Medicina Sportiva Practica, Vol. 22, Nr 2: 20–27, 2021

IN MEMORY
RALPH N. CARPINELLI, ED.D.
JANUARY 1,1945 – MAY 3, 2021

Ralph N. Carpinelli brought a refreshing, but critical eye to the science of resistance training. He contributed significantly to the understanding of strength training through his more than twenty published peer reviewed critiques of the scientific literature. His tenacity to challenge myths and misinterpretations of strength training literature was unmatched. His integrity was beyond reproach, as he led a crusade for truth and logic. His critical analysis was contingent on meticulous in-depth investigations that would confront the status quo. He never sought publicity or individual gain. Ralph's only agenda was to seek truth. In his early years, he was the consummate police officer, who enforced the law regardless of race, creed or social position. Unfortunately, that career ended abruptly at a roadblock, when a car hit and dragged him 70 meters. More than six months in the hospital to recover from massive internal injuries and over 50 broken bones, resulted in losing more than 40 kg from his previous 1.8 m, 102 kg frame at <8% body fat. His self-rehabilitation included primarily resistance training and he confounded the naysayers who told him he would never walk again. Perseverance paid off, as five years later, he recovered in proximity to his pre-accident capabilities. His passion for resistance training led him to studying Exercise Science for both a Master's and Doctoral degree. He volunteered to help those less fortunate. He taught graduate courses, conducted training programs for blind athletes, and incessantly digested the strength training literature. He was self-less in his dedication to those who may be disadvantaged, but who diligently work to improve themselves. He was not concerned with where a person was in life, but what direction they were moving to make things better. Ralph battled cancer (leukemia, throat, skin) for over 30 years, but his appetite for learning never ceased.

His was not an easy life, but a constant battle to be healthy enough to be an asset to his wife, son, numerous friends/colleagues, and the world of resistance training. His passion for the truth never wavered. He embodied integrity, as a critical thinker, a moral compass, and one whose beliefs and intentions matched his thoughts, words, and actions. He was sincere in his efforts and could always support his claims with solid evidence. We have lost a great person, a husband, a father, a friend, a colleague, a researcher with the highest moral and ethical standards, and we are forever grateful for his impact on all of us.

Bob Otto with Friends

***Post scriptum* from Sandee, Ralph's wife:**

Ralph quietly perused the literature over the years and relished in "persona non grata" – The more "science" he exposed as "opinion" the more difficult it became to get published in the U.S. I think he was often seen as an actual "resistance" in the strength training field simply because he critically analyzed and questioned the published "so called" peer reviewed scientific data. Ralph meticulously scrutinized and challenged the unsupported claims made by those in many organizations and often said "science does not mind being questioned, an opinion does not like being challenged." I think that his critical analyses and criticisms were correct all along and that his continued determination to expose the truth and reveal scientific flaws will be admired in perpetuity.

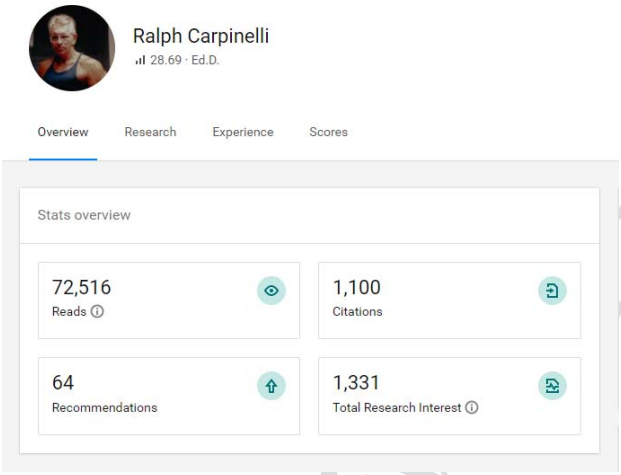
This picture was taken after his accident and is supporting evidence to his recovery. Ralph suffered near fatal injuries when he was hit at over 80 mph from behind while on duty. Despite what he was told by doctors, he miraculously rehabilitated himself and his exploratory laparotomy scar can be seen as a badge of honor in the photo.

