Overview of Periodization Methods for Resistance Training

Archived post from 2006

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For www.EliteFTS.com

Introduction

The purpose of this article is to put my current knowledge regarding periodization into some sort of systemized form. This will allow for deeper discussion and will put more knowledge into your coaching toolbox and mine. My purpose is not to attach “good” or “bad” attributes to the different forms of periodization, but rather to critically analyze them. I will discuss their pros and cons, allowing strength and conditioning coaches to make easier choices/decisions on how to implement and combine them in specific situations for specific athletes.

This article will not discuss what periodization or strength is or similar topics but will rather be general in nature. Although I will try to make this article readable and fun, it was written for coaches who possess an advanced knowledge of resistance training and periodization.

Before We Start

There are four goals that resistance training should cover:

- Structural and strength endurance (15–20 RM)
- Hypertrophy goals (5–15 RM)
- Max strength (1–5 RM)
- Power/explosiveness or dynamic effort (50–70 percent 1RM and Olys)

This classification is highly debatable and is used only so that I can more easily explain the different periodization methods. Please do not bother me or yourself with it, but just accept how it is and direct your attention to the periodization methods described. Thanks.

Many Coaches, Many Methods

I’m going to discuss “pure” forms of periodization methods, situations that don’t happen very often in real life. Real life periodization is a combination of periodization methods. You train your athletes for skill, endurance, strength, flexibility, or (you name it). You can combine different periodization methods for different components of your system, thus using one periodization method for strength work and another for speed work. When you examine the whole, it is hard to distinguish what method of periodization is used. The system as a whole is always bigger than the sum of its components, and one component will affect another and vice versa. Everything is interconnected so plan your training...
Three Groups of Periodization Methods

There are three main groups of periodization methods for resistance training:

- sequential method
- concurrent method
- conjugate sequence system (or emphasis method)

You can combine the above mentioned methods and easily create millions of combinations. Don't forget that the purpose of periodization is to achieve planned goals more easily, not to be too creative. Remember the KISS principle (Keep It Simple Simon) every time you feel the need to create something way too complex from variations of the presented methods.

Sequential Method of Periodization

The sequential method uses specific time intervals to develop only one training goal at a time. There are numerous variations of the sequential method, mostly classified according to the duration of specific time intervals and the sequencing of training goals (methods, means, and loads).

What follows are descriptions of common variations of the sequential method. Note that I didn't say all variations, but only those used the most. This should give you an understanding of the sequential method.

**Long linear method.** One of the most popular methods in resistance training is the long linear method. Note that most popular is NOT synonymous with the best. There is no perfect method, only optimal ones for reaching predefined goals for a particular athlete at a particular stage of his or her career.

The long linear method uses longer time intervals (3-4 weeks or microcycles) to develop only one training goal. It proceeds from high volume-low intensity to low volume-high intensity training, hence the term linear.

Basically, the long linear method uses one block (3-4 weeks) to develop strength endurance, one block for hypertrophy, one block for max strength, and one block for power.

If we depict the average intensity (weight used) and the volume (tonnage lifted), we will get the following picture:

Note that we can develop "smooth" or "sharp step-like" switching between blocks using greater or smaller increases in weight. But what happens when the athlete finishes the proposed plan for four months? Does he start from the beginning again? By default, YES!

**Advantages:** The long linear method is great for beginners or those who are lifting for the first time. It allows for easy loads and time for technique learning and develops the ligaments and joints using lower intensity and greater volume. Its progression allows for slow and stable adaptation and result progression.

**Shortcomings:** The main shortcoming of the long linear method is that when developing one block, the others will decrease. For example, when developing structure or hypertrophy, max strength and power will decrease and vice versa. This is not so important for beginners, but as soon as minimal GPP and SPP levels are developed, its “round and round” sequencing will lead only to stagnation. I know this from my own experience. Also, if no variety and progressions are used, the athlete will soon be bored using the same methods, loads, and exercises. Note that there...
are some powerlifters who developed great strength using this method, so don’t say NO instantly.

