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Powerlifting Get the most out of our Guided Warmup feature. Image not available forColor: To view this video download Flash Player Signs of wear and consistent use. Seller Inventory # 3IIT4Q00488P_ns 4.57 4.57 out of 5 stars Report this item Title: Scientific Principles of Strength Training Publication Date: 2015 Binding: Soft cover Condition: Good AbeBooks offers millions of new, used, rare and out-of-print books, as well as cheap textbooks from thousands of booksellers around the world. Shopping on AbeBooks is easy, safe and 100% secure - search for your book, purchase a copy via our secure checkout and the bookseller ships it straight to you. New and used copies of new releases, best sellers and award winners. Save money with our huge selection. AbeBooks Home From scarce first editions to sought-after signatures, find an array of rare, valuable and highly collectible books. Rare Books Catch a break with big discounts and fantastic deals on new and used textbooks. Textbooks More Books to Discover This book is going to cover seven foundational principles of programming/periodization design for strength training, with particular focus and application to powerlifting training. It's also going to rank order these principles based on their importance... This book will delve deeply into what the principles of training are, the scientific underpinnings of why they are, and the practical ways in which they can be properly applied, as well as the ways in which to avoid common mistakes in their application. [This book] was written for intelligent lifters who want to think deeply about training as a process, for those who want to understand the "why's" and not just the "how's..." -- adapted from the preface. It looks like you're offline. Chapter 6: Stimulus-Recovery-Adaptation (SRA) Introduction to SRA Stimulus-Recovery-Adaptation (SRA) is a scientific framework describing the processes involved in training. Originally inspired by Hans Selye's General Adaptation Syndrome (GAS), the SRA model follows the effects of training stimuli that disrupt homeostasis, resulting in performance depression, followed by recovery and adaptations. Stimulus Phase During the stimulus period, training causes disruptions in mechanical and molecular systems, leading to short-term performance declines. This phase includes muscle damage and a signaling cascade geared toward recovery. The extent of performance decline varies based on the nature and magnitude of the stimulus. Recovery Phase Recovery begins immediately after the stimulus, focusing on restoring homeostasis. The time required for recovery depends on the magnitude of the disruption. Adequate recovery time is critical to avoid incomplete recovery, which can hinder adaptations. Proper programming should include sufficient rest or non-overloading training to facilitate recovery. Adaptation Phase Adaptation results in performance improvements above baseline post-stimulus recovery. This phase may begin immediately after the stimulus ends and continues through recovery. Overloading during adaptation can impede further improvements, necessitating careful scheduling of training sessions. System-Specific SRA Curves Different body systems exhibit unique SRA curves depending on training type: - Technical Ability: Rapid improvement occurs within a day, favorable for frequent practice. - Hypertrophy: Growth and muscle size changes take several days, requiring frequent stimulus to maximize adaptation. - Force Production: The nervous system can take about a week for full recovery and adaptation, thus benefiting from less frequent high-intensity training. - Connective Tissue: Long recovery times necessitate lighter periods or breaks from heavy loading to allow for adaptation. 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Summary The SRA principle emphasizes the balance between sufficient stimulus, recovery, and adaptation. Optimal training frequencies vary based on training type, individual lifter characteristics, and adaptation goals. Keeping the SRA principle in mind can enhance performance, but flexibility in application is necessary for individual circumstances, as rigid adherence may lead to missed opportunities for improvement. Key Points - SRA is central to understanding the training process, emphasizing the balance of stimulus, recovery, and adaptation. - Individual factors such as muscle size, fiber type, experience level, and goals significantly influence optimal training frequency. - Misapplication of the SRA principle can lead to underperformance or overtaxing adaptations, underscoring the need for carefully structured training programs. Further Reading - General Adaptation Syndrome, Principles of Resistance Training, Periodization Theory, and Research on Muscle Adaptations. Jump to ratings and reviewsIn Scientific Principles of Strength Training we have created one of the most comprehensive resources ever available on the topic of building strength. Checking in at nearly 400 pages, Scientific Principles is co-authored by Dr. Mike Israetel (author of The Renaissance Diet), Dr. James Hoffmann (Exercise Science Professor at Temple University) and Chad Wesley Smith (Top 10 Raw Powerlifter of All-Time). This trio of authors has given Scientific Principles a unique combination of scientific and practical knowledge, not found in any other text. Covered in Scientific Principles of Strength Training are...-In depth definitions of important strength training and programming terms.