

Questioning the NSCA

Ken Mannie

The following article is an open response to Dr. William Kraemer's perspectives, comments, and opinions on the paper, A Series of Studies - The Physiological Basis for Strength Training in American Football: Fact Over Philosophy, Journal of Strength and Conditioning Research, Volume II, Number 3, 131-142, August, 1997. The purpose of this paper "was to gain insight on resistance training in American football and address some of the myths." The basis of the paper consisted of five experiments: EXPERIMENT 1: Can More Than One Set be Performed at 10-RM Load? EXPERIMENT 2: One Set Circuit vs. Multiple Set Circuit. EXPERIMENT 3: One-Set Circuit vs. Periodized Multi-Set Power Training. EXPERIMENT 4: Nonlinear Periodization vs. High Intensity Single-Set Program. EXPERIMENT 5: A Research Note - Adherence to Single-Set Programs. Ken Mannie's comments are quite self-explanatory without making repeated reference to Kraemer's paper. However, when necessary, to facilitate Mannie's comments, we will include specific details in [brackets].

OPENING COMMENTS

The conventional view serves to protect us from the painful job of thinking.

John Kenneth Galbraith

While I am not surprised by this and other recent attacks by the NSCA on what is commonly referred to as high intensity strength training (or HIT), there were numerous findings, suggestions, and subjective commentary that I found to be both confusing and disturbing. The NSCA's ongoing campaign to denigrate HIT doesn't bother me - as a matter of fact, papers such as this only expose the organization's shortcomings.

However, after reading this paper several times, I find it necessary to address some of the issues it presents. Not the least of which, Dr. Kraemer, is your open prejudice and sarcasm in what is meant to be - I am assuming, at least - an unbiased, scientific, peer-reviewed research paper.

It is common knowledge that you and your NSCA colleagues espouse a view opposing that of HIT practitioners. After all, hasn't that controversy been raging for at least twenty years? During the past five to seven years ago - having had enough of the NSCA's superiority complex and juggernaut agenda - many of us decided to become more vocal. In my case, the reason for excoriating much of the NSCA's rhetoric is the incessantly pristine and infallible attitude it purveys on training methodology. Just as unacceptable is the dogmatic insolence it projects with the notion that no quid pro quo exists.

One would like to believe that the NSCA's mission is to strive to keep an open mind, search for and encourage new ideas, and have the insight to truly "bridge the gap" with a sincere attempt to open the lines of communication. Instead, the organization continues to drown itself in this quagmire of alienation. I'll have a few more perspectives on this in my closing remarks.

EXPERIMENTAL RESULTS

To be sure of hitting the target, shoot first, and call whatever you hit the target. Ashleigh Brilliant

I am not a "scientific expert" - I'm a coach. So, if what follows is a misinterpretation of your work, please correct me. Having said that, allow me to comment on some of the results of your research.

In experiment #1, your subjects were able to perform 3 sets of a 10-RM in the bench press with 3 minutes rest between sets. With a 1-minute rest between sets, the subjects performed 10 reps on the first set, 8 reps on the second set, and 7 reps on the third set. This is a very interesting study, though it appears that you were unable to replicate these results in one of your other studies ("Creatine Supplementation Enhances

Muscular Performance During High-Intensity Resistance Exercise," Journal of The American Dietetic Association, Volume 97, #7, July, 1997).

In that particular study, the bench press protocol for both a placebo group and a creatine group consisted of 5 sets of each subject's 10-RM with 2 minutes rest between each set. The placebo group performed 6-7 reps on the second set and 4-5 reps on the third set. Even with an additional minute rest, the placebo group was unable to match the results of the second and third sets of the 1-minute rest group from your NSCR study. The creatine group matched the result of the 1-minute rest group on the second set, but failed to do so on the third set. The inability of the 2-minute rest groups to do at least as well as the 1-minute rest group in most of the sets performed raises the question of test reliability. Correct me if I'm wrong, but shouldn't we expect the 2-minute rest groups to perform better than the 1-minute rest group?

Actually, compared to the concerns I have with the rest of the NSCA paper, these questionable data are no big deal. I just thought I would bring this to your attention.

The most glaring problem with the studies that followed surrounds the absolutely horrible results of the single-set (SS) groups. For example, in experiment #2, the leg press increase of 5 kg over a ten-week period is criminal. It is not uncommon for us to exceed this result on a weekly basis for several weeks at a time with both younger and older athletes. [Also note that the SS group performed forced reps, whereas the Multiple Set group did not. Could overtraining be a factor in such poor SS results, and why did they perform forced reps, whereas the other group did not? Kraemer states, "For all the dramatic claims of superiority of single-set systems published in the lay press, the best that can be supported by the fact is no difference over short training periods under one set of experimental comparative conditions, whereas distinct superiority has been demonstrated repeatedly for multiple-set systems."]

