



Welcome to  
**THE SPRING  
TRAINING SECTION**

In this month's training section, Zoë Smith lays out the facts about **getting (and keeping) your horse fit** with a **6-page special** (p20) packed with expert advice from Dr David Marlin. And on p26, Leanne Roger tells her secrets for dealing with another springtime challenge – **worming your horse**

**WITH HELP FROM  
OUR EXPERT...**

**Dr David Marlin**



Photo courtesy of Dr David Marlin

David is a scientist and equine science consultant specialising in nutrition, exercise physiology, and performance.

• Find out more at his website [davidmarlin.co.uk](http://davidmarlin.co.uk)

**SPRING FITNESS SPECIAL**  
**IS YOUR HORSE  
FIT ENOUGH?**

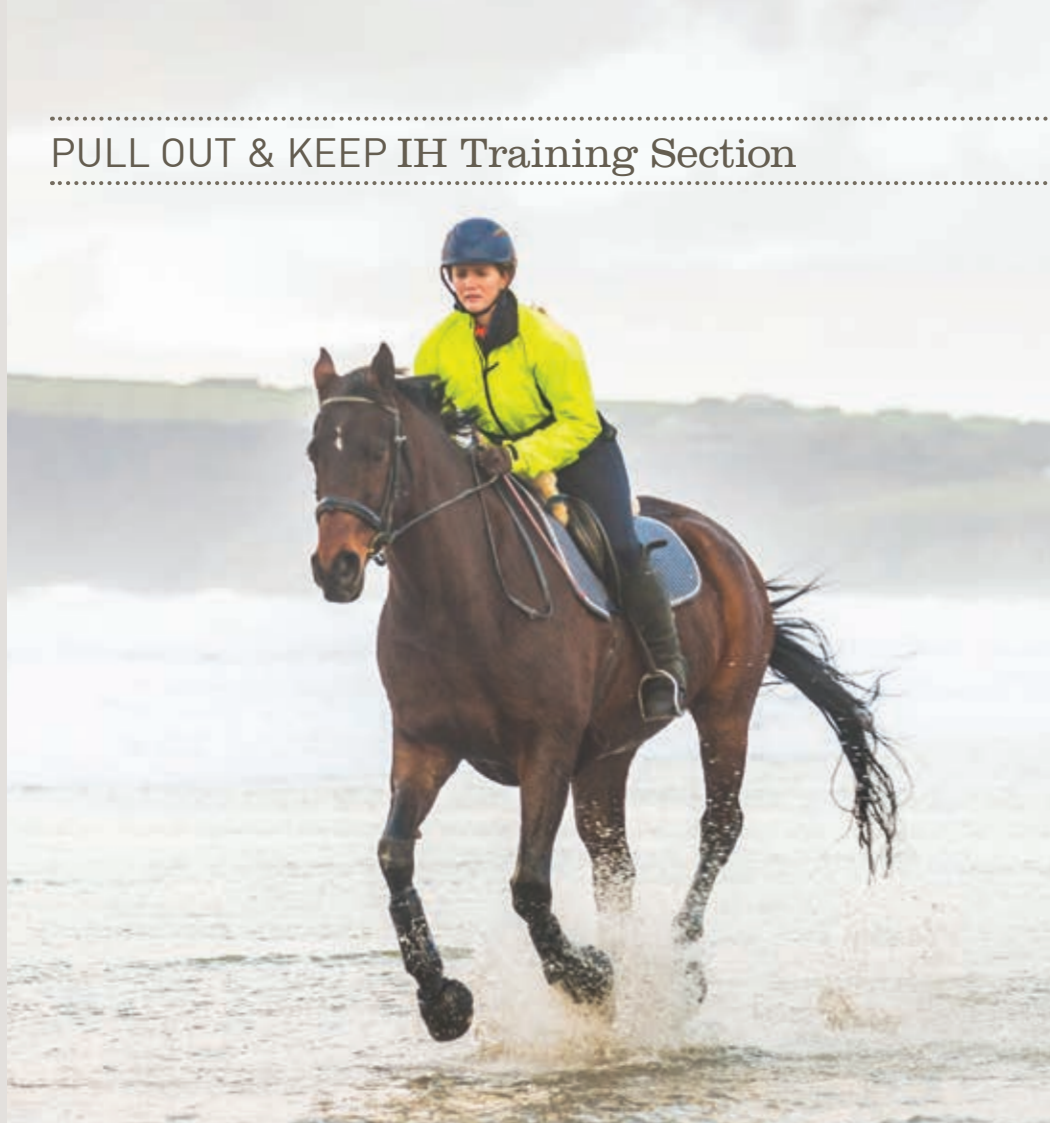
By Zoë Smith

**A**s the days get longer and warmer, and the main competition seasons start up, many of us will be planning to enjoy more time with our horses. Whether your summer plans involve long rides on the beach, taking part in clinics, or soaring around a cross-country course, it's important that your horse is fit for purpose. For horses that have been turned away over winter, ridden less than usual, or doing more indoor schooling instead of hacking and competing, this is even more important. But how fit does your horse really need to be, how do you go about getting your horse fit, and how can you monitor your horse's fitness levels? This six-page spring fitness special is designed to get you on the right track...

**WHY 'GET FIT' SHOULD  
BE ON YOUR TO-DO LIST!**

When you think of a 'fit' horse, you probably have an image of a horse in top condition with a gleaming coat, a well-defined topline, and little-to-no excess fat. Fitness isn't just about physical appearance though; it's also about your horse being physically capable of doing his 'job', whether that's a 50-mile endurance ride or trotting to the pub on the weekend.

For those of us with competitive ambitions, increasing fitness means that our horses will be able to run faster, jump higher, and keep going for longer, but it also means increased proprioception, lower risk of injury, and more effective circulatory and respiratory systems. While it is possible to have one without the other, health and fitness do go hand-in-hand, so if you want to keep your horse healthy, keeping him fit should be up there on your list of priorities.