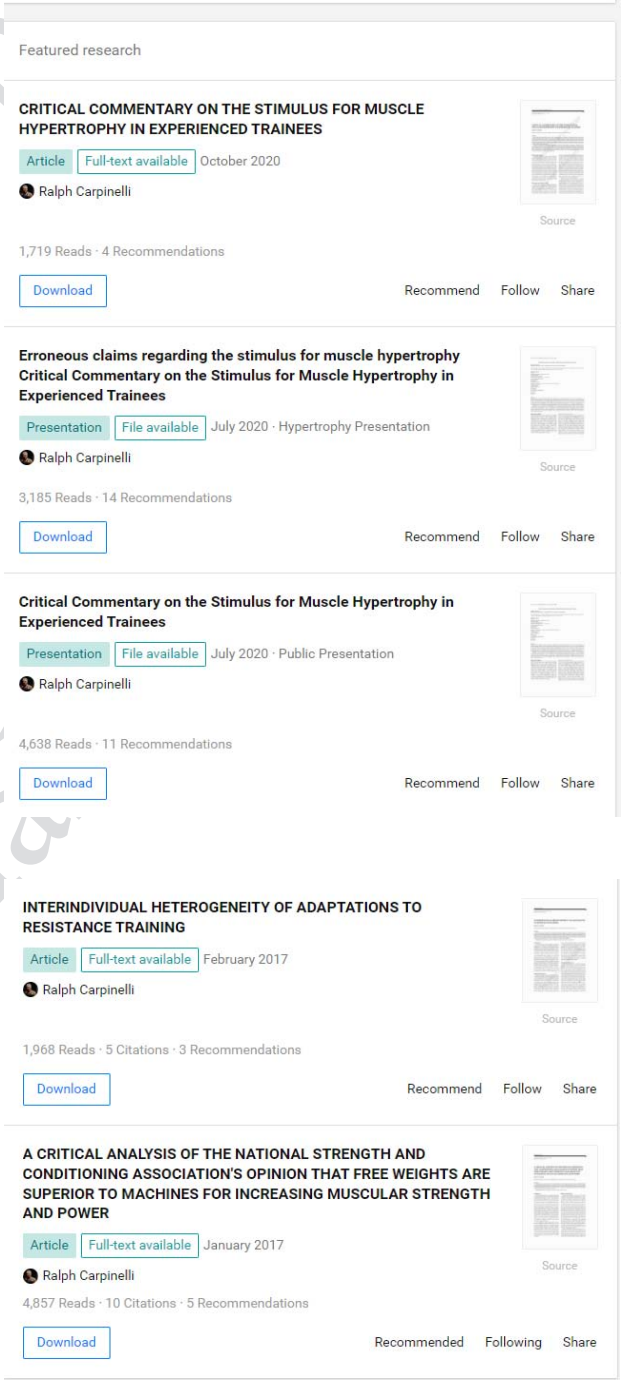
This photo was spontaneously taken in more recent years. Not even trying to pose, it shows his genetics aged gracefully. He was a very consistent, efficient and dedicated trainer despite his numerous and debilitating orthopedic injuries. Ralph believed in quality over quantity. When it came to strength training, he not only practiced what he preached but could back it up with science. A skeptical inquirer, immortal in print and in our hearts, the most important muscle of all.

ACADEMIC ACHIEVEMENTS

ResearchGate

Articles published in *Medicina Sportiva Practica*





ARTICLES PUBLISHED IN *MEDICINA SPORTIVA PRACTICA*

Ralph N. Carpinelli

Human Performance Laboratory, Adelphi University, Garden City, New York, USA

Medicina Sportiva Practica, Vol. 16, No 3: 33-44,

STRENGTH TRAINING FOR POLICE OFFICERS

Abstract

A recent peer-reviewed article described resistance training programs for police officers and made several specific training recommendations that the author claimed were evidence-based. This review challenges his claims regarding numerous training variables such as exercise selection, order, volume, load, frequency, interset rest, and periodization. Science places the entire burden of proof on the author who makes specific claims or training recommendations and he must provide sufficient substantiating evidence for support. However, the majority of claims and recommendations in his article are unsubstantiated and consequently failed to meet the burden of proof.

Key words: *Strength training, burden of proof, meta-analysis, recommendations*

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Ralph Carpinelli added a **research item** Sep 1, 2017

A CRITICAL ANALYSIS OF THE NATIONAL STRENGTH AND CONDITIONING ASSOCIATION'S OPINION THAT FREE WEIGHTS ARE SUPERIOR TO MACHINES FOR INCREASIN...

Article Jan 2017

Ralph Carpinelli

A significant portion of a recent review on the development of research-based strength training in the National Strength and Conditioning Association focused on their opinion that free weight...

