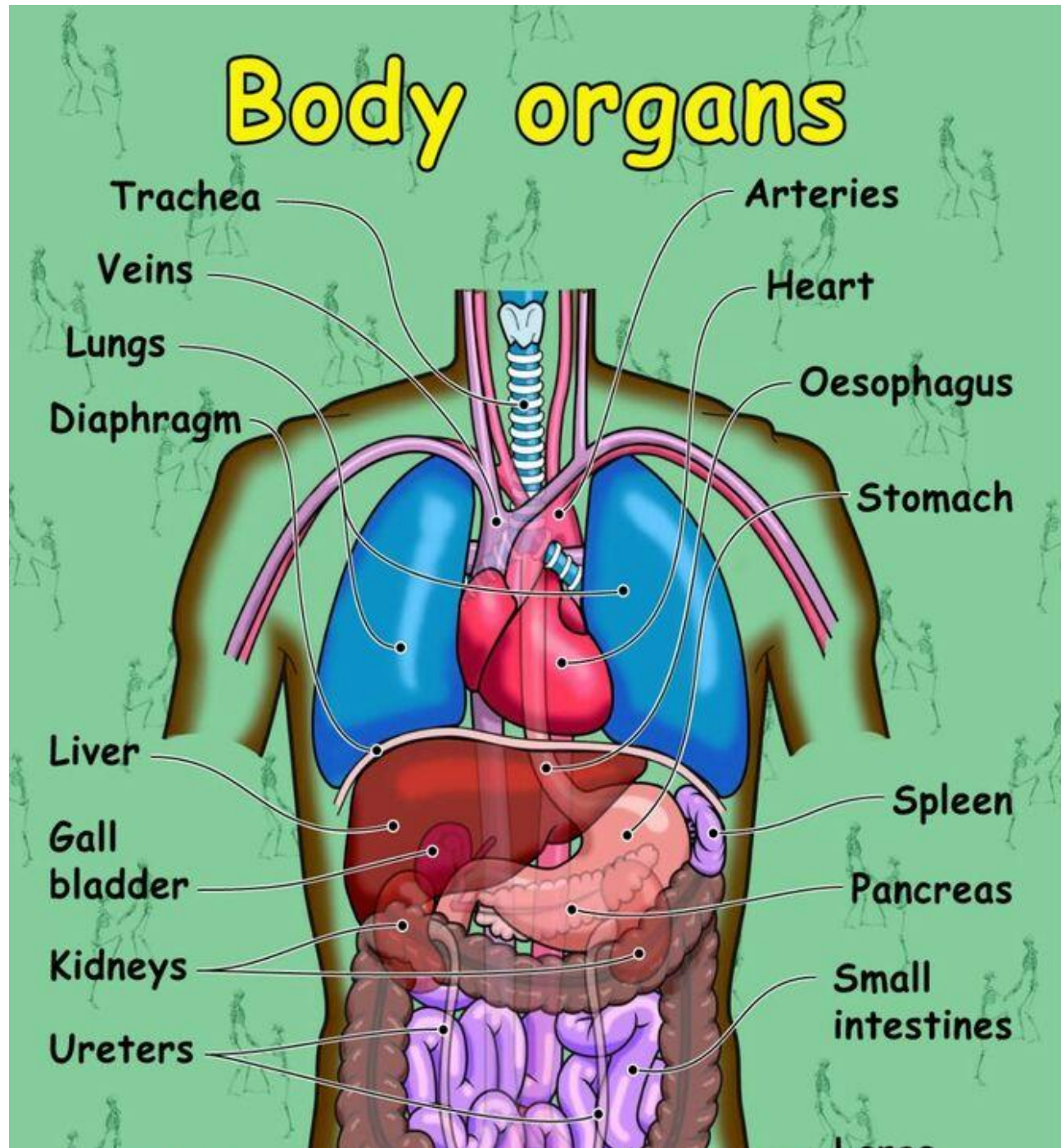