**Variety and progression:** As Poliquin stated, an athlete adapts to a particular exercise in as short as six workouts. Cosgrove stated that athletes adapt faster to rep brackets than to exercises. So, when using this method, exercises should be changed once in a while. The exception to this is when the athlete is in season and maintaining a current strength level. In this situation, it is better not to experiment because this may cause DOMS and affect the athlete’s performance on the field. It is better to keep the program how it is, but you can refresh your athletes after two months to extend sport form state if needed. Exercises can be changed every month (when switching to another goals block). Athletes can progress from week to week by trying to lift more for defined rep bracket, increasing the number of sets, decreasing the rest between sets, or playing with tempo and buffer. The last week in each block can be unloading week. Unloading can be done by reducing the number of sets, the weight lifted, or both. This should prevent boredom and overtraining.

**Variations to presented method:** Use your imagination. From the power block, you can go backward instead of jumping to the structural block. Just remember that the block should follow a “linear approach,” either ascending or descending. If you screw this up, then you don’t have a long linear method, but rather a long undulating method. Another variation is the reversed long linear method, meaning that you start with low-volume, high-intensity training and progress to high-volume, low-intensity training.

**Short linear method.** The only difference between the short and long linear methods is the duration of specific time intervals. While the long linear method uses longer time intervals (3–4 weeks or even more), the short linear method uses shorter time intervals (1–2 weeks) to develop a particular ability. Note that there is the same sequence as there is in the long linear method but it is done in less time.

Similar to the long linear method, the short linear method progresses from high-volume, low-intensity to low-volume, high-intensity training (in a linear fashion) but in a shorter period of time. Again, there can be “smoothed” and “step like” variations of the short linear method.

**Advantages:** The short linear method has more advantages than its bigger brother, the long linear method, and it is more appropriate for mediocre (non-beginner) lifters. Shorter cycles should prevent de-training abilities that are not currently developed, and it should prevent boredom and over-training (because stimulus is short; one week). Also, waves of loading are a natural progression of this method so you don’t need to bother planning them.

**Shortcomings:** It is not appropriate for beginners because it builds intensity too quickly. On the other hand, one week of concentrated development of a particular ability may not be optimal progress for advanced lifters (stimuli is too short in duration). Advanced lifter may need more prolonged concentrated development of a particular ability. As also true for the longer version, the short linear method may fatigue an athlete with its linear progression to high-intensity training. So when the athlete reaches the final block (max strength or power), he is too tired from previous blocks and cannot give it his best. This is highly dependent on the “build up” time (how many blocks precede the high intensity ones). This can be solved by using undulating periodization (which is described later in the text).

**Variety and progression:** The simplest variety method (which also prevents staleness) is to change exercises every cycle. There is no need for planning “waves” or unloading in this method because its short cycles will do it by themselves. Just change the exercises or use some variations of them (i.e. new positions, grip) to refresh your CNS and stimulate your muscles from various positions. This should prevent form boredom and stimulate your progression. You can play with the number of sets, tempo, and rest periods in every following cycle.

**Variations to presented method:** Again, use your imagination. You can try the reverse method, and you can try to go “upward” for a month and then “backward” (reversed) during another. A similar method is presented by Chris Thibaudeau in his Pendulum Method. Just don’t forget that the progression should be in a linear fashion. Otherwise you are implementing the undulating method.
**Long undulating method.** Undulating, as contrary to linear methods, uses more of a “waving” approach in progression. In undulating periodizations, there is no linear increase (or decrease) from high-volume, low-intensity to low-volume, high intensity training. Rather, there are “waves”. The long undulating method uses longer specific time intervals (3–4 microcycles/weeks) to develop a particular ability.

The only difference between this method and the linear method is that it “breaks” the linear approach and uses the “waving” approach.

**Advantages:** I don’t see any advantages in the long undulating method compared to the long linear method. It is actually worse. At first sight, the advantage could be the “non-linear” fashion of progression, which allows for greater rest when it comes to max strength and power development. But this is not the case because specific time intervals are too long, and there is unloading at the end of each cycle.

