LECTURE 12

Periodisation

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Periodisation

One of the keys to long term progression is an understanding of periodisation – the manipulation of training variables into structured, long-term training phases. These structured periods of progressive training are designed to help the client avoid plateau and continue progressing.

The challenge with planning programmes is that we have to focus on the principle of overload in order to create a training adaptation, but as we progress in intensity, we also need to ensure adequate recovery. The relationship between intensity and volume needs to be monitored to ensure that a rising intensity is coupled with strategies to support recovery. The intention in your planning is to create sufficient adaptation, recognise when this has occurred, and then alter the stimulus to ensure continued progression.

A periodisation table may look like this ;

	Mesocycle 1			Mesocycle 2			Mesocycle 3		
Week	1	2	3	4	5	6	7	8	9
Endurance									
Hypertrophy									
Strength									
Power									
Focus									

There are some key benefits to using a periodised approach to training, among them…

- Continued motivation and adherence based on training variety.
- Variety in stimulus for better overall progression.
- Avoidance of training plateau.

General Adaptation Syndrome (GAS)

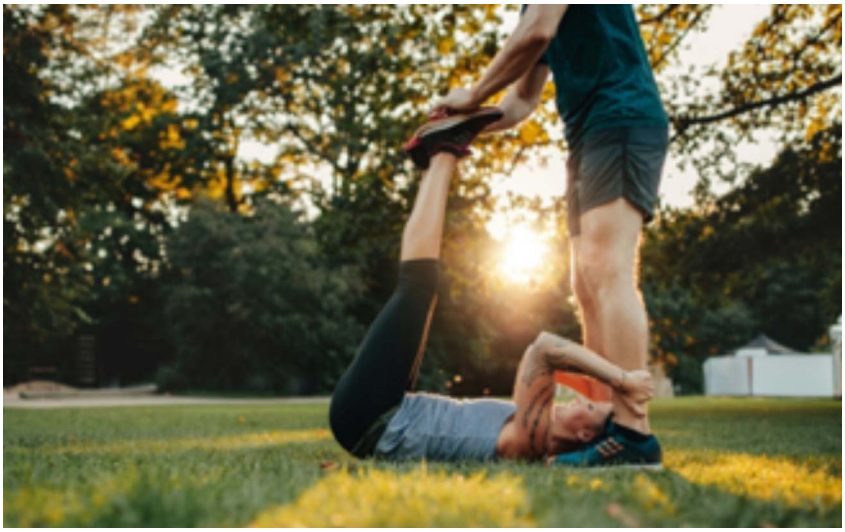
The GAS suggests that following a new or increased training stimulus, the body will go through a series of phases.

- **Alarm** - initially there will be an alarm phase whereby the body is shocked by the stressor.
- **Resistance** - this is followed by a resistance phase in which the tissues and structures regenerate to overcome the stress.
- **Exhaustion** - if the stimulus remains consistent and is demanding enough of the tissues, there will be an exhaustion phase in which performance will decrease.

Super-Compensation is a term used to describe the tissues becoming bigger, stronger etc based on the stimulus. We want to ensure adequate recovery to allow this to take place, as too little recovery can result in an exhaustion phase.

Volume & Intensity

Volume



The structure of our bodies is largely determined by the shape our skeleton provides. In an exercise setting, shoulder width, our height and where our height is distributed will have an impact on our potential physical development, as well as our biomechanics and how they relate to sports and activities.

The exercise volume is related to the amount of work completed in a given timeframe, such as a session, or a week. One way to view this is to look at the volume of a given type of sessions over a week.

Let's consider lower body sessions and, say, you completed 3 x 10 reps of deadlifts using 60kg as the resistance. The volume of work on deadlifts was 3 x 10 x 60 = 1,800kg.

Now, assuming we increase any of the variables to increase the overall volume you will be making progress related to the parameters in which you are training. Above you have completed sets of 10, so this would indicate a hypertrophy programme design. If you can remain within the parameters for hypertrophy while increasing the volume of work you will (assuming recovery and nutrition are appropriate) achieve hypertrophy over time.

