

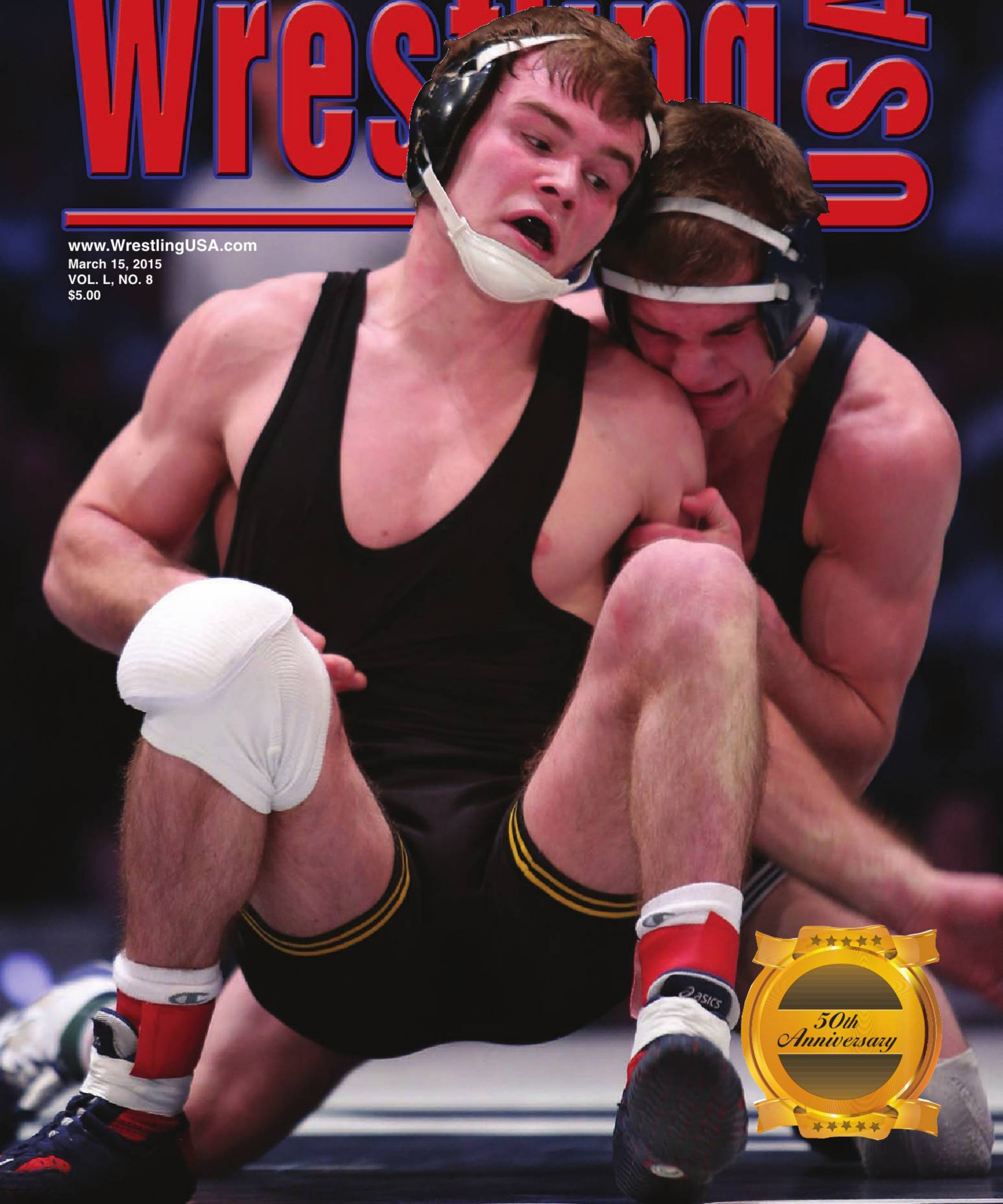
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Programs: Protocols to Pyramids

By Matt Brzycki

The number of programs that can be devised to improve muscular strength is essentially limitless. Needless to say, with such a great amount of variety, the differences between programs are often extensive; sometimes, the programs are even contradictory. Yet, despite having vast dissimilarities, many programs can be effective.

The programs that are most effective share some common ground. Briefly, a program must be easy to understand and administer; encourage aggressive and progressive efforts; produce the maximum results in the minimum time; address all of the major muscles in the body with an emphasis on those that are most prone to injury; promote adherence/compliance over the long term; and employ evidence-based methodologies.

Within the framework of programs are protocols (here, simply meaning set-rep schemes). Structured protocols date back more than 70 years.

In 1945, Dr. Thomas Delorme, a physician in the US Army who was assigned to the Gardiner General Army Hospital in Chicago, developed a protocol of "heavy resistance exercise" that called for 7 to 10 sets of 10 reps per exercise. DeLorme used this protocol to strengthen the muscles of soldiers who were wounded and/or injured during World War II. After the war ended, he left the Army and worked at the Massachusetts General Hospital where, in 1948, he and Dr. Arthur Watkins revised the original protocol, scaling it back to three sets of 10 reps and referring to it as "progressive resistance exercise." (Trivia: At least one researcher credits DeLorme's wife, Eleanor, as the one who actually coined that particular term.)

The sets that are done in the DeLorme-Watkins protocol are based on a 10-rep maximum (10-RM) which is the most weight that can be lifted for 10 reps. The first set is done with 50% of a 10-RM and the second set is done with 75% of a 10-RM. After these two "warm-up sets," the "work set" is done with 100% of a 10-RM.