**Shortcomings:** This is the WORST method of all those described! Why? Because it has all the shortcomings of the long linear method plus some new ones. Basically, when you develop one particular ability, the others will fall. As a bonus, a beginner lifter will jump too fast to more intense training unprepared so this may cause injuries. I don’t see any particular situation where this method can be used unless you want to cause problems for a beginner or spin some mediocre level lifter round and round without progression.

**Variety and progression:** I don’t want to spend my time and energy writing possible solutions for this “crappy” method. If you are interested, then use same methods outlined in the long linear method.

**Variations to presented method:** Use all possible sequencing that you can figure out! But keep in mind that they shouldn’t be done in a “linear” fashion because it will become the long linear method.

**Short undulating method.** This is the same sequencing as with the long undulating method but in a shorter period of time. The short undulating method is similar to the short linear method. However, instead of linear progression, undulating uses “non-linear” or waving progression.

**Advantages:** The short undulating method has all of the advantages of the short linear method. Its shorter, specific time intervals prevent detraining and boredom as well as overtraining. Plus, the short undulating method may be better than the short linear method because of its “non-linear” progression, thus allowing for the greater refreshment of an athlete when he reaches max strength and power week. Non-linear progression may be also more enjoyable to some athletes. The short linear method linearly increases intensity, which can fatigue athletes. But the short undulating method uses weeks of “accumulation” followed by weeks of “intensification.” This provides greater frequency of unloading, which is great. It is also great for mediocre lifters (non-beginners). This is my favorite sequence method.

**Shortcomings:** This is the same as the short linear method. It is not for beginners and is not for elite lifters. Its periods of concentrated development may be too short to induce progression in high level lifters. This also depends on the number of different weeks in one cycle.

**Variety and progression:** This is the same as in the short linear method. Use new exercises every cycle, or play with the number of sets, tempo, and rest intervals.

**Variations to presented method:** Use all possible sequencing that you can figure out! Keep in mind that they should not be in a “linear” fashion because it will become the short linear method. Also, if you shorten the specific time intervals too much so that all the components are done in one microcycle (daily undulating periodization), we are no longer talking about the sequence method but rather the concurrent method.

**Hybrids between long and short variations.** As I stated in the beginning of this article, in real life there are often no “pure” methods of periodization. You can combine the long and short variations. For example, use one month to develop structure and then switch to the short linear method (or undulating) to develop hypertrophy, max strength, and
power. Then repeat.

Note that with this approach you can reach some set goals for particular athletes. Don’t forget that although you can use all the advantages from combined methods, you can also use their shortcomings. Combine all the methods to reach set goals, but don’t forget that the whole is always bigger than the sum of its components. This is true for advantages and also shortcomings.

**Hybrids between linear and undulating variations.** Similar to the above example, you can combine the linear and undulating approaches.

What is said for the above hybrids is also true for this one. The possibilities are unlimited if you are creative. But don’t be creative for creativity sake. Be creative to reach predefined goals in a particular situation with particular criteria. You can play with the period durations for a particular ability, the sequencing, and combinations of both.

The important thing that should be remembered is that the stagnation or improvement in sequence methods is determined by the duration of a particular block, its cycle (mainly determined by the number of other cycles and their durations), and the interdependence between abilities.

If the number of abilities that should be developed is way too large, then even the shorter variant will not be enough to allow progression. If the number of abilities is 2–3, then longer variants may also be good. This is because the time between developing a particular ability is too small to induce stagnation or de-adaptation.

**Concurrent Method of Periodization**

The concurrent method develops all abilities in a given time period, mostly one microcycle (week). This doesn’t necessarily mean that all the abilities are developed in one training session. The synonyms for concurrent are “conjugated” and “complex.”

The concurrent methods of periodization can be further classified according to the emphasis on a particular ability. All abilities have the same emphasis (volume, training time), and one or more abilities are emphasized more than the others.

**Ordinary concurrent method.** The ordinary concurrent method of periodization uses the same emphasis to develop all targeted motor abilities in a given time period (one microcycle or one week). The problem is that some abilities need to develop more volume than others (i.e. structural and hypertrophy work) so the problem is how to define “emphasis.” It could be defined as the time spent on developing a particular ability in one microcycle rather than volume. The volume of hypertrophy and structural work will always be bigger than power and max strength work, but when expressed as time, they will be similar.

