

How to Construct a Well-Rounded Conditioning Program

CARDIOVASCULAR TRAINING

As mentioned in the first article, proper cardiovascular conditioning requires you to get off the horse and challenge yourself!

The cardiovascular system requires a different approach than resistance training. The heart and lungs do not condition at the same rate as muscle. Having adequate rest between training sessions and gradually increasing the time and intensity is important to minimize your chances of developing an overuse injury.

Many sports require improving both parts of the cardiovascular systems (see vocabulary section for a definition of those parts). For many equestrian disciplines though, the cardiovascular demands fall mainly on the aerobic system, not the anaerobic system. It is the aerobic system that most people commonly think of when they hear "cardiovascular conditioning."

Equipment for Cardiovascular Conditioning

Variety is the key to preventing aerobic conditioning from becoming boring. Try to have three different types of cardiovascular conditioning activity (within what your body allows) to choose from or vary the pace/intensity every few workouts. The variety also keeps your body from "getting stale".

There are three types of activities based on the amount of impact the equipment imparts on the body. Non-impact

(of which stationary biking is most important), which includes water running, rowing and stationary bikes of all types. Minimal impact includes steppers/walkers, roller blading and outdoor biking (because of terrain). Impact activities involve any type of running. The degree of impact depends on terrain (treadmill vs. road) and running style.

Choosing an Activity

Once you have taken inventory of what equipment you have available with which to condition, now you have to determine what activity best suits you. Considerations:

- **Injury.** The injury will determine what type of activity with which you can start and to which you can progress.
- **What activity do you like?** There is a saying, "Runners run, bikers bike, swimmers don't do either." If you have a favorite activity, start with that.
- **How are you built?** What physically limits what you can do without increasing the risk of injury? (i.e. someone with "knock knees" should not consider running as their main type of conditioning.)
- **What time of year is it?** What activities are available can change from season to season. Are there time restrictions (maintaining/improving your cardiovascular

fitness takes a minimum of two days per week)?

- **Age.** What we can do changes as we age. Again the key is to do what your body will allow. For children in the 10-14 age category, when physical development is all over the place, some activities are safer than others. Let them choose the most comfortable activity. Physical development will dictate the duration and intensity

that they can tolerate. Until children are past the age of 14 years it is best to keep them on a regular routine that is flexible.

Determining Aerobic Training Heart Rate

The Karvonen method is the most accurate formula to determine your training heart rate range.

It is found by:

$(220 (-) \text{ age } (-) \text{ resting heart rate}) \times (65\% \text{ low end and } 80\% \text{ high end of training range}) (+) \text{ (resting heart rate)}$.

To find your resting heart rate...Sitting in a chair (quietly; no distractions), place your second and third finger over the artery on the thumb side of your wrist (palm facing up). Count the number of pulses you feel in 15 seconds and multiply by 4. Because this number varies during the day, the best time to take your pulse is first thing in the morning.

i.e. **Low end:** $220 (-) 35 (-) 72 = 113 \times 65\% = 73 (+) 72 = 145$ beats per minute

High end: $220 (-) 35 (-) 72 = 113 \times 80\% = 90 (+) 72 = 162$ beats per minute

Training near the lower end of the range is more effective for "burning fat." The most effective training occurs when the entire training range is used (i.e. above). Training all the time at 80% is not more effective than training at 65%.

Steps in Cardiovascular Training:

- Determine your resting pulse rate.
- Calculate your training range from the formula.
- Pick one activity (run, bike, etc.) to start your program.
- All cardiovascular training programs begin with a warm-up of three to five one minute intervals of gradually increasing intensity.
- Initially, the main part of the training can be as short as five minutes. Your goal is to build up to a minimum of 30 minutes for this section; a total training time of 60 minutes being more than adequate for the vast majority of riders.
- All cardiovascular training programs end with a cool-down of three to five one minute intervals of gradually decreasing intensity.
- Once you have established a routine, you can begin experimenting with different intensities and times. Remember that when you change your intensity, adjust your training time.
- For those that have the means, consider purchasing a heart rate monitor to use when training.

