

**Video** Lecture 3B *(with slides)*

# Components of Fitness, Training Methods, Programming and Timetabling, Principles of Training

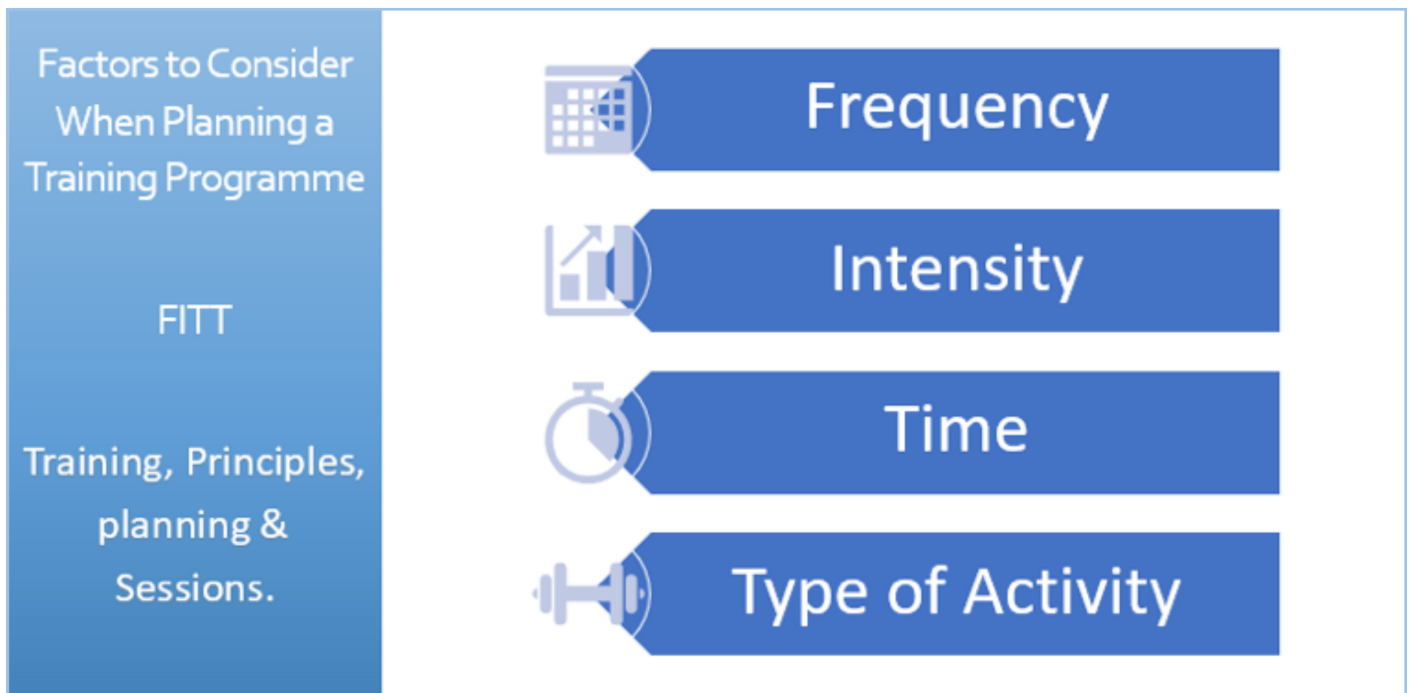
Knowledge & Application  
of Personal Training

LECTURE

3B

# Hello, and welcome to Video 3B

## Components of Fitness, Training Methods, Programming and Timetabling, Principles of Training



Hello, and welcome to Video 3B, where we'll be going through more factors to consider when planning a training session, exploring the FITT principle, training principles and how to plan programmes and sessions.

Just a little bit of a recap then from our first video of the series, Video 3A.

What we looked at was all the factors that can affect fitness and the things that we need to consider when we are consulting and talking to our clients as part of the initial process.

We looked at the components of fitness, and then we went through methods of how to train them and a breakdown of some of those methods. So from the point when you meet your client and they give you their fitness ambition or their fitness goal, you can turn that into a SMART goal, which you both agree on. You then relate that to a component of fitness or more than one component of fitness. You select your training method or training methods over a set period of time, and then apply the exercises and structure those to best match those needs.

So if we just go back and relate that to your Fitness Test, Training and Programming booklet, you will recall when we have the first question that says, "What ingredients would go into a super athlete?" - we use that term "super athlete". These might be some of the terms that you've listed. You might have put in more a **psychological** concept as well as **physiological**, and that's all correct and accurate.