**Advantages:** The main advantage of the ordinary concurrent method is that all abilities are developed at the same time, without any drop in any one of them. This is a great method for mediocre and advanced lifters. Also, it provides variety in the used methods, loads, and exercises and prevents boredom.

**Shortcomings:** It is harder to plan workouts. Advanced lifters are unable to adapt to the larger number of stimuli, and they need some concentrated blocks of particular abilities to progress (while maintaining others). This depends highly on the number of developed abilities and their inter-relations. This sometimes may be confused with the “shotgun principle,” or using everything in a hope of achieving everything. But don’t be fooled because the ordinary conjugated method need advanced planning to avoid this situation. It can also be time and energy consuming, thus there is a need for advanced planning of workouts and recovery procedures. This can only be done by advanced lifters or coaches.

**Variety and progression:** There are an enormous number of methods for providing variety and progression in the ordinary concurrent method. One of them is to pick different exercises every 1–3 weeks (depending on the level of the
Unloading should also be provided by reducing volume, intensity, or both every couple of weeks. You can play with the reps (within the boundaries of the rep bracket for the particular ability) or with the load (implementing buffer and waving of intensity), tempo, rest between sets, and the number of sets. Another possibility is to change the order of the exercises (or abilities) in a week or in one training session (but this is also a form of emphasis).

**Variations to presented method:** You can change the order of performing the particular exercises (and abilities) in a particular session or in one microcycle. But note that the emphasis should be the same for all developed abilities. You can choose not to develop all abilities in one week. This option is explained in more detail later (in the hybrid and combination section). One thing that bothers me the most is whether all rep brackets are done within a particular exercise (similar to the pyramid method) or just one per exercise. I believe that using more than one rep bracket for one particular exercise can be detrimental. The body cannot adapt to different stimuli in one exercise so it is better to spread the stimuli over a greater number of exercises. It is better to use only one rep bracket for one exercise (or even better, one movement pattern). I believe that you can finally see how bloody hard it is to define and distinguish different periodization methods in real life! Should all the work presented here (structure, hypertrophy, max strength, power) be done on all movement patterns (or muscles if you use this BS classification) in one microcycle to be considered concurrent?

**Emphasized concurrent method.** The only difference between the emphasized concurrent method and the ordinary concurrent method is that the emphasized variation emphasizes one (or more) particular ability within the others that are developed concurrently.

**Advantages:** It is the same as with the ordinary concurrent method, although the emphasized concurrent method also concentrates on a particular ability while developing (or maintaining) others. It’s a great method for advanced lifters who know their weakness and would love to improve it.

**Shortcomings:** Again, it’s the same as in the ordinary variation. Sometimes advanced athletes are unable to adapt to a larger number of stimuli so the emphasized ability should be developed and others should be put on maintenance rather than developed (which may cause overtraining and de-adaptation). The problem with this approach is that the athlete should switch the emphasis on other qualities to develop them. This is called the conjugate sequence system, and it represents another periodization method (most advanced).

**Variety and progression:** This is pretty much the same as in the ordinary variation. For emphasized work, you may choose new exercises every 1–3 weeks, and for others, you can keep the same exercises for a longer period of time.

**Variations to presented method:** Change the order of the exercises or training sessions in a week.

**Hybrids of concurrent method.** Variations and hybrids are unlimited. You can actually use daily undulating periodization, or switch the work on every training session in a non-linear manner. You can concurrently develop a couple of abilities (not all of them) and switch them in a circuit fashion. The choice is yours. I am just throwing out some basic ideas and principles.

I hope that you have realized by now that there is no “pure” form of periodization in real life (read: training). There are too many factors, criteria, situations, exercises, movement patterns, loads, abilities and their sub-groups to just classify things in one of the presented models here. Remember that those are only tools in your toolbox. They are to be used in particular instances to reach set goals. Nothing else! So please read this article only as a rough guide and not as information “written in stone.”