-Nuanced discussions of the following foundational training principles and how they can influence your training and program design...SpecificityOverloadFatigue ManagementSRAVariationPhase PotentiationIndividual Differences-Various powerlifting periodization schemes and their strengths/weaknesses-Myths, Fallacies and Fads in PowerliftingScientific Principles goes far beyond just giving you sets and reps to use for a few weeks or months, rather it will empower you with knowledge to create effective training programs and make informed answers to tough training problems for a lifetime.GenresFitnessHealthNonfictionSportsBodies 46 people are currently readingDisplaying 1 - 25 of 25 reviewsAugust 28, 2020This book isn't very well written, and while reading the introduction the wordy sentences and typos started to worry me. But then as I got deeper into the book, they really picked up steam with the concepts they were laying out, and that stopped mattering.The authors thought very carefully about how to organize the information, starting with the most important and foundational information, and then moving on to the minutae later on. By giving the information a clear heirarchy like that, it teaches us what to focus our efforts on: specificity, progressive overload, and recovery.This book is incredible. One of the best—if not the best—scientific books about strength training I've ever read. If you're passionate about the science of strength training or powerlifting, this is a must-read. December 11, 2022I found this book at a perfect moment, four years into my weightlifting journey when my progress started to plateau.I had so many “Oh, so that’s why it works!” moments when reading it. It feels like the entire fitness YouTube summarized on 400 pages.I cannot recommend it enough!December 28, 2020Well written book by the professor of gains himself Mike Israetel. Overall felt like a more structured and detailed approach to the information that he gives in YouTube lectures. It's best suited for trainers, advanced and intermediate athletes. Many will find many tips on how to optimise their routine further. The book is broken down by the basic principles (Elon Musk would be proud) of hypertrophy -Specificity-Overload -Fatigue Management -SRA relationship between stimulus, recovery, and adaptation-Variation-Phase Potentiation-IndividualisationWell structured and made to be able to come back to this book easily. Every chapter is well summarised and sometimes a summary has a summary. The book has a lot of support literature: 2 pages of references after every chapter. March 26, 2024The book was well structured and gave a really good overview of strength training. I liked that there was a summary at the end of each paragraph and links to further reading. December 21, 2024I bought this because ive really enjoyed the Juggernaut 2.0 and wanted to see the thibking that went into making it. This isnt really that, this is looking specifically at strength training without considering any other modalities or improvements, as part of fatigue management says, anything we do outside of lifting accumulates fatigue and if it doesnt improve strength then its not optimal.The idea of intentional overreaching before a deload and going from hypertrophy to strength to peaking is nice to see codified and theres obviously a lot of theoretical and practical advice behind the principles.Choice NotesStimulus-Recovery-Adaptation (SRA) is a useful note to have, i kept having to refer to what it was.SpecificitySled work is used successfully by football and rugby players to build work capacity, but that work capacity is to enhance preparedness for football and rugby practice, not powerlifting practice.The great powerlifting coach Louie Simmons used to boast that his lifters could be ready within mere weeks to compete. But the big question following that claim is... so what? For the reader… how many ‘surprise powerlifting meets’ have you ever heard of?Overloadweights lighter than around 60% 1RM for a movement do not stimulate the cellular signaling pathways for muscle growth to nearly the extent that heavier weights do, and are thus largely inappropriate for hypertrophy training.differences in intensity past 60% 1RM (lifting at 65% vs. 85%) have much smaller repercussions on hypertrophy than differences in volume (1 set vs. 4 sets, for example).Yes, you can get bigger by training as light as 60% of 1RM, and that new size can make you stronger, but the direct strengthening of existing size only occurs best above 75% 1RM.Starting a strength mesocycle from 75% 1RM and moving up towards (and perhaps past) 85% or your 1RM is likely a very good general approach in this regard.There is no way to practice for the maximal lifts other than to actually use near-maximal lifts in training; above 85% 1RM, in the 1-3 repetition range per set.For best results in powerlifting training, overload mandates that we regularly lift weights that we’ve never lifted before for reps we’ve never lifted before.Fatigue ManagementWhile intensity does not greatly affect chemical messengers associated with fatigue, volume does, and in a big way.if you don’t apply overload, you simply won’t be a powerlifter. You’ll be a person of average strength who shows up to meets and confuses people with absurdly mediocre performances.sure you do everything you have to both hit it hard in the gym and recover between sessions. This means that as your training gets more serious, your recovery modalities need to get more serious as well.avoid doing the routines of elite lifters verbatim... you might not yet have the MRV to keep up.Kiril Sarychev’s bench press training. Kiril goes heavy in the bench only about every week and a half. This super low frequency of overload makes no sense until you consider that Kiril: • Is working out with sets of 5 at over 600lbs • Has arms and pecs the size of very good lifters’ quads and glutes (weighs a lean 396lbs!) • Is 6’8, so he moves the bench bar about as far with each rep as your average 198 class sumo deadlifter does during a pull. Thus, it makes perfect sense that he should bench heavy only every week and a half, which is about how often high level 198 deadlifters do heavy pulls!Stimulus Recovery AdaptationTraining at any frequency that’s not insane (between once a day and once a week) generally trains all of the four systems and will produce good results, though possibly not the best results. If you don’t manage fatigue properly or present an overload properly, you will go nowhere fast, but if you train with at least a reasonable frequency and structure, you’ll at least be ok and make some long term gains. 