What we want to do is just to get you to think a little bit more broadly about a client's needs and consider perhaps with your own training, what focus does **your** training take? Do you incorporate some of the elements here that we've listed, or are you very geared towards another type of training?

And the reason why we say that, is we learn about these aspects, we departmentalize. But when we're training clients, there should be a **blended** approach between all of them. And we should recognize that and be able to adjust and apply exercises and training programmes to meet those elements there.

So if your training programme is more geared towards strength and body composition, not taking into account,

perhaps: balance, reaction time, flexibility, coordination or elements of agility - you can become injured. Or your client can become injured if we don't train all the physiological needs of our clients and get them on board with why we are training them in this sense - and to get that variety as well.

Also, your client may relate their fitness goal or fitness ambition to a particular type of training whereas you may have awareness that they actually need to be focusing on other training methods, other components of fitness, which will best suit their ambitions. And you'll have to coach them into that type of understanding.

### **The FITT Principle.**

Moving forward, what we're going to look at in more depth, is the FITT principle and what the FITT principle actually is. What we're looking at with the FITT principle is **Frequency, Intensity, Time and Type**.

**Frequency:** how often we're training. So many people look at a week window - Monday to Sunday or Sunday to Saturday. What we often have to do with our clients is actually review a bigger window. Perhaps it might be four to six weeks, or six to eight weeks and so on. Reviewing certain windows of time - so we can really see what is the frequency of exercise? What are the gaps that we're allowing for recovery? How does that sit in with other training or other physical activity that the client might be doing?

If you change any of these elements: Frequency, Intensity, Time, and subsequently the Type of activity, you will change the component of fitness that you're working on, and you will have a relevant impact with that. On the other hand, if you try to think "quantity" rather than "quality", what you'll end up doing is hitting a plateau with your training.

Let's think about speed training and its **frequency** (the videos later on will go into more depth). If you do too much frequency of speed and try to balance that with other components of fitness work that don't have a good sequencing and relationship to each other, you won't make advancements in your training. So it's really important to look at that frequency of training.

**Intensity.** This can be married with frequency. So are you going to be training less, but increasing the intensity? And this can be part of a long-term training programme. Also, it can help with peoples' time allowance to train as well, and as you can see, there is a relationship between all three to four of these elements here.

Stereotypically, young males may be able to spend a long period of time in a training facility: an hour and a half to two hours. When other life demands start coming in as a person gets older, they may feel that they can't spend as much time and therefore cannot get the wants and needs from their training regime. However, if we can show them how we can reduce the time and potentially increase the frequency of training and manage the intensity accordingly, this will enable them to see new patterns of training that they could develop to attain and continue to attain their fitness ambitions. Perhaps giving them a variety of activities as well.

The secret to exercise prescription, programme-writing and session design is a thought process about the frequency of training and the sequencing of the training. What are you marrying with, at what time? So it's really important to start to get a good understanding of the FITT principle when writing programmes, setting sessions and putting exercise regimes together. And how to best advise our clients.

# Training Principles

The 5 principles of training can be best remembered by the word "SPORT".

• S  
• P  
• O  
• R  
• T

Specificity

Progression

Overload

Reversibility

Tedium

## The SPORT Principle.

We also need to make sure that our training follows the **SPORT** principle, which is related to **Specificity**, (being specific with our training). **Progression**, **Overload**, **Reversibility**, and **Tedium** (boredom or disengagement with the training due to training not being engaging and having variety).

You can get trapped in the specificity model. You can become over-specific with training, trying to marry either the muscles that somebody's using in a physical activity, sport training or energy systems. So when we look at sports that you are training for, if someone's taking part in recreational activities, it can put more justification to your training. If for example, someone likes to go for long country walks, we can start to look at the agilities within the ankles, the knees, the hips. Bring that into training as well as balance and coordination. We can look at the fact that they're going to be doing prolonged cardiovascular performance with low intensity. We perhaps would want to match that with our training programmes as well so they see a validity and a link between what you're doing in the training programme and their lifestyle performance.

However, often what can happen, especially as there is a growing trend of people that work full time in a profession, to take part in physical activity and perform to quite high levels. And they want to get the best out of their training and to really invest in themselves and their activities. If you try to marry or link the movements too much, you can actually inadvertently disregard muscle groups and actions that need training.

The best example for this is you may see people using a medicine ball or a slam ball and throwing that against a floor, wall or high point ceiling. Now, if you were to play a sports game, such as netball, football or rugby, you'll have particular techniques in the way that you will handle, throw and utilize the ball. But if you do that towards your training as well, you fall into the trap of becoming over-specific in your training. There's no difference between just throwing a ball in any old manner, not necessarily having to match the particular movements that you would do in your sporting event. So some people do get trapped in becoming over-specific. We want to be doing training that's going to develop and advance someone for their leisure pursuits or physical activities, not necessarily just repeating that same movement.