The same can be said of the almost comical results in experiment #3, one that had a duration of fourteen weeks. Questions on experiment #3: Why was the SS group tested on hang cleans when this exercise was not part of their training protocol? And why was the hang clean chosen for comparison in the first place? Isn't the principle of specificity being violated here? Along those same lines, what is the relevance of figure #1 on page 139? [A chart showing change in 1-RM hang clean strength from the knees.] If the SS group did not perform the hang clean in their training protocol, how can they be graphed against the MS group who did perform the hang clean as one of their training exercises? Again, this violates the principle and illustrates the prejudiced tone of his paper.

[Experiment #3 protocol consisted of the following for the SS group: 8-10 reps, with forced reps - knee extensions, leg curls, bench press, military press, arm curls, sit-ups, calf raises, leg press and lat pulldowns. Conversely, the MS group performed squats, push press, hang cleans or power cleans, bench press (Universal machine), arm curls, hamstring curls, rotator cuff exercises, triceps pushdowns, sit-ups, and no forced reps.]

Also, why the obvious lack of compound movements in the SS group? The SS group performed three compound movements for the upper body and one for the lower body; the MS group performed three compound movements for the upper body and four for the lower body. Regardless of the number of sets you choose to perform in a study, the number and type of exercises (multi-joint vs. single joint), in my opinion, should be more proportionate than the protocols you established in this particular study. This is especially true of lower body exercises, as the rate and level of improvements in this area usually exceed that of the upper body.

Irrespective of these proposed problems, I still find the results of the SS group to be dismal. Granted, the HIT system I employ is more involved than the SS workout you devised, but some serious questions remain about the administration of your SS protocol.

Having coached the HIT methodology for nearly twenty-five years, it is my opinion that the administration of the SS training procedures was missing one or more of the following critical elements: (1) competent teaching personnel; (2) proper coaching and supervision; (3) motivated subjects; or (4) subjects who had at least a semblance of genetic predisposition to respond to any type of strength training system.

In experiment #4, aside from the once again unbelievably miserable results, there is almost a 2-1 ratio in compound movements between the MS group (11) and the SS group (6). Was this by design, or did it just happen to work out that way? None of the workouts I have ever designed had so few compound movements. I must reiterate the point: I believe that this disparity played at least a minimal role in the horrendous results incurred by the SS groups.

[Compound movements for the SS group included leg press, bench press, seated row, military press, upright row, and lat pulldown; compound movements for the MS group included hang clean/power clean, squat, split squat, bench press, push press, upright row, DB military press, lat pulldown, seated row, lunge.]

One brief note on the Wingate test results: It is difficult to believe that any group, much less the SS group in your experiment #4, improved a mere 44 watts in 24 weeks. In speaking with other individuals in the field who implement the Wingate test on a regular basis, the majority of them have obtained better results in half that period of time.

Probably the most obvious example of there being a rat in this research woodpile is the body composition results. We monitor body composition very closely here, and I can assure you that after 24 weeks of training, our results - across the board - would far exceed the dreadful results obtained in this experiment. [The SS group on average dropped about 1% in body fat levels; the MS group on average dropped about 5% in body fat levels.]

PERSPECTIVES ON "THE REAL WORLD"

Facts do not cease to exist just because they are ignored.

Aldous Huxley

It is my personal opinion that your comments under the heading "Experiment 5: A Research Note - Adherence to Single-Set Programs," are replete with extraneous NSCA diatribe. I've been a coach/teacher for nearly 25 years and I strongly resent your insinuation that those of us who choose to implement a training system that differs from the one you advocate aren't quite on the same intellectual level.

Well, believe it or not, Dr. Kraemer, HIT practitioners hold advanced degrees and certifications, conduct research, are well-read, played and coached the sport of football (at every level), were raised on the mean streets of America, and successfully train high-caliber athletes on a daily basis. In other words, we live in "the real world", too. ["Different from experimental settings, many times claims are made in the "real world" as to the gains made with SS programs, despite the lack of measured variables."] Your obviously critical, sarcastic, and demeaning comments in this section are inappropriate for what is being passed-off as "science."

I would like to know where this so-called survey was taken. ["In all, 89% of the players reported using other MS programs at home, during breaks, over the summer, or during off hours at health clubs to supplement the SS program prescribed by the strength coach."] I'm sure that the head football coach and strength coach at this particular university would like to ask you some questions regarding this survey. And what bit of infinite wisdom provided the inspiration of such a survey? Are you saying that HIT can't be producing the results these athletes are obtaining, so they must be running home at night and performing snatches in their dorm room closets?

I would also like to see the 20 years of anecdotal documentation you claim to possess which, as you state, "suggests that what is being promoted as the final product of SS high-intensity training may not be the sole source of the athlete's development."

Here is how I interpret your logic: If individuals/teams using HIT are successful, it is because they are great athletes/players, have great coaching, wear nice uniforms, are lucky, and do all of their free weight, periodized lifting in a garage following study hall. However, if individuals/teams are successful and use your "periodization breakthrough" system, it is due to that fact alone. That's basically what you're saying. Otherwise, what is the purpose of this top-secret survey - science?