2.)Body systems have a high (though not limitless) degree of adaptability. This means that training at a certain frequency can slightly improve a lifter’s ability to benefit from that frequency. This works especially for the high-frequency end, as chronic training in higher frequencies usually makes them more tolerable and beneficial as recovery mechanisms adapt to work faster. This likely has mostly to do with fiber type alterations but may include other mechanisms and is worthy of its own mention.Variationmore muscle you grow, the harder further muscle growth becomes.due in large part to the actions of negative feedback loops. We can describe this phenomenon as the development of “adaptive resistance.”There will be a time later for working on weak points, but to have anything like a true weak point, you’ve gotta have strong points first.They don’t give an award for “most balanced” lifter... only for the lifts and the totalPhase PotentiationYou could say that the aerobic base phase gets the endurance athlete “in shape to actually train hard.”First of all, we need phases because we can’t train everything at the same time for best results. Second, we know that the phases cannot be random in their sequencing and work best if ordered in a particular, phasepotentiated manner.The literature on adaptive decay outlines several interesting patterns: a.) Muscle size can be conserved indefinitely with only strength and no hypertrophy training. b.) Peaking training can conserve muscle size for between 1 and 3 months until declines begin to affect strength and thus peak performance. Closer to one month for beginners and closer to 3 months for advanced lifters.You can’t just scale up a program or a taper based on percentages. If Andy Bolton hit a 900 + deadlift the week of the competition (like many weaker lifters do with their 90% pulls just fine), he’d barely be able to get 850 off of the ground, never mind 1000.hypertrophy training is not as effective if trained all the time or for too long at a time. When subjected to chronic high volumes (as during hypertrophy training), the very molecular regulators of muscle growth tend to desensitize and thwart much further growth, even with the inclusion of proper fatigue management. Practically this means that once every several months, low volume training must be employed for at least a mesocycle in order to re-sensitize the molecular regulatory systems to further hypertrophic potential.Stories about people gaining strength for long periods of time without doing anything but general strength training usually turn out to include gains in weight and muscle, which is another way of saying that hypertrophy occurred. If you’re going to grow muscle, you might as well do it maximallyIndividual DifferenceThere is no one on earth who grows best without overload, doesn’t need to manage fatigue with hard training, or benefits most from zero variation. Secondly, even within the boundaries of the principles,Because advanced lifters have heavily developed their “best weapon” strong points, they may now be in a position where further development of those body parts and movements is slow. As well, because of their high level of development, these strong points may now begin to be limited by weak points.if you want to copy the best, do what they did to get to the top, not what they’re doing to stay there.If you don’t need to deload, you’re not training hard enough.Myths, Fallacies & Fads in PowerliftingThere is absolutely nothing wrong with trying to get as big as you can, and the authors of this book would be some of the biggest hypocrites (literally as well as figuratively) if we wrote otherwise.April 25, 2022Chad Wesley Smith's Juggernaut Training Manual introduced me to the concept of MEV and MRV, but it was this book that really fleshed out these ideas and gave me a glimpse of a whole new world that was possible for strength. Clear cut ideas that consolidated all my training ideas I've personally accumulated throughout the years - specificity sets the direction for the rest of the program, the order of importance of the 7 scientific principles ... fantastic. Most importantly it helped me articulate my existing knowledge and put the pieces together in a comprehensible manner. Very beneficial read for both lifter and coach. And to end the book on a banger note - the only thing in this world that matters: Strength.December 7, 2019As many have pointed out, this book is very difficult to read, there seems to be a lot of repetition and language is quite difficult.Second, this books is very narrowly tailored to powerlifting. Furthermore, authors strongly discourage from having any additional activities for improving your general fitness/health. Some people might feel, that's their cup of tea, but for me this is quite limiting, so I must take all the advice with a grain of salt.To tell the truth, more or less experienced lifters won't find much new information in this book, but there are a couple of interesting points to try out.December 30, 2020Great content exploring in a macro way how to carry out strength training - from the common sense idea of specifity, fatique management, and periodization.This doesn't offer training plans, rep and set specifications, or any of that kind of stuff (best served by other books or resources), but does offer a way for the