# Training Principles

## Specificity.

You should train the muscles, energy systems and skills that are specific to the sport for which you are training.



When we're thinking about being specific, this is really when the FITT principle can come into play as well. When we're thinking about how often they're going to occur with their

training, matching that intensity as well. The sessions, durations and periods of what we're doing can really best suit someone and making sure they're programme specific.

Training Aspect	Endurance (aerobic) training	Sprint (anaerobic) Training
Frequency	4 – 5 days a week	3 days a week
Intensity	Heart Rate = 85-90% maximum heart rate (MHR)	Heart Rate 180 beats/min or greater
Sessions / day	One	One
Duration	12 to 16 weeks	8 – 10 weeks
Distance	5 kilometres	3 – 4 kilometres

Specific training produces specific neuromuscular & physiological responses. Each sport demands its own fitness.

Train muscles, energy systems and skills specific to your sport.

Practice should mimic competition whenever possible.

Specifically - towards your sport or a muscle group.

For example - training for a shot putter would be different from the training for a marathon runner.....You would not ask your shot putter to run round the field 3 times as part of their fitness training.

There is also a need for SPECIFIC TRAINING within a sport.

e.g. goalkeepers need different training to outfield players.

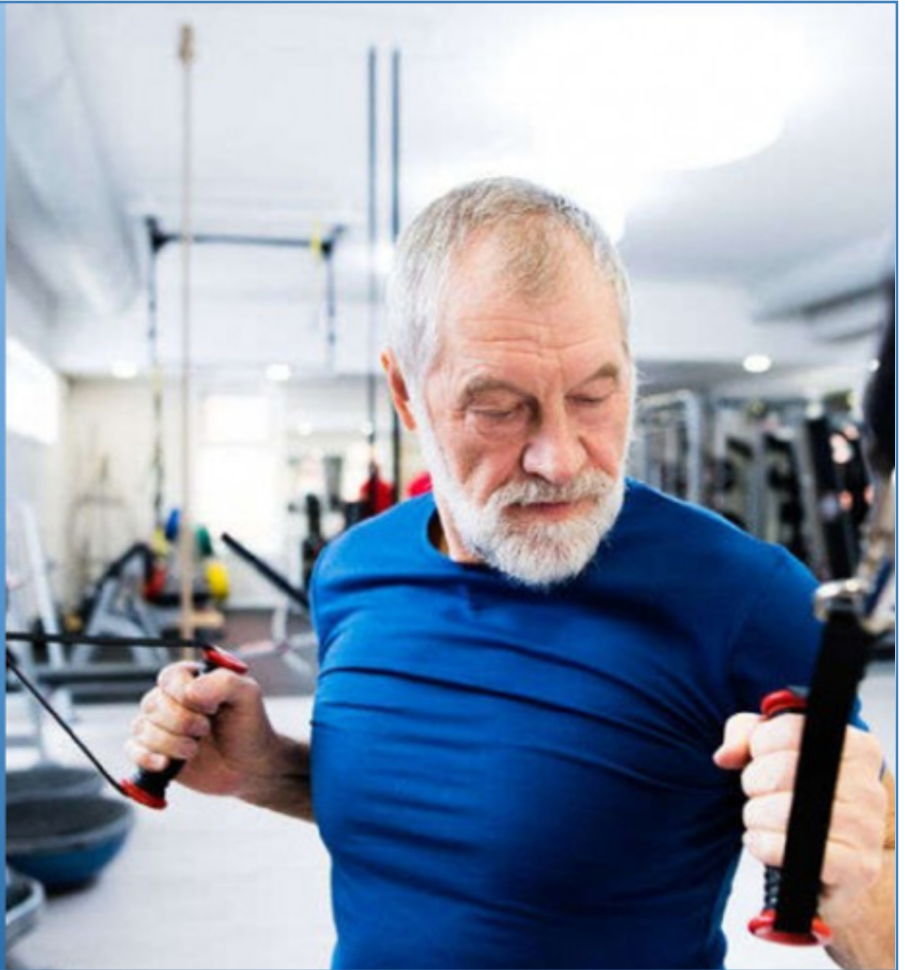
## Specificity

We need to apply stress to the body, whether that's loads on muscles or whether it's pushing our energy systems in a positive, relevant way. If we don't put pressure on the body, we will not get any progress, so we need progressive overload. There needs to be some stress in the body.

Something that I say over and over again is that we don't get fitter in **training**, we get fitter in **recovery**. That's when the adaptations take place. We want to be stressing the body in our sessions. We want to be pushing the envelope in what we're doing so we can have those adaptations take place.