Intensity

Your intensity will rise with the volume of work. Let's take the example from above.

If you complete 3 x 10 reps of deadlifts in one session, and then in the next session you complete 3 x 12 reps with the same weight, you are increasing your volume. As the volume begins to increase substantially it will be important to lower the frequency of the work, or to take a longer rest period between sets etc to allow for the recovery, and progression.

If you linearly increase both volume and intensity, then the unfortunate result will be fatigue and possibly symptoms of overtraining. This is where good programming comes into play. Maybe the volume increases are important for the client's progression on certain exercises, and you can drop some of the peripheral exercises from the sessions to account for the added work taking place.

Rest & Recovery

Long term progress requires periods of relative recovery. This doesn't mean that you don't exercise at all, or that you don't still utilise similar types of training, but the training stress needs to be significantly reduced in order that the body can adequately recover from the ever-increasing training demands. Remember that there cannot be fully linear progression without the stress becoming too much to overcome.

Overtraining & Burnout

A training plan that features too much progressive overload and too little recovery, or ‘de-load’, carries with it the risk of **overtraining**. This represents a state brought on by excessive training without adequate recovery from the stimulus. Several symptoms are recognised to be common with overtraining. Among them are increased soreness, frequent illness, decreased performance, and increased feelings of exhaustion. A period of reduced training stress is highly recommended in order to allow for recovery.

Overreaching is a term used to describe a state of slight performance decline as a result of overload, and with adequate recovery may lead to performance increases, whereas a lack of recovery can result in overtraining.

Periodisation Models

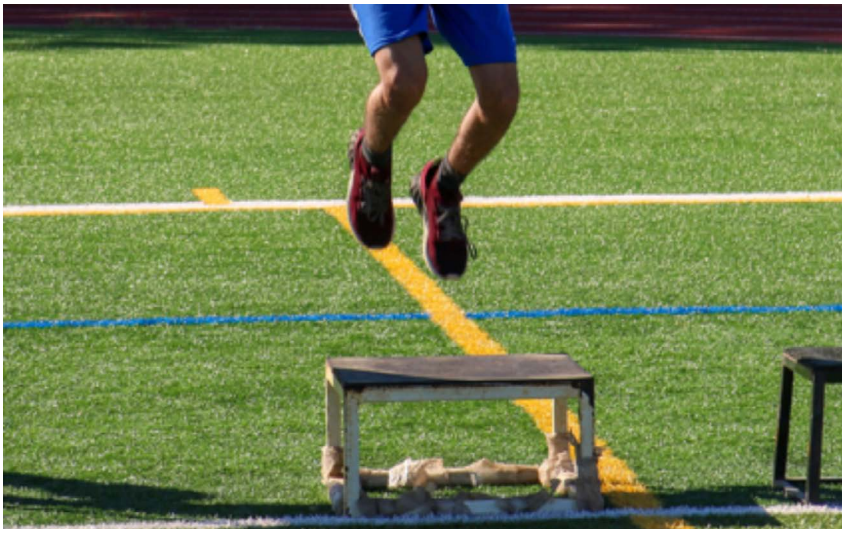
Linear Periodisation

Also known as traditional periodisation, this approach features a systematic progression, building from one week to the next in order to maximise adaptation towards a specific target. The de-load periods offer the client a chance to recover from the incremental challenge before they begin to increase intensity again. This is a very goal-driven way of periodising a client’s programme and doesn’t offer as much variation in approach.

Non-Linear Periodisation

In this type of periodisation, the client spends the majority of their time training for the discipline that represents the main goal but spends time performing different types of training to either recover from the main stimulus, or to enhance another component of fitness. It is perhaps a more holistic approach to periodisation, but one that should feature the target-training style more frequently than other modalities.

Step Loading



Most linear periodisation processes follow a 'light to heavy' progression within consecutive microcycles before de-loading.

It begins typically in the **conditioning** phase whereby a client will perform any correctional exercises needed, then slowly working with higher intensities to adequately prepare their muscles and connective tissues for the progressions to come. Following this they will embark on a process of **endurance, hypertrophy**, and **strength/power**-based progressions that see them slowly but surely entering the next logical stage of intensity.