reader to understand the goals of training and how to best implement it themselves.It focuses on powerlifting in it's discussion but the ideas used here can be transfered to strength training for other sports as well.Was great for challenging my own assumptions around hypertropy as I was sticking to the starting strength mantra of focusing on strength alone, but this book suggests a hypertropy phase before strength training is valuable.May 17, 2017This book is a great resource for those wanting to take their powerlifting or strength training to the next level. The principles in this book could also easily be adapted to other styles of training. It makes some of the more complex components of exercise programming a lot easier to understand. This book is the basic here is what is important and then here are some programs to use, it teaches how to create your own program and does it very well. I only wish I read this book sooner and not wasted so much time using sub-optimal training programs.November 17, 2020Comprehensible book, explains clearly the basics of strength training, there are no magic tricks, there is science. Very useful for learning how to program timing, exercise selection, dealoads,etc and why. Recommended for anyone strength training coach or athlete, also includes very useful external resources for additional information on the topics. August 13, 2017Engaging read, the brilliant analogies, real-world examples, specificity to powerlifting and simplicity of it all is really something to marvel at. Recommend as a book of study to anybody trying to appreciate powerlifting training more. December 30, 2017Super informative and accessible.On another note though, now having read 2 RP/JTS ebooks, I can admit that they can do better with... a little bit of proofreading and editing without losing the accessibility!June 21, 2020Great discussions, was expecting some more real life examples and numbers to geek on. Scientific principles are discussed and it's a great read for an overview in Powerlifting programming and trainingApril 18, 2022Quite possibly some of the best literature I have read on strength training. Chad Wesley Smith remains in my mind at the forefront of common sense strength programming and a must read for those who want to get stronger physically.September 7, 2024It is well-researched, but is all that research necessary? You could read this book, work out according to their “evidence-based” advice, but probably end up looking like a pencil neck. I prefer just going into the garage and horse-cocking weight around for an hour or two. August 2, 2020Great establishment of the taxonomy of periodization. Borrows a lot from eastern bloc training philosophy (Sheiko, Prilepin, Abadzhiev, etc.). A must-read for coaches.January 21, 2021Great information, even though they may need a better editor. Really solid foundational knowledge. Cut to the core of each principal and exhausted it.May 25, 2021The book is more powerlifting specific than just general strength but the principles described can still be used in other forms of training.May 29, 2022worked my way through this with notes and found it extremely helpful. October 7, 2023Written for the sport of Powerlifting but can be applied to any sport that needs strength.It's the perfect mix of theory vs practice and pretty complete.It's perfect in every way.July 13, 2020Much of the information in this book can be loosely discovered -- either by reading a wide number of texts or in thinking seriously about training study. If you have read training texts, 95% of the information in this text will be nods in agreements rather than complete epiphanies. In this way, the authors succeed by organizing all primary training principles through a commitment to clear writing and unpacking. Reading this text will save you the confusion around key complications of delivering a training program. Every chapter of this text begins first by establishing the most important training principles, and then follows up with proper and improper applications. Examples of the applications spill between different sports, showing the difference between methods and principles. The result is a coach with new powers to make exacting judgments about designing training interventions. Powerlifting is a closed sporting pursuit that requires unbending attention in mastering one quality for 10+ years. Because of this -- no matter the sport -- all coaches will benefit . If you can discern your program's progressions and roadmap against the governing principles in this text, you surely leaving stones unturned in athletic performance. As a strength and conditioning and sprint coach, I endorse this text as a must-read for any person that is responsible in sport development.November 16, 2018The description claims that this is "one of the most comprehensive resources ever available on the topic of building strength" and I have to agree. There is so much valuable knowledge in the 400-page book that merely reading my review or a summary could not make it justice.Scientific Principles of Strength Training even made it into my "best-of-2018" list and I recommend it to anyone interested in the scientific background of lifting. Worried that the book is too scientific for you? The author actually suggested reading The Science of Lifting first, which is a shorter and more digestible start in the science part of lifting.best-of-2018 fitness read-in-2018May 5, 2016One of the most useful books on strength training you will find! Very practical and well thought out.Displaying 1 - 25 of 25 reviewsGet help and learn more about the design. Chapter 6: Stimulus-Recovery-Adaptation (SRA) Introduction to SRA Stimulus-Recovery-Adaptation (SRA) is a scientific framework describing the processes involved in training. 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