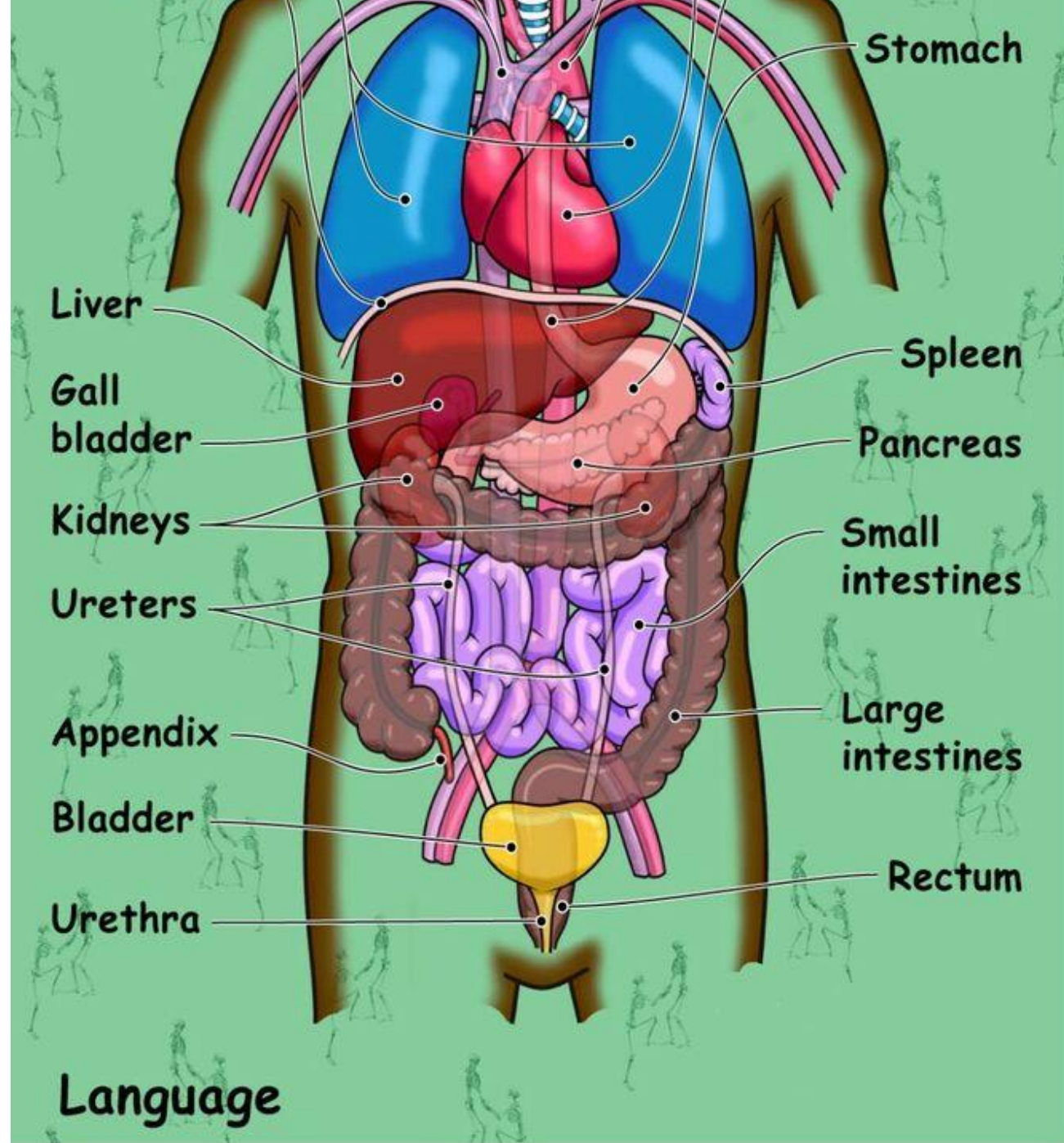