Is your horse fit enough for that summer beach ride?

## DID YOU KNOW?

The heart is a muscle and can actually increase in size and weight as a horse reaches peak fitness. This is why trainers often say that a horse with a wide chest has a greater athletic potential – because there is physically more space for the heart and lungs!

## WHAT DOES 'FITNESS' REALLY MEAN?

“Improvement in the physical capacity for exercise is what we call fitness.” Dr David Marlin

In both humans and horses, fitness can be defined by five main components:

**1 Body composition** The ratio of fat mass, muscle mass, bone, and organs within the body. Where horses are concerned, this may vary depending on the breed, size, and weight of the horse. Fitness training will have an effect on the horse's entire body – increasing bone density, strengthening tendons and ligaments, increasing heart and lung function, and improving the fat to muscle ratio.

**2 Cardiovascular endurance** The capacity of the heart and lungs to provide blood and oxygen to the working muscles during exercise. Increasing fitness means that the heart becomes stronger and the lungs increase their capacity for oxygen. This increased efficiency means the horse can work harder for longer.

**3 Muscular strength** The maximum force that can be produced by a muscle over a short period of time. (For humans, this would equate to how much weight you could lift and hold for several seconds). Building strength increases muscle mass and helps with musculoskeletal stability, weight-carrying capabilities, balance, and control.

**4 Muscular endurance** Refers to the length of time that muscles can work at a lower level, say 50-75% of their maximum capability. Developing muscular endurance is essential for all sustained exercise.

**5 Flexibility** The range of movement of joints, muscles, tendons, and ligaments. A supple horse is able to move with ease and better maintain relaxation, rhythm, and balance in his work. Maintaining flexibility can also help minimise the risk of injury.