## Progressive Overload

- The overload principle governs all fitness and skill training. If the individual wants to improve, the individual must exercise at an intensity greater than his or her performance objective.
- Example being trying to improve on one's time over a particular distance.



Even if your client says, I'm happy with the fitness levels I want to do, and I want to maintain, there still needs to be an element of overload.

Now - what percentage? That can be managed a little bit differently. There is, dare I say, a rule of thumb when it comes to progressive overload. We often refer to it as the 10% rule. We never go more than 10% of the current position. There is little to no research really supporting this, but it's quite a good, safe margin.

There's a bit of a conflict because we could say, what is 10% of nothing? So if someone is very sedentary, how do we get them to progress? But it's a good way managing and

avoiding injuries as well. And if you look at the trends of Couch to 3K, Couch to 5K, there's a lot of investment into applying resistance to people that have been sedentary for a long, extended period of time. But the overload needs to be progressive, and we need to really manage that with our clients.

Some of your clients might have been sedentary for an extended period of time. However, in their previous lifestyles prior to training, they may have been very active and want to immediately return to that state. So we might need to manage some expectations with our clients and manage that progressive journey.



PROGRESSION involves further planning to produce another programme which would take the athlete onto a higher level of fitness.



Having planned a training programme for 6 weeks, the athlete would need to evaluate fitness levels, to check for improvements.



This might involve training more often (FREQUENCY), training more strenuously (INTENSITY) or spending longer (TIME).

Working at an intensity that the body is not used to progressive increase in load as body adapts. With no overload there will be no increase in fitness. Too small an increase can result in insufficient gains. Too large an increase can result in injury or 'overtraining'.

## PROGRESSION

### (Progressive) Overload

And again, thinking about how we might progress a client, you might have a series of exercises in a session. Do you add more exercises? Do you increase the weights on those? Do you increase maybe the time spent? We could look at a resistance exercise and say,

*"We're going to be doing three sets of 10 or three sets of 12 repetitions, and we can just count repetitions".*