# English: Sports II

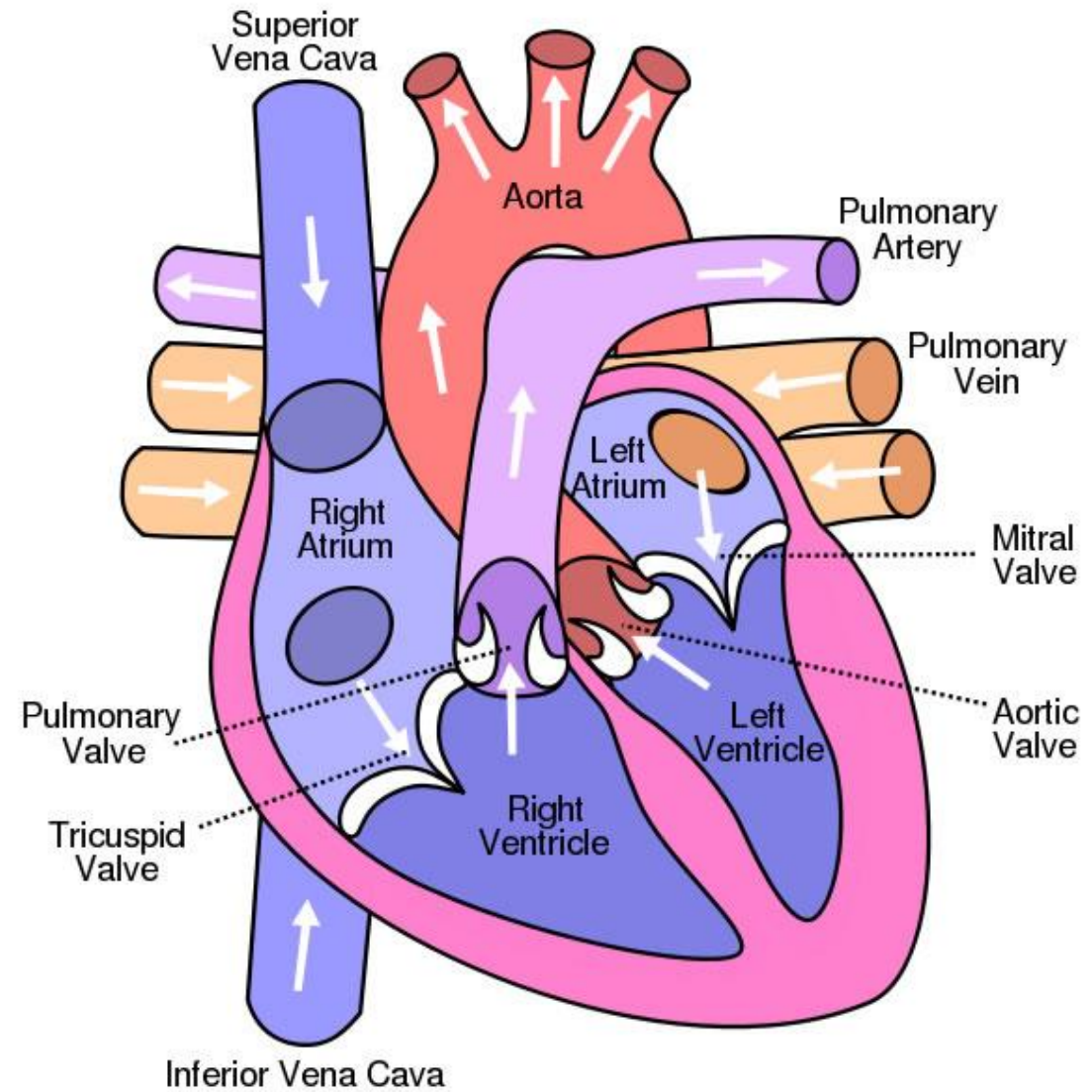
# Human Body



# Human Body



# Human Body



# Human Body

- What do you think of, when you hear “periodization“?
- ...related to sport...?

## What Does Periodization Mean?

**Periodization is defined as the “long-term cyclic structuring of training and practice to maximize performance to coincide with important competitions.”<sup>1</sup>** Simply, it is the program design strategy that governs planned, systematic variations in training specificity, **intensity**, and volume.



**The goal with periodization is to maximize your gains while also reducing your risk of injury and the staleness of the protocol over the long term.** It also addresses peak performance for competition or meets. Periodization, if appropriately arranged, can peak the athlete multiple times over **a competitive season** (Olympic weightlifting, powerlifting, track and field) or optimize an athlete's performance over an entire competitive season like with soccer or basketball.

Think of periodization **as a continuum**. **When we desire a specific training objective, such as an increase in vertical jumping ability or an increase in 1RM squat strength, it does not matter what phase the training is in.** Rather, we should focus our energy on the training stimulation being applied during this objective, and ensure it features extensive repetitions and volume without the chance of different stimulation that would disrupt the adaptation changes taking place.

*"The goal with periodization is to maximize your gains while also reducing your risk of injury and the staleness of the protocol over the long term."*

**An intelligently designed training year will encompass smaller blocks of time that each has its own goals or priorities.** This type of overall schedule will encompass all of the aspects of the athlete's programming and can include strength training, conditioning, **plyometrics**, and sport-specific activities.

### **Why Do You Need Periodization?**

**There are numerous proven benefits to utilizing a form of periodization for your planned progression:**

- **Management of fatigue**, reducing risk of over-training by managing factors such as load, intensity, and recovery
- The cyclic structure maximizes both general preparation and specific preparation for sport.
- Ability to optimize performance over a specific period of time
- Accounting for the individual, including time constraints, training age and status, and environmental factors.