## AEROBIC AND ANAEROBIC EXERCISE

There are two types of cardiovascular exercise: Aerobic and Anaerobic. Put simply, aerobic exercise is low-medium intensity exercise that can be sustained over a long period of time – endurance riding and most general riding falls into this category, and it's typically carried out at heart rates of less than 150bpm (more about heart rates later!). During this kind of exercise, the body can supply sufficient oxygen to the muscles to break down fuel stores and carry out the required workload.

Anaerobic exercise on the other hand is intense exercise that can be sustained over short periods only – high-speed activities like racing, cross country, or barrel racing fall into this category, and typically heart rates will be higher than 150bpm. During anaerobic exercise, the body cannot supply sufficient oxygen quickly enough, and instead relies on glycogen in the muscles.

What does this mean for the average horse? Training in both aerobic and anaerobic exercise is important for building general fitness and regardless of our competition goals or chosen discipline, most of us will want our horses to

be capable of both – to be able to maintain a steady trot or canter over a distance, but also to be able to power over a few jumps or go for a good gallop. However, for those hoping to reach the top levels of a certain sport, training should focus on maximising the horse's capacity for either endurance or fast work.

“The reason a horse cannot excel at both sprinting and endurance is because the type of muscle development is in opposite directions. Sprinters require large, powerful muscles to accelerate them and maintain them at a high speed for a short distance. Peak speed can only be maintained for short periods relying primarily on anaerobic metabolism and lactic acid production.

[On the other hand], to cover 100 miles requires the ability to run at a fast average speed relying almost entirely on aerobic metabolism. In order to maximise the transport of oxygen into the muscle cells, the muscle cells themselves are thin and packed with mitochondria (where the oxygen is used to produce energy in the form of ATP – adenosine triphosphate) and surrounded by an extensive network of capillaries (small blood vessels). The muscles of a sprinter are the exact opposite. The fibres are big, have few blood vessels (because oxygen is of lower importance) and have few mitochondria.” Dr David Marlin

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# SPRING FITNESS SPECIAL

## IS YOUR HORSE FIT ENOUGH?

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### ? HOW FIT DOES YOUR HORSE NEED TO BE?

A gentle hack once or twice a week undoubtedly requires a lower level of fitness than a horse who is out four-star eventing, but that doesn't mean that we shouldn't concern ourselves with our horse's fitness. In fact, while leisure horses aren't expected to perform the same athletic feats as competition horses, those who are only ridden occasionally may actually suffer the most from a lack of fitness. Think how much your muscles ache if you go for a long ride after not riding for weeks, then imagine how a horse who does little-to-no regular work, then goes on a day-long pub ride in the summer, carrying a rider on his back, might feel.

Regardless of your chosen activities, all horses will benefit from achieving a base fitness that covers all of the components – Long Slow Distance (LSD) work to increase muscle endurance, fast work to increase cardiovascular endurance, and targeted strengthening and suppling exercises such as hill work or lateral work. How fit your horse needs to be depends on the kind of activities you want to do with your horse and at what level.



Improving fitness can make a big difference for an overweight or 'lazy' horse

## IH Training Section

### DO YOU HAVE THE RIGHT HORSE FOR THE JOB?

Most horse breeds are more than capable of being all-rounders, but there's no doubt that different breeds have a natural capacity for different sports.

**There is a good reason why thoroughbreds dominate racing and Arabs always come out on top in endurance riding.**

“Can you train a born sprinter to be better at endurance and vice versa? The answer is yes. But, training a Quarter Horse at speeds that will develop its aerobic capacity will have several effects. It will lose some muscle bulk, it will become better at using oxygen, and it will improve its endurance performance, but it will also become slower over a ¼ mile. And, it will never be as good an endurance horse as a sprinter. The same is true for an endurance horse. We can improve its speed over ¼ mile, but this will be at the expense of its endurance capacity.” **Dr David Marlin**



Hacking out is a great way to improve fitness and add variety to your horse's work

### i HOW TO ASSESS YOUR HORSE'S FITNESS

**Studies indicate that many people actually overestimate their own physical fitness and activity levels, and I would hazard a guess that many of us do this when it comes to our horses too. So, how can we really gauge our horse's fitness level?**

Often the signs of a lack of fitness are easy to spot by looking at your horse before, during, and after exercise. An unfit horse may be over or underweight, lack muscle tone, be 'lazy' or have little energy in his work; while working, an unfit horse may tire easily, become out of breath during fast work; start to stumble, drag his feet, or lose coordination (especially as the muscles begin to tire); and sweat profusely even during lower intensity activities. At the end of the ride, an unfit horse will take longer to return to his resting heart rate and normal breathing.