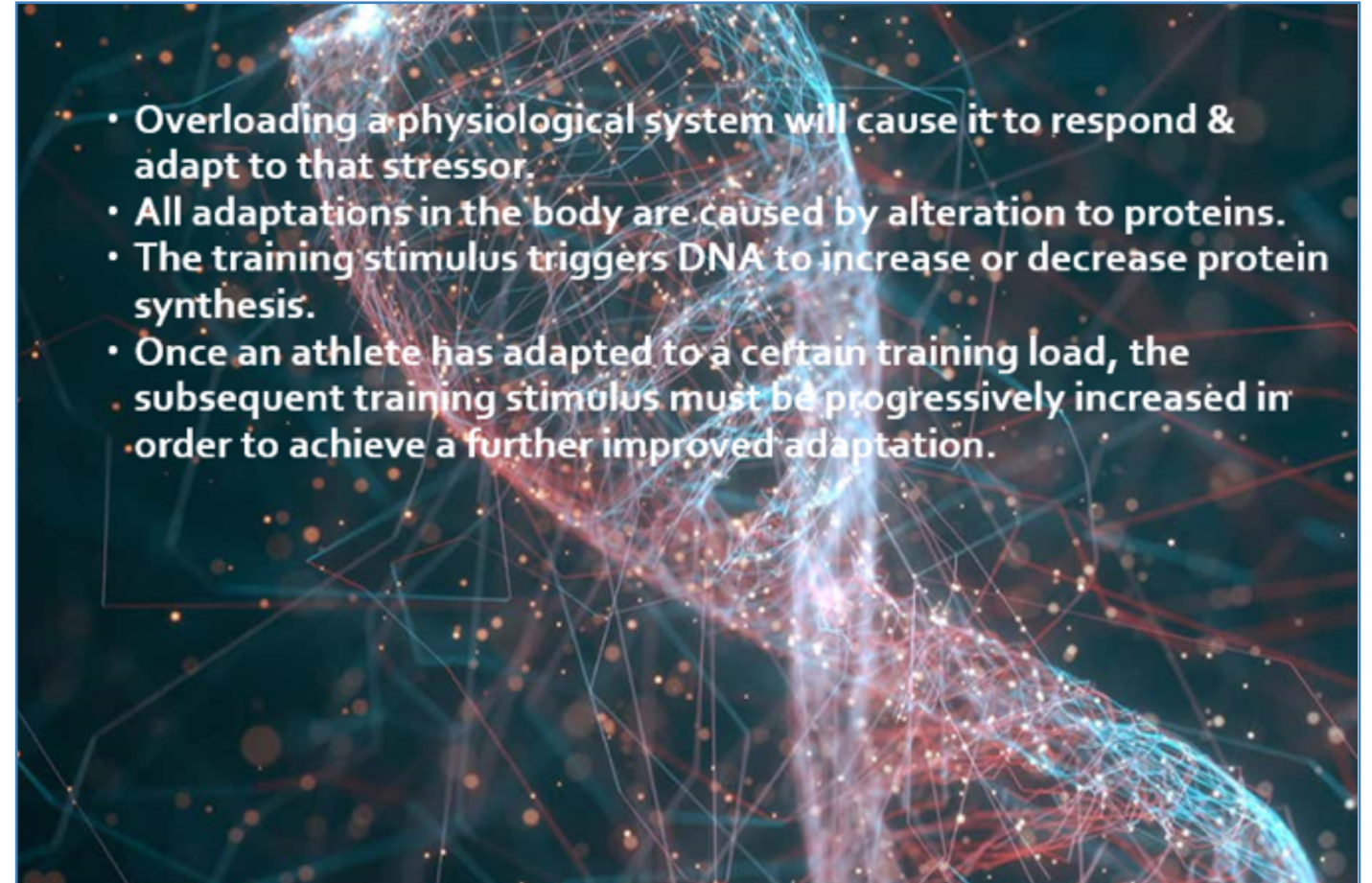
Or we can say,

*"You're going to have a minute and a half. Perform the exercise correctly and efficiently, and let's see how many repetitions you can do in that time scale".*

And that gives us another way of extending, reducing, or applying variations to how we progress.

Understand that when we are applying training, we're looking at the physiological aspects of the body and how that responds, ensuring that we can apply stress in the body to allow adaptations to occur - and that actually healing occurs as well. Everybody plans a training programme. Most people plan a nutrition programme. Very few people give any consideration to a recovery programme. So this is something you might want to talk to your clients about.



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- **Overloading a physiological system will cause it to respond & adapt to that stressor.**
  - **All adaptations in the body are caused by alteration to proteins.**
  - **The training stimulus triggers DNA to increase or decrease protein synthesis.**
  - **Once an athlete has adapted to a certain training load, the subsequent training stimulus must be progressively increased in order to achieve a further improved adaptation.**

The government guidelines do change regarding physical activity. Three one-hour sessions a week is actually quite difficult to keep to if you've been sedentary for an extended period of time. So how do you manage that with your client? I think sometimes exploring review processes such as - not Monday to Sunday (a seven day week review), but maybe doing three or four week reviews and seeing the frequency of exercise, tracking the intensity, and perhaps making variations to that, which are agreed with your client. Time spent training and the types of training done in those four-week windows really allow you to review.

And why we do those reviews is because we really want to make sure the clients stay engaged with their training. We want to make sure there is some progression and variety in the training to also avoid injury and burnout.

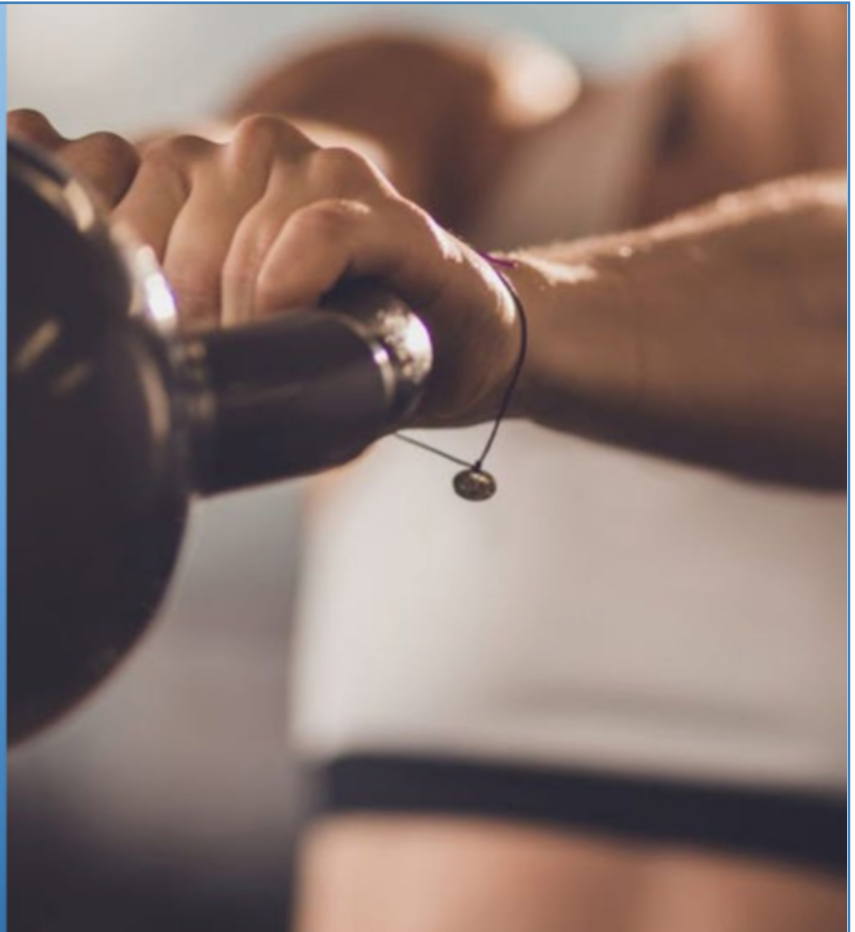
Training effects are reversible and this can work in two ways. They can actually really support clients who are injured and perhaps concerned about taking time away from training. And we could talk to them that, actually yes, training effects **are** reversible. So many high-profile athletes are known to get injured and come back fitter and stronger.