Source

ARTICLES PUBLISHED IN *MEDICINA SPORTIVA*

Ralph N. Carpinelli

Human Performance Laboratory, Adelphi University, Garden City, New York, USA

Med Sport 13 (2): 131–137, 2009
DOI: 10.2478/v10036-009-0020-7

CHALLENGING THE AMERICAN COLLEGE OF SPORTS MEDICINE 2009 POSITION STAND ON RESISTANCE TRAINING

Abstract

The new ACSM Position Stand on resistance training is very similar to the 2002 Position Stand, which based the majority of its claims and recommendations on misinterpretation of resistance training studies and selective referencing. The addition of a few new references published since the previous Position Stand was supposed to enhance the credibility of the ACSM's recommendations for resistance training. Unfortunately, the ACSM's new Position Stand contains all the flaws that were pervasive in their previous Position Stand; that is, the authors cited references that failed to support their opinions and recommendations.

Key words: *muscular strength, load, volume, exercises*

Med Sport 14 (3): 126-156, 2010
DOI: 10.2478/v10036-010-0022-5

A CRITICAL ANALYSIS OF THE CLAIMS FOR INTERSET REST INTERVALS, ENDOGENOUS HORMONAL RESPONSES, SEQUENCE OF EXERCISE, AND PREEXHAUSTION EXERCISE FOR OPTIMAL STRENGTH GAINS IN RESISTANCE TRAINING

Abstract

Several recent resistance training reviews and studies have focused on the control of inter-set rest intervals in order tomaintain the absolute amount of resistance throughout the performance of multiple sets, generate the highest training volume (repetitions x sets x resistance), and elicit high endogenous anabolic hormone responses. Some reviews and studies also claim that the specific sequence of exercise and pre-exhaustion exercises in a training session are contributing factors to increasing muscular strength. Although some studies reported a significant decrease in the number of completed repetitions for multiple sets of an exercise when shorter rest intervals or different sequences of performing the exercises were employed, there is very little evidence to suggest that

these acute differences in performance significantly affect chronic outcomes such as increased muscular strength. This critical analysis challenges the claims and opinions regarding strength gains.

Key words: *order of resistance exercise, muscular strength, scientific integrity*

Med Sport 15 (1): 41-43, 2011
DOI: 10.2478/v10036-011-0002-4

RESISTANCE EXERCISE INDUCED ACUTE HORMONAL RESPONSES AND CHRONIC ADAPTATIONS: A NULL FIELD?

Disclosure

In order to stay within the journal's 1000 word limit, I submitted an abbreviated version of this Brief Commentary as a Letter to the Editor of *Sports Medicine* (Jeremy Shanahan) on 12-05-10. Not surprisingly and without any explanation, Shanahan rejected my letter on 12-06-10. It appears that the Editor is afraid of any challenge to the unsubstantiated opinions and misinformation that are published in *Sports Medicine* or to its defective peer-review process.

Med Sport 15 (2): 91-102, 2011
DOI: 10.2478/v10036-011-0016-y

ASSESSMENT OF ONE REPETITION MAXIMUM (1RM) AND 1RM PREDICTION EQUATIONS: ARE THEY REALLY NECESSARY?

Abstract

Many well known resistance training authors and coaches believe that it is necessary to know an individual's actual 1RM or predicted 1RM for each specific exercise. They claim that the accuracy of prescribing effective resistance training protocols is dependent on this information. This systematic review challenges that widely held belief and presents compelling evidence to the contrary. There is a direct relationship within individuals between muscular strength and performing a maximal number of repetitions with a submaximal resistance. This relationship does not change with training and is more relevant to progressive strength gains than knowing the actual or predicted 1RM, which appears irrelevant.

Key words: *muscular strength, resistance training, progression*

Med Sport 16 (1): 46-50, 2012
DOI: 10.5604/17342260.987850

CRITICAL COMMENTARY: THE NSCA POSITION STATEMENT ON YOUTH RESISTANCE TRAINING

Abstract

In an updated Position Statement on youth resistance training, the National Strength and Conditioning Association claimed that the Statement was based on a comprehensive analysis of the scientific evidence for resistance training in children. This Critical Commentary challenges that claim and reveals that their recommendations, especially the inclusion of the snatch and clean and jerk lifts, are without scientific foundation.

