course your hands might trace through the water, arm shape, exit and recovery 6 Kicking A short section on kicking technique, which has a significant effect on your body position. 7 Stroke and rhythm This chapter focuses on putting it all together to develop a smooth, fast, easy stroke.

Science and Practice of Strength Training

Swimming for Exercise

Swimming is often touted as one of the most accessible workouts—low impact, low tech, and beneficial at any stage of life. Yet each time you suit up and dive in, your body's moving parts must work together to propel you through dozens of pounds of water resistance, somehow emulating the movements of species that evolved specifically for the water. What are the physical forces at work when you get in a pool, and what determines whether you will sink or swim? Writing to competitive and novice swimmers alike, contributors to this volume break down every aspect of the sport. *Swimming Science* covers physiology, psychology, and safety, as well as hydrodynamics, nutrition, and technique. Each chapter examines these topics through a series of practical questions. What are the forces acting on you when you swim, and how do your muscles best generate propulsion against those forces? How much protein, salt, and iron should a swimmer consume, and how does energy from carbohydrates compare to energy from fats? How important is the "swimmer's physique" in competitive swimming, and is technique or strength more necessary for generating speed? These questions are examined with the aid of explanatory diagrams and illustrations, and the book can be used to search for particular topics, or read straight through for a comprehensive overview. Whether you are a competitive swimmer looking to optimize your performance or just beginning to dip a toe into the sport, *Swimming Science* is a must-read.

Swimming Science

Offers advice and tips on swimming as a form of exercise, includes chapters on stroke styles, techniques and exercise programs.

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