This is known as **step-loading** and is a prime example of linear periodisation. Not every client will need to follow a comprehensive plan that includes all these stages, and indeed some won't be prepared for them based on training status etc. You should consider your client's capabilities before they embark on this type of progression.

Undulating Periodisation

The term ‘undulating‘ in a periodisation model refers to consistently varying the stimulus within the same mesocycle (or indeed in the same microcycle) in order that the body is exposed to more than one stimulus concurrently. This differs from step-loading where the stimulus remains relatively consistent during each training phase. This can serve to limit the monotony of training under the same parameters for those clients for whom this type of training becomes boring.
It can also serve to ensure the nervous system has multiple stimuli to adapt to.

In addition to this it may allow for some flexibility in the training process based on how the client is feeling on a given day. Be aware though, that for some clients and many beginners, the opportunities in undulating periodisation are limited due to their relative inexperience. You may only have flexibility to adapt the sessions between endurance and hypertrophy until such a time as the client is more capable.

Progression

Conditioning to Endurance
Hypertrophy to Strength/Power

As mentioned above the client’s training age, training status, goals, capabilities and experience will all factor in to your programme planning. You shouldn’t expose a client who isn’t adequately prepared to a training stimulus that will be too much for them.

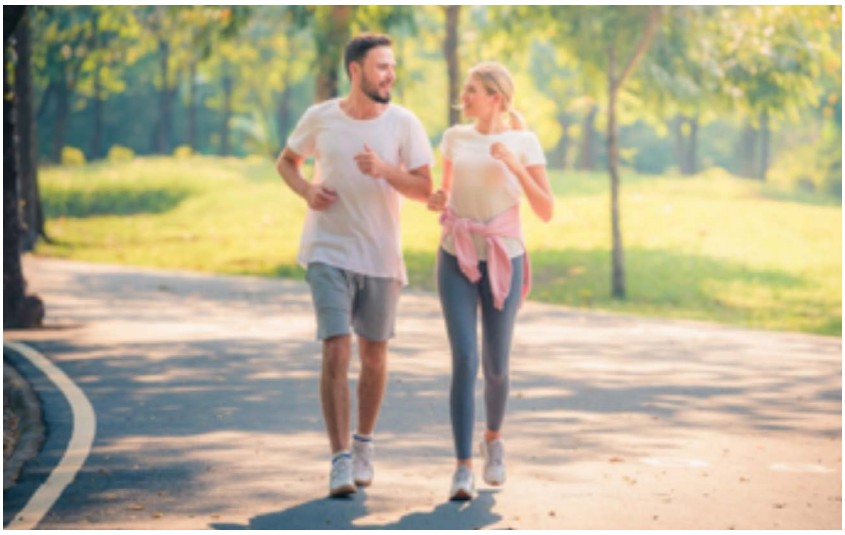
However, assuming they are capable, the training progression from conditioning to endurance and hypertrophy to strength/power will serve many clients well. They will be utilising more of their capacity as they progress and gain greater levels of tissue tolerance etc through the process.

The benefit of this structure is that each phase is designed to adequately prepare the client for the next.

Peak Performance

One of the other main benefits to a linear approach is that it offers the PT and the client the chance to progress towards an event or deadline, factoring in progression and recovery. Of course, not everyone is working towards a specific performance outcome, sporting event, or deadline but if this is relevant, it can be a useful way to try and ensure the client ‘peaks’ at the correct time.

CV Exercise



We can view cardiovascular training and its periodisation in a similar way to resistance training. We have low-intensity at the lower end of the scale, and this will progress to higher-intensity exercise. Look at the picture above. The progression from walking, to jogging to running is a step-loaded approach to CV progression. As a PT you need to keep in mind the relative durations that each can be carried out for, and the types of exercises you choose for the client, including modalities like interval training etc.

You also should consider the overall impact that these sessions will have on the client’s goals, fatigue and progression, and how they can support the other goals. For example, high intensity, short-duration sprints will utilise high-threshold motor units similar to those used in strength training. However, remember that not all clients will be ready for high-intensity exercise when you start working with them.