Key words: *strength training, weightlifting, plyometrics*

Med Sport 16 (3): 122-130, 2012
DOI: 10.5604/17342260.1011393ICID: 1011393

CRITICAL REVIEW OF A META-ANALYSIS FOR THE EFFECT OF SINGLE AND MULTIPLE SETS OF RESISTANCE TRAINING ON STRENGTH GAINS

Abstract

A meta-analysis is a controversial statistical procedure that combines the data from several independent studies in an attempt to produce an estimate for the effectiveness of a specific intervention. The validity of a meta-analysis, also known by its critics as *numerological abracadabra*, is dependent on the arbitrarily defined criteria and discrimination of the analyst, and more importantly, on the quality of the inclusive studies. The focus of this commentary is a meta-analysis by Krieger, who claimed that multiple sets of each exercise are superior to a single set of each exercise for increasing muscular strength. Some examples of the inclusive studies that he awarded the highest quality scores are shown in this Critical Review to be very poor quality studies and not acceptable for inclusion in a meta-analysis.

Key words: *meta-analysis, sets, strength gains*

Med Sport 17 (1): 40-53, 2013
DOI: 10.5604/17342260.1041894

DOES THE SEQUENCE OF EXERCISE IN A RESISTANCE TRAINING SESSION AFFECT STRENGTH GAINS AND MUSCULAR HYPERTROPHY? A CRITICAL EXAMINATION OF THE EVIDENCE

Abstract

In a recent review of resistance training, the authors claimed that the sequence of performing resistance exercises in a training session is an important variable that can influence the efficiency, safety and effectiveness of a resistance training program. This Critical Examination challenges those claims and reveals that the sequence of performing resistance exercise has very little meaningful neuromuscular implication for an acute response (the ability to perform a specific number of repetitions) or any clinical application for chronic adaptations such as strength gains or muscular hypertrophy.

Key words: *order of exercise, strength gains, muscular hypertrophy*

Med Sport 18 (1): 42-44, 2014
DOI: 10.5604/17342260.1094791

EXERCISE COUNTERMEASURE TO WEIGHTLESSNESS DURING MANNED SPACEFLIGHT

Abstract

The purpose of this Brief Commentary is to review some of the problems inherent in past and current exercise machines that were designed as attempted countermeasures to weightlessness during manned spaceflight. A countermeasure is a procedure or device that prevents or minimizes the adverse health effects of prolonged weightlessness. This commentary also will show that there is a way to effectively perform exercises in a weightless environment that will counteract or at least reduce the loss of muscular size and strength, bone mineral density, and cardiovascular function during prolonged spaceflight.

Key words: *strength training, aerobic capacity, bone density, weightlessness*

COMMENTARY FROM REVIEWER

DR. RALPH CARPINELLI; A SUMMARY OF HIS PUBLISHED CONTRIBUTION TO EXERCISE SCIENCE

James P. Fisher

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The world of academia is continually threatened in many ways and researchers can feel pressures on an almost daily occurrence. There is a seeming requirement to obtain research funding, to recruit research assistants and research students and see them through doctoral graduation, a pressure to *"publish or perish"* – and with it overcome the obstacles of data sufficiently worthy of publication and acceptance in desirable, higher impact factor journals. A side from these challenges there exists the circumstance that your own theories and data might run contrary to those of existing *"authorities"* in an academic field. More so, that one might identify limitations in other academic's research and hypotheses that go unspoken. The peer-review process is meant to identify opposing theories and challenge authors sufficiently to validate their arguments or accept limitations, but this doesn't always work [1].

Enter Ralph Carpinelli Ed.D. I first read of Dr. Carpinelli following some assigned reading during my undergraduate degree considering single – versus multiple-set resistance training for strength adaptations. I came across his article *"Berger in Retrospect"* [2], critically reviewing the pervasive misconception that multiple sets of a strength training exercise are superior to a single set for increasing muscular strength. I confess to being captivated by not only the tone of the article but the fearlessness to challenge the accepted wisdom in strength training. In another publication, Carpinelli acknowledged having been a reviewer of the American College of Sports Medicine (ACSM) position stand before publication in 2002 [3]. However, his views, which challenged their conclusions, were dismissed. He later published academically sound and intelligent critical reviews of both 2002, and 2009 ACSM position stands on resistance training [4, 5], identifying contrasting evidence which did not support their claims, and which had been seemingly overlooked.