As we move forward it will be helpful to understand the basic structuring of a periodization cycle. **See the graph below for a simple breakdown:**

As we move forward it will be helpful to understand the basic structuring of a periodization cycle. **See the graph below for a simple breakdown:**



## Periodization Cycle Hierarchy

<i>Periodization Cycles</i>	<i>Description</i>
Quadrennial Cycle	Multi-year plan $\geq 4$ years
Macrocycle	Description of complete training period: $\leq 1$ year
Mesocycle (Phase)	Description of singular training cycle or block: <b>3-4 weeks</b>
Microcycle	Describes the structural unit of a mesocycle: <b>1 week</b>
Workouts	Describes the structural unit of a microcycle: <b>hours/minutes</b>

**Semantics causes problems in understanding periodization.** You could have two individuals yelling at each other in a conversation about periodization where one is **comparing “block periodization” to some form of “linear periodization”** or someone else is comparing “conjugate method” with “concurrent periodization.”

The problem with both of these examples is that linear and block are the same foundational concept, as is the case with conjugate and concurrent. **The underlining goal for any serious competitor is understanding that you cannot say periodization is one way.** It has many different profiles and progressions.



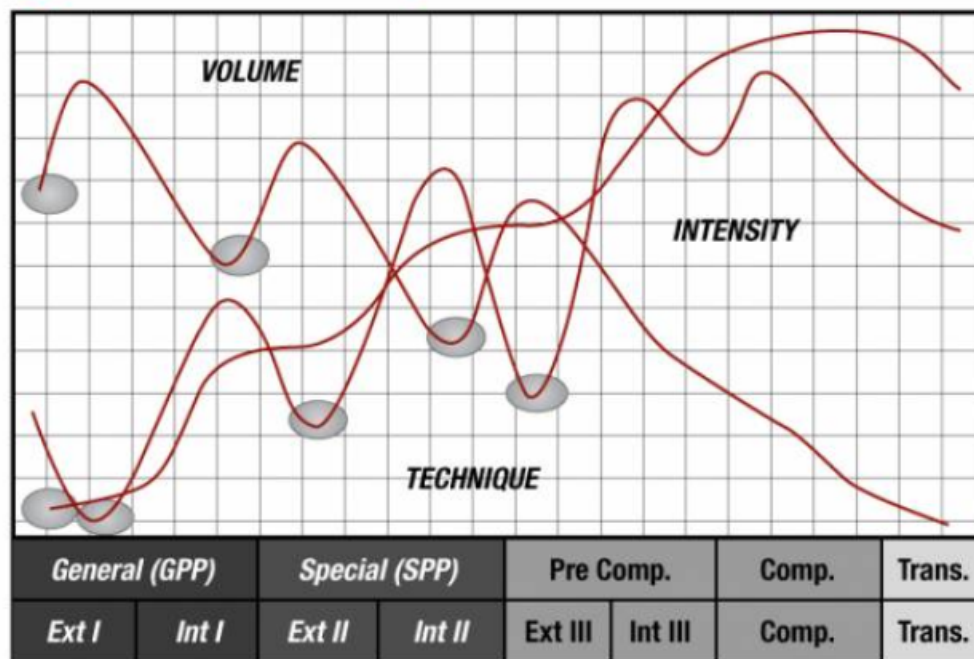
## Non-Traditional Model: Undulation

The non-traditional model of periodization, referred to as undulating, has gained traction in recent years. The undulating design is based on the concept of Hans Seyle's *General Adaptation Syndrome*. G.A.S. explains the way your body restores itself to balance, or homeostasis, when faced with stressors.

With undulating design, there is enough variation in stressors to continually make progress without allowing your body to fully adapt to all the stressors taking place. All this while still accounting for the *recovery or restoration* needed.



### Undulating Periodization Model



In undulating design, the stimulus is varied either within a weekly model (WUP) or in daily undulating periodization (DUP) where daily changes are made to either volume or intensity. Studies like *the Rhea study in 2002* have shown this modeling can be more favorable for increases in strength gains than in typical linear modeling in well-trained athletes.<sup>2</sup> This study also purported that DUP may be more beneficial for elite athletes as it helps them avoid the dreaded plateau effect that can happen in well-trained lifters.

**Block periodization, or the conjugate sequence, was originally developed by Verkoshansky for Olympic athletes, i.e. the most elite-athletes on the planet.** It consists of a two-block design, accumulation and restitution. In the accumulation blocks, the focus is directed toward supporting motor abilities while simultaneously developing certain strength qualities necessary for the athlete with a limited volume load.