# Training Effects are Reversible.

The biological adaptations produced by training will be reversed if training ceases. The longer the build-up, the slower the reversal process will be. This is sometimes calling the detraining effect.

Consider reverse during injury recovery phase.



And the lesson that we can take away from that, is that with members of the public, we don't have a season. And we don't have the support systems that other athletes perhaps have. So the effects of incorporating rest - if we were unfortunately to get injured, not due to internal training systems, but an external factor, might allow the body an extended period of time for adaption to take place.

Often experience has taught us that things such as flexibility can go within days to weeks - you'll notice a decrease in your flexibility. Cardiovascular ability can start to diminish within weeks to months, and then strength takes an extended period of months to actually lose its effect. Now, if you are particularly active and you've taken an extended period of time being sedentary, when you come back to training, it won't take that much longer to regain and recover and come back into full fitness training habits that you were doing previous to your period of being sedentary. So it is something that can really reassure people.

But this is that other thing of training – the idea of “just to maintain” (and this is a psychological as well as a physiological approach). If someone's training “just to maintain” fitness levels, think of this.

When you maintain you stand still.

If you're standing still, you're not moving forward.

If you're not moving forward, you are taking steps back.

So what we need to do, as our clients age and change, is not necessarily move **away** from training. We are diversifying and changing the client's frequency of their training, the time spent, the intensity and the types of training as well - making it all relevant to the client's needs.

Again, what is important is that there needs to be a base level of fitness before we go into advanced specialisms and specialization and being specific with the training. And what we mean by that is, “quality is better than quantity”. People do like to work at top speed with maximum effort, but the argument against that is that we need to make sure there's a base level of fitness to support it. We're looking again at what we talked about before - the components of fitness, the full athlete - looking at all their needs.

A competitive athlete in any sport should develop a sound general fitness, including all fitness components, before specializing in the dominant components of a particular sport. Otherwise, athletes run the risk of injury.

Working at top speed or maximum effort is far more productive than working twice as long at a half pace.

Example: if a footballer who jogs around during work at training is learning to function at half pace, they will probably perform that way during a game.

## Generalisation Before Specialisation

Quality is better than Quantity

People have different names for their clients. Some people say “clients” - but they're “athletes”, the persons that they're training. Some people may even use the term “patient” as well, but remember we are training **individuals**. We need to make sure we're gauging our training to meet their needs, and that what we are selecting is valid. We need to be keeping abreast of changing trends and ideologies towards training, but not jumping on the latest trend and the latest bandwagon. We need to make sure that we're looking after our client's needs.

Your client may approach you saying,

*“I've seen this type of training. I've seen this type of exercise. Is this suitable and right for me?”*

Or

*“This is what I want to do”.*

And you're not to dismiss that because you may want to push your client into that direction, but you need to consider where are they on their journey and what is the likelihood of them getting there?

To explain that a little bit further. Some people will talk about good regimes, good workouts, and negative regimes, negative trends and negative workouts.

There's no such thing as a bad workout routine.

Quite simply, there is nothing out there that we don't believe is not appropriate for any client to **potentially** do. Movement is movement - and movement is good. So if you are doing something that encourages movement, that is really good, and any training regime is appropriate. I've not come across anything that I would say is a bad workout – “don't do it”.

What we do say is people are on different progressions of different journeys, and if you want to then take that step up and start to go into new trends, new specialisms, you need to make sure you've got that base level of fitness to avoid injury and to ensure your continued progression.