Robergs [1] stated; *"Surely, one of the purposes of scientific publication is to invite, not block, the publication of concepts and scientific interpretations that challenge contemporary thought"*. This is the

personification of true science; a search only for the truth. Dr. Carpinelli was the living embodiment of this statement. I once heard Carpinelli referred to as the *"Gatekeeper to Science" and* recall from many of his publications the phrase *"burden of proof"*. In context, he challenged many authors' work, stating that: *"Science dictates that the entire burden of proof is on those who claim superiority of one mode of training over another …"* [6]. Dr. Carpinelli, seemingly ignored or did not succumb to the aforementioned threats or pressures of academia – though he might have paid a price to his tone and critical voice – he once said to me in private correspondence that he thought he was *"persona non grata"* to many of the academic journals. However, not willing to be silenced, Carpinelli published further critiques; of strength training dogma, such as exercise order, endogenous hormone responses to exercise, and the supposed relationship with muscle hypertrophy, [6, 7, 8], of meta-analyses and review/training recommendation publications [9, 10], as well as critiquing the recommendations and opinions of organizations such as the National Strength and Conditioning Association (NSCA) [11, 12]. No one was *off-limits* when it came time to be challenged or critiqued. This was an honor bestowed on me and my published work. And let me be clear – being tested is an honor (the contrast is to be either ignored or accepted without challenge, neither of which are of any worth – in life or academia alike).

Dr. Carpinelli authored multiple other important publications in the field of strength training; a review discussing the potential health-related benefits of resistance training [13], a discussion of the size principle in the context of the unsubstantiated '*heavier-is better'* recommendation for resistance training [14], exercise countermeasure to weightlessness during manned spaceflight [15], interindividual heterogeneity of adaptations [16], and a detailed critical commentary on the stimulus for muscle hypertrophy [17]. Dr. Carpinelli was, unquestionably, an eminent exercise scientist in the area of strength training. A pursuer of the truth; he challenged dogma, paradigms, organizations, and individuals to try to ensure strength training research and practice was honestly and fairly represented.

However, perhaps because of the tone of his written word, Carpinelli himself did not go uncriticised. The most notable is that he sadly published only a handful of empirical research studies [e.g. 18, 19]. In that sense, his critics will say that he did not seek and obtain the necessary funding to complete a body of empirical studies, he did not see research students through to completion, and he did not have to overcome the difficulties of publishing experimental data. And they would be right, although these might be justified as a result of his long-term illness. But this does not change his position as a necessary part of academia. More so than ever, in our contemporary world, people find a platform for their voice and criticism – mostly through web pages, blog sites, or social media sources. However, Carpinelli – as a true academic – used peer-review. Primarily through the journals of Medicina Sportiva and Medicina Sportiva Practica he found a platform for honest and academic criticism of scientific publications which he felt did not sufficiently support their claims or misrepresented or misinterpreted data and conclusions. Fortunately, the Medicina Sportiva journals are open access and so a majority of Carpinelli's publications are available to the masses, without barriers.

Notably, the criticisms Carpinelli raised have since become more accepted and in fact, it could be argued that a preponderance of evidence now supports his criticisms and claims. In brief; the use of single-set resistance training for muscular strength increases is now more accepted as being equally efficacious compared to multiple sets [20], a hormone-hypothesis (that the acute post-exercise increases in specific anabolic hormones (e.g. testosterone, growth hormone, and insulin-like growth factor 1 [IGF-1])are necessary for increases in muscular adaptations) has been disproven [21, 22], that heavier-loads are not a requirement for strength and hypertrophic increases, but rather that a range of loads can be used to maximize strength, hypertrophy, and local muscular endurance adaptations, is now evident and well supported [23-26], and that specifically effort appears a more important driver for muscle-fiber recruitment compared to resistance exercise load [27].

The reality is that when critical commentaries, such as those written by Carpinelli, are published we should not blindly agree with the words written and arguments proposed. To do so would be as foolish as to accept any information with ignorance. Rather, we should embrace the principle of critical reflection and that an alternative perspective is being proposed. As a University lecturer of ~15 years, in my opinion, the greatest theme my students can learn is the ability to be intelligently critical – in sport and exercise science, in academia, and life. In that sense, whilst the specific contributions of Carpinelli's publications to the academic world are of value, the *principle* of his writing, and the lessons to be learned are undeniable.

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Conflict of Interest: The authors declare no conflict of interest with the contents of this manuscript.

BRIEF COMMENTARY FROM EDITOR

After some publications many years back which challenged the ACSM and NSCA he (Ralph) believed himself to be considered "persona non grata" to many in the exercise science field and I believe he had found difficulty publishing in other journals. However, he published many papers in Medicina Sportiva and Medicina Sportiva Practica over the years, appreciating the value in their scientific integrity and honesty."

Wojciech Gawroński MD, Ph.D