“How hard a piece of exercise is for a horse depends on some factors specific to the horse such as its innate or genetic ability or talent, its current level of fitness, its age and any health problems or injuries. Speed, distance, weight carried, the type of terrain and going, and the weather are also all factors. Thus, exercising fast for a long time carrying a heavy weight uphill on soft-ground in a hot climate would be about as intense an exercise that you could devise for a horse. Similarly, very low intensity exercise could consist of walking for 10 minutes carrying a small child down a slight hill on firm ground in cool weather.” **Dr David Marlin**

“...those who are only ridden occasionally may actually suffer the most from a lack of fitness.”

Using a heart rate monitor can be a reliable way to test and monitor your horse's cardiovascular fitness

## UNDERSTANDING HEART RATES

Using a heart rate (HR) monitor can be a reliable way to test and monitor your horse's cardiovascular fitness and there are a number of designs on the market that can be used while riding, with a watch that gives you real time information on HR, as well as often the speed and distance covered. (Polar is one of the most popular brands of equine HR monitor. I use a Polar M430 which can be bought from [www.horseheartrate.co.uk](http://www.horseheartrate.co.uk))

FOR THE AVERAGE RIDER, THERE ARE 2 WAYS THIS CAN BE USEFUL:

**1 Measuring intensity** The only way to accurately measure how hard your horse is working is to monitor his average HR during exercise at different speeds and intensities – the higher the HR, the harder your horse is working.

### AVERAGE HORSE HEART RATES

**30-40 BPM** > Rest

**40-80 BPM** > Low-intensity exercise (walking)

**80-120 BPM** > Low-medium intensity (trotting)

**120-200 BPM** > Medium-high intensity exercise (cantering/jumping)

**200-240 BPM** > Maximum intensity (galloping)

**i HOW TO DO IT:** Spend 2 minutes at a walk, trot, canter, and gallop, and note the HR at each gait. This will give you an idea of how hard your horse is working to maintain that particular speed. As your horse gets fitter, you will notice that the horse will be able to go faster for longer, while maintaining a lower HR, indicating that the horse is able to perform the same level of work with less effort. This will also give you an idea of when your horse has adapted well to the current workload and it is necessary to up the intensity in order to continue building fitness.

**2 Measuring recovery time** Another way to monitor fitness is to look at recovery times (the time at which it takes your heart rate to return to normal after intensive exercise). For a horse of average-to-good fitness, the HR should return to under 60 bpm within 5 minutes of finishing exercising – if the HR is still above 70 after 5 minutes of rest, the exercise was likely too hard for the horse's current level of conditioning.

**i HOW TO DO IT:** Complete at least 15 minutes of moderate to high intensity exercise (at least a good paced trot or canter) – your horse's HR should be at least 120 bpm. Finish the exercise and set a timer for 5 minutes. During this time, let your horse rest or walk slowly in-hand. Check the horse's HR again.

**Remember!** A horse's HR can also be influenced by factors other than physical exertion – age, stress and excitement levels, pain or discomfort, illness, dehydration, and weather conditions [extreme heat or cold for example] could all result in spikes in HR. The best advice is to monitor your horse's HR regularly enough that you know what is normal for your horse and will be able to spot anything out of the ordinary.

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### DID YOU KNOW?