Everything that we do should be measurable, and we should be always challenging the windows of review and moving the parameters of what we review. Reviewing very small windows or reviewing session-by-session, to days-to-weeks, weeks-to-months. There needs to be that review, because as we go through the review, we go through their progress - we go through the regime.

Right  
Practice  
Makes  
Perfect

Progression  
Should be  
Measurable.

Practice must come as close as possible to the performance required of a player in the game situation.

Players should be able to see improvements in their performance. Such improvements may be tested regularly, or the player can make comparisons between his or her recent performance to past performances.

Training Diaries

As a trainer, we might miss something with our client and we need to make sure we're being very open and reflective with our client by doing visual reviews. "How do they look?"

I'm always looking to see if my clients are tired. If there's an exercise that suddenly they're finding difficult to perform, that has been a little bit easier in the past - what potentially has changed? Has something changed in their lifestyle?

Has something changed in their approach? What are they maybe doing while they're away from their training sessions with me? So it's really important that we have that review with our clients.

We need to give that variety and really look a little bit broader than the traditional training in the gym, and that can really help with your FITT principle. You want your client to explore the **Frequency** of when they can train, the **Intensity**, the **Time** that they spend as well as the **Types** of activity.

Variety  
adds spice.

Training sessions can be varied by such means as:

Emphasizing different skills

Changing fitness activity

Visiting local gyms

Running on beaches

Training at pools

Both physical and psychological benefits occur.

You may work with people who have very demanding professional roles who perhaps have to travel for those as well. If we can give them different means of training when they're away from you, then you are going to keep that client with you more long term as well. And it's going to look as if you're invested in ALL of their lifestyle, not just that small window, that one hour of their time that they're spending with you, whether that might be once, twice, three times a week or more. Perhaps give them examples of how they can train differently. Perhaps you might want to change

the location every so often and think about how you might do that to give that variety to them as well.

So again, long daily workouts may not be the best training method for performance, lifestyle and sports. We'll be looking at this further, when we get down to doing what we refer to as **periodization** (training towards a peak).

Lots of members of the public will often take their training (and what influences their training) from what they see written in magazines, newspaper articles, or online.



## Key Point

The need for long daily workouts may not be the best training method for some sports. It appears that training volume could be reduced by as much as one half in some sports, without reducing the training benefits and with less risk of overloading.

Wilmore J.H. & Costill, D.L. (1999)  
Physiology of Sport &  
Exercise 2nd Ed Human Kinetics III

In such things, it's often only a small snapshot that's been taken from another principle that has lots more elements to it, and they're only getting a very micro review of the real thing. So we need to make sure that we are keeping our training relevant for them. We want them to be engaged in exercise over long periods of time so we need to be making sure we're getting that balance.

Here's some context about training, progressive training and how we make progression individualized to our clients - and why?

Thinking about how training can change from decade to decade of our lives, should we be training in our forties exactly the same way that we did in our twenties? Or is there a need for variations? We don't want necessarily to degrade the intensity, but to manage that same ambition and goal with training in a different way.

I think that's really appropriate, really necessary. And that's how you're going to get the variety of training between your clients. If you've got a portfolio of clients and they're all training in a similar way with similar types of exercises, similar intensities and fashions, perhaps you're doing something wrong as a trainer and you're giving agenda-based training to all your clients. If we want to be personal trainers, it's got to be individualized, and we've got to make sure that we're managing this as part of that journey with our clients as well.

We need to let them know that training to fatigue, training to push their limits is not something that is irrelevant for them anymore, depending on their age and abilities. They can actually find new windows of progression that perhaps they haven't explored before, and that would give them a real sense of value when it comes to their training.





If training PROGRESSIVELY gradually improves fitness over a long period of time, what happens if less training takes place, or if we stop training because of injury.

This brings us to the principle of training called REVERSIBILITY.

Use it or lose it

Detraining: the longer the build-up the slower the reversal.

Neural pathways have a memory.

Cessation of regular training may be due to inactivity or immobilization.

May also occur as a result of poor training plan.

Muscle atrophy accounts for a loss in development of maximal muscle fibre tension.

Normal fibre recruitment is disrupted; some fibres are unable to be recruited.

Muscle requires minimal stimulation (training once every 10 to 14 days) to retain training gains.

Loss of endurance in isolated muscle

Oxidative enzyme activity in muscles decreases.

Muscle glycogen content (and thus storage capacity) decreases.

Acid-base balance becomes disturbed.

Muscle capillary supply and fibre type may change.

Recovery of conditioning after a period of activity.

Affected by fitness level and the length and extent of inactivity.

If a cast (eq on a broken limb) allows some range of movement, retraining time can be reduced.