**Conjugate Sequence System (CSS)**

The conjugate sequence system (CSS) is the most advanced method of periodization. It is based on the pros and cons of sequential and concurrent methods and tries to apply all the advantages and avoid all the shortcomings. It is based on the premise that the elite lifter is unable to optimally adapt (and recover) from large numbers of stimuli (abilities) at the same time. Elite athletes need to concentrate on loading a particular ability. But, this method will lead
to decreases in other undeveloped, necessary abilities.

The solution is to develop (emphasize) one ability while maintaining all others with minimal volume. With this approach, the athlete is optimally adapting to one stimuli while maintaining others and avoiding stagnation, overtraining, and fatigue. After some time, the emphasis is switched to another ability. The “switch” can be “sharp” or “smooth.” Thus, we can differentiate between sharp or block and smoothed versions of the conjugate sequence system.

There are numerous variations of CSS, mostly classified according to the duration of the emphasis block and the sequencing of the emphasis.

Although similar to the sequential method, we can differentiate between the long and short emphasis period and the linear or undulating switching of emphasis. The long and short versions will be described here. You’ll need to use you critical thinking for the linear and undulation variations.

**Short conjugate sequence system.** The short CSS is depicted in picture 11. Everything is done while the emphasis/volume varies during one microcycle. This basically means that only one ability is developed while the others are maintained (or slightly improved). The sequencing is done on a micro level, thus every microcycle (week), there is a switch of emphasis on a particular ability.

**Advantages:** It develops one skill while maintaining others. There is a lower level of fatigue than in concurrent methods. It’s appropriate for higher level lifters. It prevents stagnation, overtraining, and boredom.

**Shortcomings:** One week of emphasis may be too short to develop a particular ability for most advanced lifters. There is a need for advanced planning, thus the athlete and coach must be experienced with the planning and programming of training. There is also a need for recovery procedures.

**Variety and progression:** Basically, the sequencing of emphasis provides enough variety and waving. New exercises can be chosen following every cycle. You can choose some varieties presented in concurrent methods.

**Variations to presented method:** You can choose another sequence of emphasized blocks (i.e. undulating) and their durations. You can use “smooth” or “sharp” changes between the sequences.

**Long conjugate sequence system.** The only difference between the short CSS and the long CSS is in the duration of the particular emphasized blocks. Long CSS uses longer time periods to develop a particular ability.

**Advantages:** This is the same as the short CSS. However, it also allows for the better development of particular abilities in advanced lifters because they may need a longer duration of an emphasized block.

**Shortcomings:** Longer durations of emphasis may need better planning and recovery procedures to avoid overtraining. There is a need for variety to avoid stagnation and boredom.

**Variety and progression:** Pick another exercise every block or even every microcycle (most advanced lifters) for emphasized ability. For maintaining ones you don’t need, pick new exercises often. There is a need for unloading periods following a couple weeks of emphasized work. You can choose to progress with a load (using buffer or lifting the same weight for a greater number of times), sets, tempo, or rest periods. I am just throwing some ideas out here.

**Variations to presented method:** You can choose another sequence of emphasized blocks (i.e. undulating) and their durations. You can use a “smooth” or “sharp” change between the sequences.

**Hybrids of conjugate sequence system.** There are unlimited possibilities. For example, you can emphasize one or two abilities while rotating a couple of them for maintenance. Try to combine the sequential and conjugated methods with CSS.
Conclusion

The three groups of periodization are just that, GROUPS. In real life everything is possible! You can combine these groups to achieve your selected goals for a particular situation, athlete, or criteria. When using training systems in real life, it is very hard to differentiate which method is used (mostly more of them).

This article didn't provide any information on exercise selection and classification, progression, or weekly training structure. As stated before, the goal of this article was to provide basic information on periodization methods. How you distribute the various works (structural, hypertrophy, max strength, power) over various exercises and movement patterns (or muscles if you prefer this BS classification) in a particular time frame is your problem. Things are not as clear in real life as they are on paper.

I hope this article provided some elementary knowledge of periodization methods in resistance training and a starting point for further discussion and implementation in real life training situations.

*Mladen Jovanovic is a student and a strength coach in Serbia. He has a deep understanding of the training methods that were pioneered in (his home) Eastern Europe. Although he has an excellent grasp of English, keep in mind that Mladen’s native language is not Latin-based.*