For example, suppose that the most weight that you can lift for 10 reps is 200 pounds or 10 x 200. In this case, you'd do a set of 10 x 100 followed by a set of 10 x 150 then a set of 10 x 200.

In 1951, Dr. Andrew Zinovieff, a physician at the United Oxford Hospitals in England, developed a variation of the DeLorme-Watkins protocol with a radical twist. Zinovieff felt that the protocol as outlined by DeLorme and Watkins produced so much fatigue that other than "in exceptional cases," it would be very difficult to perform a work set with 100% of a 10-RM after doing warm-up sets with 50% of a 10-RM and 75% of a 10-RM.

Like the DeLorme-Watkins protocol, the three sets in the Zinovieff protocol are based on a 10-RM. Unlike the DeLorme-Watkins protocol – and here's the twist – the three sets are done in the reverse order. With the Zinovieff protocol, the first set is done with 100% of a 10-RM. After this work set, the second set is done with 75% of a 10-RM and the third set is done with 50% of a 10-RM.

For example, suppose that the most weight that you can lift for 10 reps is 10 x 200. In this case, you'd do a set of 10 x 200 followed by a set of 10 x 150 then a set of 10 x 100.

As you can see, the Zinovieff protocol is literally the exact opposite of the DeLorme-Watkins protocol. The basic idea is to use as much weight as possible during the first set and then systematically reduce the weight in the sets that follow to offset the fatigue that was created during the previous efforts.

When the two protocols go toe-to-toe, which one is the winner? In a 2003 study, researchers randomly assigned 50 subjects to perform the leg extension using either the DeLorme-Watkins protocol or the Zinovieff protocol three times per week for nine weeks. The study found that both protocols produced roughly the same improvements in strength. A 2010 study that randomly assigned 32 subjects to perform the half squat using either the DeLorme-Watkins protocol or the Zinovieff protocol two times per week for four weeks found the same results: There was no significant differ-

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ence between the two protocols.

So why the history lesson? Well, the DeLorme-Watkins protocol – or reasonable facsimiles of the protocol – remains fairly popular nearly 70 years after it was first introduced in 1948. As a matter of fact, “three sets of 10” has probably been prescribed and performed more than any other single protocol in history. (More trivia: DeLorme has enjoyed a great deal of fame – among other things being dubbed the father of progressive resistance exercise – while Watkins has remained largely unknown.)

In addition, certain elements of the DeLorme-Watkins protocol are found in other multiple-set protocols, most notably those that are done in a traditional “pyramid” style. At the base of the pyramid, the first set is done with a relatively light weight for high reps. In ascending the pyramid, each subsequent set is done with an increased amount of weight and a decreased number of reps. At the top of the pyramid, the last set is done with a relatively heavy weight for low reps. This type of system is sometimes referred to as an ascending pyramid or pyramiding up.

An example of an ascending pyramid is 10 x 135, 8 x 185, 6 x 205 and 4 x 215.

But let’s not forget about Zinovieff. Essentially, his protocol is a reverse of the ascending pyramid – think of an upside-down pyramid – and certain elements of it are found in some multiple-set protocols. At the top of the pyramid, the first set is done with a relatively heavy weight – the most weight that can be handled – for a des-

ignated number of reps (which can range anywhere from 8 to as many as 20, depending on the exercise). In descending the pyramid, each subsequent set is done with a decreased amount of weight and number of reps. At the bottom of the pyramid, the last set is done with a relatively light weight for low reps. Usually, all sets are done to the point of muscular fatigue. This type of system is sometimes referred to as a descending pyramid or pyramiding down.

An example of a descending pyramid is 10 x 205, 8 x 165, 6 x 135 and 4 x 115.

A popular application of this system is to use a minimum amount of recovery between sets thereby making it a very time-efficient method of training. When done in this manner, it’s known as drop sets, strip sets, breakdowns or burnouts.

THE LAST REP

The widespread use of ascending and descending pyramids has its roots in the DeLorme-Watkins and Zinovieff protocols that surfaced nearly three quarters of a century ago. Although the two types of pyramids are polar opposites, both protocols represent effective ways of increasing muscular strength.

Matt Brzycki has authored, co-authored and edited 17 books on strength and fitness including four that are devoted to wrestling. His latest book is A Practical Approach to Strength Training (4th edition).



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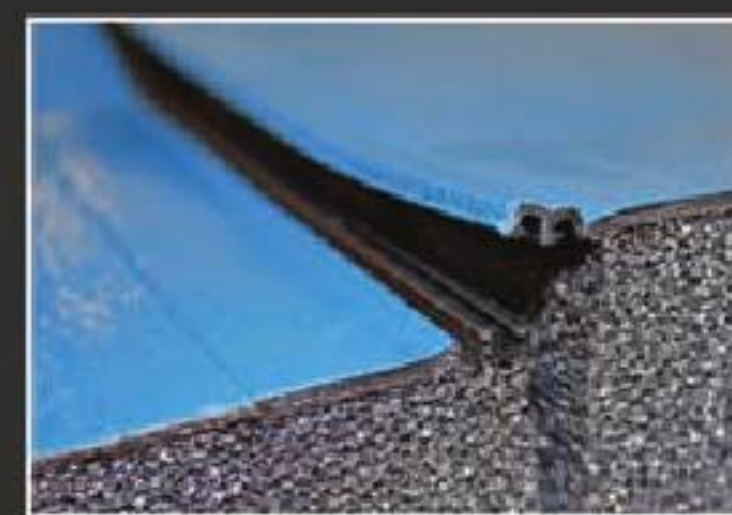
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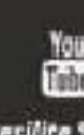


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