Electrical stimulation of muscles can prevent muscle fibre atrophy

## Group & Individual Training

Group training is an excellent method of maintaining training motivation. However, within any group, training must be tailored to the needs of the individual. Specific members of the group may need more or less intense work, depending on their existing capacities and rates of improvements.



**Group and individual training** is something that's growing in popularity and can really help keep clients engaged in the training. Why is it important? It could be working in two different ways. You can obviously have a collection of individuals coming to a group exercise programme, or you can have two friends or a couple who are in a relationship, or three friends who come and train to help motivate each other.

Now often as a training practitioner myself, I've often worried about the fact that if I get two people training, I want to make sure that my training is geared towards their individual needs. And I've often worried that training two people together would dilute the service that one person could get on their own? And there is a risk to that, but really as a trainer, we just need to step up our processes, step up our service a little bit more, and make sure that we're a little bit more dynamic in what we're giving.

Is group training really going to improve them? Think about people who are sedentary for extended periods of time - perhaps they're in a situation where they need to make dramatic changes to their lifestyle to improve their health. They're going to need friends and family - those people that are in their immediate circle - to support them.

And it might be something you need to talk to them about.

*"How are you going to get your friends and family to support you? If you go out socializing on a regular basis, will this influence all your food groups and food selections? Or will you be able to work with your friends and get that support from the friends and people around you to help you progress with your ambition?"*

This could be a conversation you might have with your client - "Who's going to support you on your journey?" It might be just one or two ways to mix up their training. You can say to a client, "Would you like to bring a friend to a complimentary session?" You get them training in pairs. All of a sudden, you've got access to a new client who perhaps may want to train with you one-on-one, separate from their friend.

So it can work in lots of different ways. It can keep your client engaged for an extended period of time. It can allow you to access new leads for new potential training clients as well, and really develop a different type of culture. You can have two systems and services alongside each other: group training and individual one-to-one training. Think about how they will diversify. How you can use one to influence the other as well keeping people engaged.

We know that health is not just a freedom from disease - it's social, mental, and physical wellbeing. So training in groups can help to naturally progress individuals as well. And it can work in part to develop your business and the ethos of your business as well - how you might want to expand and diversify.

Okay, guys. We're going to move on to the specifics of session design that'll be taking place in Video Number 4.

So just a little bit of a recap as we go back up and through what you should have taken from this video.

- We looked at group and individual training
- We've looked at progression and being progressive with our training and what avenues and directions we may want to take our clients in. And the justifying points there as well that can help you engage clients, promote your services and keep clients engaged.
- Often our clients might be influenced by what they're seeing at top-level sports or articles that they're reading as well. There is a relevance. The principles of training elite, top athletes is exactly the same as training Average Joe or people that are very sedentary, but the training should be diversified to their needs and how we can keep engaging them for long periods of time.
- We thought about some examples of the variety of training - how you can mix it up, how you can be different from other trainers as well. Not getting yourself trapped in your one method or one process of training.
- We thought about monitoring your client, how the FITT principle can help you with your monitoring categories and how we can change and alter and diversify, depending on other elements of their lifestyle as well. If they're going on holiday, if they've got stresses in their life elsewhere, how can we change the tone of their training to meet the needs? So therefore, to keep them training as well.
- You can't escape from the fact that you need a base level of fitness, and **generalization** is more important than **specialization**. And if you really work with a client, let them understand that good **quality** training is better than **quantity**.
- We thought about how we can support our clients with how their bodies are changing and adapting to the effects of training. How we can keep them engaged as well.
- We talked about adaptations: showing that you talk to your clients about their full training needs, not just that one hour when they're with you, not just about what they eat and what they don't eat, but actually about how they can reward themselves in a recovery regime as well.

- Different manners and means of how we can structure exercise training sessions and programmes to have variables with progression and the application of progression as well.
- Being specific so that we can justify our training programmes and our clients can immediately see a relationship between what they're doing with us and how that can improve their lifestyles. But also not falling into the trap of being over-specific as well.
- And then again, back to the FITT principle.

So stopping there, what we can really talk about is saying as personal trainers, we're just not developing. As I said earlier, we could just issue all our students with an archive of 5,000 exercises:

*"Here you go. Here's a range. Keep adding to it. You're a personal trainer".*

But really, an exercise in itself, can be irrelevant. It's always good to look at movement (how we move) but again, how we structure, sequence and diversify those movements to meet our clients' needs. And those simple changes that we can make will really impact on the component of fitness that they're training: the training method, and then that attainment of our client's training goal.

Hope that's been helpful, and I look forward to seeing you guys on Video Number 4..