Sweating is not a sign of unfitness on its own – in fact, it's an important bodily process that allows the horse to regulate its body temperature. But how quickly a horse begins to sweat or sweating profusely during low or medium intensity exercise may indicate that your horse is finding the work physically challenging

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## PRE-FITNESS CHECKLIST

Health issues, pain, and physical discomfort can all be barriers to increasing your horse's fitness so before embarking on a new fitness regime,

it's important that you ensure your horse is in the best health he can be. This includes shoeing or a suitable barefoot regime, a correctly fitted saddle, adequate nutrition, and ensuring vaccines, worming, and dentistry requirements are met.

Your horse needs to be worked at least three times a week to improve fitness

## 8 TIPS FOR DEVISING A FITNESS REGIME

If you have dreams of going to Badminton or riding Grand Prix dressage, it's best to consult an experienced coach who can help devise a targeted training plan, but for the average rider, simply committing to a regular riding schedule can make a huge difference to your horse's overall wellbeing and fitness. Here are 8 tips to get you started.

**1 Start Slow** If your horse is unfit or coming back into work, start with 3-6 weeks of slow conditioning work, gradually increasing the speed and distance. Be sure that your horse is walking at a good rhythmic pace, striding out and carrying you correctly. For an unfit horse, starting with 15-20 minutes daily or every other day is ideal, and you can start increasing it up to a total of an hour a day over the course of a month. Including in-hand conditioning exercises or carrot stretches can also be beneficial (see our Pilates for Ponies article in the Spring '18 issue, available in the members section of the IH website).

Equine therapist and anatomist Gillian Higgins says: "I think we should think of ourselves as a personal trainer to our horse. We need to start thinking; what can we do to prepare the horse's body, to prepare his muscles and his skeleton, and his whole system to be able to perform what we'd like him to do with the optimum comfort and to be able to keep doing it for a long period of time without inducing injuries?"

**2 Ride at least three times a week** In order to see any notable increase in fitness you need to be riding your horse at least 3 times a week and ideally 4-6 times. This repetition is important because the horse's body can only adapt and adjust to exercise that becomes habitual. A common mistake is to think that undertaking a long or intensive workout will impact your

**“The reason you cannot expect a single training session to affect a horse's fitness is because even an unfit horse has a high capacity for exercise. The rider knows that they are going to repeat the exercise perhaps daily for the next two weeks, but the horse's body does not know [this]. It will only begin to adapt and change if the exercise stimulus is repeated.”**

Dr David Marlin

### DID YOU KNOW?

Roadwork at a walk can be beneficial because it provides a flat, even surface, but excessive roadwork or regularly trotting for more than 5 minutes on a hard surface can risk joint and cartilage deterioration.

For more on this read Dr David Marlin's full article in our Summer '18 issue

horse's fitness, but this is incorrect – the horse's body won't start adapting to this new workload until it becomes a regular fixture. Worse, pushing your horse too hard in one session can easily lead to muscle fatigue and put your horse at risk of injury, as sore or tired muscles are less coordinated and stable.

### 3 Space out your training sessions

If you only have time to ride on weekends or holidays, it can be tempting to cram as much as possible into the available time. However, a much more efficient way to train is to space out your training sessions throughout the week. For those riding more frequently, this same rule applies to schooling days and rest days. Olympic dressage rider Carl Hester use a two-days-on, one-day-off schedule with his horses – two days of dressage schooling in the arena is followed by a day of hacking and fitness work, plus a day off each week.

“The horse’s body needs time to adapt to the stresses of physical training. Piling on day after day is more likely to lead to injury and also be less effective in getting horses fit. Why? Because although three successive days of hard training may initially generate a bigger training response, because the stimulus is not repeated again the effect starts to decline. This type of training will have some effect, but not nearly as great as quality bouts of exercise every other day.” **Dr David Marlin**

## 4 Increase the workload every 2-3 weeks

Starting a new fitness regime can be extremely rewarding. Horses adapt to physical changes quickly and you may start to see results within just a few weeks. However, in order to continue this progress, you need to keep upping the workload to continue seeing changes. If your horse never breaks a sweat in training, you won’t be increasing fitness! The trick is finding the balance between enough work to increase fitness and too much work, which might result in fatigue or increased risk of injury. A good rule of thumb is to increase either distance or intensity, but never both at the same time.