**The restitution block is essentially the opposite.** They support strength qualities in the athlete, while addressing the development of specific, technical motor qualities with a limited volume load. These training loads must target different abilities (max-strength, **explosive strength**, max anaerobic power, etc.).

*"Block periodization, or the conjugate sequence, was originally developed by Verkoshansky for Olympic athletes, i.e. the most elite-athletes on the planet."*

Basically, in the accumulation block we are looking for unilateral concentrated loading of strength qualities. This unilateral increase in concentration of loading will allow specific systems to achieve a higher level of stress. **This, as we know already, is needed for further adaptation to take place in elite level athletes.** While you are focused on this, you are also training to keep the **motor abilities necessary for your sport.**

In the restitution blocks, we are flipping it around. **We are looking to support the strength qualities developed in the athlete while improving the technical motor qualities that are needed for the athlete's sport.**

## Putting Periodization Into Practice

**Periodization has stood the test of time for the simple fact that there are so many progressions and ways to structure your training so that you can be at your best when it matters most.** Failing to utilize any form of periodization for your training could lead to overtraining, failure to recover appropriately for progression, and the inability to **see the progress you deserve from the time you put into training.**

- Did you know periodization?
  - What was new for you?
- 
- Notice: This is not British English

# Periodization Training and Why It Is Important

It turns out that the exercise you've been doing has worked so well that your body has adapted to it. You need to "shock" or "surprise" your body a bit. You need to give it a new challenge periodically if you're going to continue to make gains.

That goes for both strength and cardiovascular training. "Periodizing" your training is the key. Instead of doing the same routine month after month, you change your training program at regular intervals or "periods" to keep your body working harder, while still giving it adequate rest.

For example, you can implement periodization training for your strength-training program by adjusting the following variables:

- The number of repetitions per set, or the number of sets of each exercise
- The amount of resistance used
- The rest period between sets, exercises or training sessions
- The order of the exercises, or the types of exercises
- The speed at which you complete each exercise
- There are many different types of periodized strength-training programs, and many are geared to the strength, power and demands of specific sports. The most commonly used program is one that will move you from low resistance and a high number of repetitions to high resistance and a lower number of repetitions.
- Such a program will allow your muscles to strengthen gradually and is appropriate for anyone interested in general fitness.

## Research Shows Better Results

Marker	Periodized	Non-periodized
Lean muscle	+4.6 lb (2.1 kg)	+2.2 lb (1 kg)
Body fat%	-4%	-1.8%
Leg press	+44 lb (20 kg)	+18 lb (8.2 kg)
Bench press	+11.21 lb (5.1 kg)	+6 lb (2.7 kg)

A frequently cited study conducted at the Human Performance Laboratory at Ball State University has shown that a periodized strength-training program can produce better results than a non-periodized program. The purpose of the study, which was published in the journal *Medicine & Science in Sports & Exercise* in 2001, was to determine the long-term training adaptations associated with low-volume, circuit-type training vs. periodized, high-volume resistance training in women (volume = total amount of weight lifted during each session).

The 34 women in the study were divided into those two groups, along with a non-exercising control group. Group 1 performed one set of eight to 12 repetitions to muscle failure three days per week for 12 weeks. Group 2 performed two to four sets of three to 15 repetitions, with periodized volume and intensity, four days per week during the 12-week period.

As the chart shows, the periodized group showed more substantial gains in lean muscle, greater reductions in body fat and more substantial strength gains than the non-periodized group after 12 weeks.

# Periodization Training for Cardiovascular Workouts

You should also periodize your cardiovascular training for the same reasons—to further challenge your body while still allowing for adequate recovery time.

If, for example, you're a recreational runner, running for fitness, fun and the occasional short race, you'll want to allow for flat, easy runs, as well as some that incorporate hills and others that focus on speed and strength.

What you don't want to do is complete the same run every time. If you run too easily, and don't push yourself, you won't progress. And chances are you'll get bored. Conversely, too much speed or high-intensity training will lead to injury or burnout, and most likely, disappointing race results.

If you are serious about improving your time in a 10K or completing a half marathon or even a full marathon, you'll need a periodized program geared to each type of race. Many such programs are available from local running clubs, in running books and magazines, from some health clubs, as well as on running websites.

Specially designed periodized training programs are also available for cycling and many other sports.

Periodized training will ensure that you continue to make measurable progress, which will keep you energized and interested in reaching your goals.

- Did you know the effects of periodization?
- What was new for you?



- Thank you for your attention!