Actually, up to that point in your paper, the information was at least tolerable. It is my understanding that anecdotal trivia has little or no place in scientific research. This is the juncture in your writing where this paper's true purpose is exposed.

You should also be aware of the fact that while many individuals in the "NSCA world" hinge on every word you and your colleagues utter, there are many of us out here (in "the real world," as a matter of fact) who are not quite so enamored with your research. Considering that your organization - which is nothing more than a branch of the USWF - has unsuccessfully bashed the HIT system and machines for twenty years, how can we be expected to accept the credibility of the articles and studies it publishes that support an already predetermined ideology? Can you really blame those of us who are skeptical of this and similar NSCA unbiased research? Would you accept the credibility of a study done by a cigarette company on the safety of smoking?

CLOSING COMMENTS: THE NSCA - 20 YEARS LATER

If you can't convince them, confuse them.

Harry S. Truman

Those of us "old cronies" who have been reading and listening to the NSCA's recycled anti-HIT/machine propaganda for what seems like a million years can only ask the question: "What's your point?" It almost seems as if the NSCA is on the defensive.

How many more ways can HIT/machines hurt a person than the dead horse the NSCA has already beaten down to dust? One would believe - especially after 20 years of continuous trashing - that the machine industry should be extinct by now, along with the entire HIT system. Then again, maybe more people can see through the NSCA's transparent agenda than any of you are to admit. Or, maybe the NSCA doesn't know that it just doesn't know.

The organization's censorship of any material that doesn't fit well with its training manifesto has actually backfired. The HIT system is growing in popularity and being used by more and more by a wide spectrum of athletic teams/organizations at every level of competition. This should be an indication that the NSCA is not necessarily the champion of strength training it perceives itself to be. The organization's sacrosanct approach to training methodology isn't being embraced at face value - "the real world" has some serious questions.

May I make a few suggestions? The following is what you really need to do to win us over and convince the rest of the thinking "real world" that the NSCA truly has all of the answers:

Provide definitive, unbiased research results indicating that it is impossible to achieve overload with a machine (seated or standing). If you agree that overload can be achieved with machine use, then it follows that you must agree that machine use can induce all of the histological, morphological, and neurological adaptations associated with the Overload Principle.

Provide definitive, unbiased research results indicating that the morphological and neurological adaptations acquired from free weight only training exceed that of machine only training and/or the combination of machine and free weight training, and clearly delineate the mechanisms responsible for these occurrences. (Incidentally, just about every HIT practitioner I know uses free weights regularly - this jargon that we use only machines is as absurd as the NSCA's notion that machines cause atrophy. As a matter of fact, I am aware of several HIT practitioners who use free weights exclusively in their training.)

Provide definitive, unbiased research results indicating that ballistic weight training exceeds the morphological and neurological adaptations incurred by high-tension strength training, and clearly delineate the mechanisms responsible for these occurrences.

Provide definitive, unbiased research results indicating that trained individuals require a greater volume and/or frequency of training to elicit optimal results in muscular strength and hypertrophy, and clearly delineate the mechanisms responsible for these occurrences.

Provide definitive, unbiased research results indicating that individuals trained with ballistic and/or periodized resistance methods are less susceptible to injuries incurred during athletic participation than those trained with high-tension principles, and clearly delineate the mechanisms responsible for these occurrences. Provide definitive, unbiased research results indicating that individuals trained with ballistic and/or periodized resistance methods heighten their capabilities for enhanced athletic performance and skill development to a greater degree than those trained with high-tension principles, and clearly delineate the mechanisms responsible for these occurrences.

Please understand that I am not talking about suggestions, I am talking about the burden of proof. Also, I am not at all interested in information from the NSCA "reference merry-go-round" with Kraemer citing Kraemer, Stone, Fleck, Garhammer, etc., ad nauseum.

In your paper, you make reference to unnamed individuals in the field who claim that (what you call) "single-set" programs are superior to what you advocate. I know of no one in the field who has made that claim. Not that they don't exist, but only fools would claim the superiority of one resistance program over another.

Finally, I would like to make just a couple of major clarifications regarding the HIT methodology. You seem to be unaware of the fact that HIT is not necessarily a single-set protocol. HIT has as much variety in sets, reps, exercise selection, exercise order, equipment (including the frequent use of free weights) and so on, as any periodization model ever concocted in Eastern Europe. Also, HIT is much more intricate (especially in administration) than the distorted representation it receives in NSCA articles and research. So, I would suggest that before you continue with another 20 years of attempting to prove that HIT is an inferior system, you should make an earnest attempt to learn more about it.

You can begin right there on the Penn State campus. John Thomas, the highly-respected strength and conditioning coach for the PSU football team, runs an exemplary HIT program. As a matter of fact, Penn State has used this method of training with great success for as many years as the NSCA has been trying to discredit it - and with trained athletes.

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