“[If you] start with an unfit horse and start trotting for 45 minutes a day, the horse’s body soon gets the message and begins to adapt. Fitness increases slowly and then quite rapidly. But after around 10 days of training, the response starts to slow down and plateau. The horse can now comfortably trot for 45 minutes each day. Why would the horse’s body waste energy trying to adapt to be able to canter at cross-country pace for 10 minutes? It won’t! It will only adapt to the level to which it is “stressed” or challenged.” **Dr David Marlin**

## 5 Train for the right kind of work

We now know that horses will only adapt to the work that they are doing regularly, so if your goal is riding cross country, a daily riding routine that only includes trotting and a bit of canter is not going to cut it! If you want to improve your horse’s canter and get him fit enough to canter or gallop faster for longer, you need to be including regular canter or gallop work in your training.

However, from a fitness point of view, remember that it is the intensity of the work that matters rather than the activity itself. You don’t need to jump your horse every day in order for him to be fit enough to jump – undertaking any medium-to-high intensity



“Making a training schedule is the best way to ensure you stay on track.”

Warm-up for at least 10 minutes, and cool down afterwards with walking and stretching exercises

exercise that gets his HR up into those higher levels will help him increase his fitness. On the other hand, endurance horses will benefit more from longer training sessions at lower intensity, helping to maximise their aerobic fitness.

## 6 Understand the difference between fitness and skills training

Fitness training is about conditioning the horse’s body to better undertake exercise; skills training is about training the specific techniques required to, say, tackle a course of jumps or complete an Intermediate dressage test. Successful athletes need both of these and focusing on only skills training is a mistake many riders make. Think about it – there is no point training your horse to piaffe if he doesn’t have the strength to complete the movement or having a horse that gets the perfect stride but is out of breath after two jumps.

A good balance is to spend 50% of your time on skill work and 50% on general fitness. Charlotte Dujardin says her horses have four training sessions a week in the school for a maximum of 45 minutes – the rest of the time is spent on hacking and fitness, and they are even hacked before and after schooling sessions. Top showjumpers like John Whitaker only jump their horses once a week at home, except during their initial training.

## 7 Vary your training

Variety is important to avoid both mental and physical fatigue. Long reining, hacking, polework, jumping, flatwork, lateral work, and riding over varying terrain are just some of the things that you can include in your weekly training. Not only does changing it up keep your horse fresh and interested in their work, but each activity will require different skills

and work different muscle groups, leading to a much more adaptable and well-rounded horse.

Top eventer Lucinda Fredericks has often talked about how she schools her horses outdoors and says: “I vary their work and pick a specific skill to concentrate on every time I ride them. [This] includes roadwork, trotting and cantering up hills, polework or jumping in the school, and riding exercises like shoulder-in and travers.”

## 8 Make a plan

Making a training schedule is the best way to ensure you stay on track. If you have a particular event or competition that you are training for, start at least six weeks before and set out a progressive training plan that will help you build up to the level you will be competing at. Or if the goal is just to improve your horse’s general fitness, writing down when and how long you ride for each week means you can track your progress and highlight any areas for improvement.

It’s worth planning out each individual session too, especially if time is short or you tend to lose focus. Ensure each training session starts with a warm-up for at least 10 minutes, and that you cool down afterwards with walking and stretching exercises. Turnout after a long or hard training session is ideal, so try to ride before your horse is turned out if possible.

• More of Dr David Marlin’s advice can be found on his website [davidmarlin.co.uk](http://davidmarlin.co.uk) and Facebook page @DrDavidMarlin.

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**RECOMMENDED READING**

- **Horse Anatomy for Performance** by Gillian Higgins
- **Posture and Performance** by Gillian Higgins
- **Equine Fitness** by Jec Aristotle Ballou