Continued on page 4

STRENGTH TRAINING

What images come to mind when riders hear the phrase “strength training”? Perhaps a circuit of machines...maybe a room full of benches, dumbbells, plate steel and mirrors? Maybe it is the wagon with 200 bales of hay on it (who needs strength training when I do that every other week?!).

Whatever it is, a proper strength training routine (which includes cardiovascular and sport specific (i.e. functional training) is not an option for any rider of any age or level of competition. However, many riders already perform hard work on a daily basis to maintain their mounts.

Slugging multiple bales of hay, straw, feed and water, not to mention the other “lighter duty” chores, can leave a person worn out. Unfortunately, you have used only a portion of your muscle. So no matter how tired we may be after a day of work, muscles are still in need of conditioning. Why...

Most everyone has heard the terms strength, power and endurance. Each is a different component of what makes a muscle strong. The activities we do increase the component that helps us most with those activities...if all you carried was water all day, you would need less power and strength, but a lot of endurance. A muscle will use what it needs; the rest does not “waste away”, but does become weaker if it is not challenged on a regular basis. Even though you are using all your muscles everyday, if you are doing the relatively same level of intensity activity, you can injure that muscle due to over using that one portion and under using the rest.

So it is not just “weight training”, it is “strength train-

ing with the purpose of maintaining the strength, power and endurance capacities of a muscle.”

Program Design

You or your instructor probably keep a record of your lessons to monitor the progress of your skills and may keep notes on your horse's progress as well. You must do the same for your conditioning program! Any type of program can be designed; however its overall success depends on your learning what your body is telling you about the exercises you are performing as part of your conditioning program.

Organization

The most effective strength-training program (also called a training cycle) is designed to encompass an entire year. This is referred to as “periodizing” your program. Periodization prevents burnout and boredom, guides your rehab in the event of injury and forces you to plan your workouts within your competitions so you can to achieve maximal physical and mental benefit.

However, before starting your program, there are a number of considerations that must be taken into account. This list is not all inclusive, however provides a place to start...

- Condition within your ability (your “skill level” or how adept/proficient you are at a given task) and capacity (how much “gas is in the tank”).
- Don't make large changes in your conditioning routine if what you have is working for you. Use the guidelines to tune up what you already have.
- Children should always be supervised.

- What needs extra work or what were the weak points from last season (i.e. strength, cardiovascular endurance, etc.)?

Once you have thought out and answered these questions, you can begin the process of laying out your program.

- Start with a calendar of the year and mark on the calendar the number of events in which you plan to ride. This defines your competitive season. Write in your other considerations (vacations, etc.).
 - The 4-8 weeks following the end of your competitive season should be used as a “rest period.”
 - Divide the rest of the year into three or four sections or “phases” (place a one week rest period between each section). Each should be about the same length and each gradually increasing in intensity as you progress toward your competitive season.
 - The sections are made up of cycles. Each has a specific name and function:
 - **Micro-cycle** — They are “mini in season cycles” or small steps to get you to the major in season goals. Several make up a Meso-cycle.
 - **Meso-cycle** — They are “major in-season goals.” If your goal at the end of the season is to score X, or complete X, then each of the micro-cycles represents a step to that. Several make up your Macro-cycle.
 - **Macro-cycle** — This is your “whole training period.” It could be as short as “the 2006 competitive year” or encompass “the next three years leading up to the Olympics.”
- Each section/phase has a specific objective:

Competitive Phase

- Maintain the gains you have made over the year with 1-2 training sessions a week. Some decrease in strength built up over is expected as the emphasis shifts to practice and preparation for competition.
- Improve athletic technique

Rest Phase

- Give your body a chance to recover. This is your break from organized training. Should you decide to do some training, it should be light and of short duration.
- This is the time to see your physician if you have not done so during the season. Take care of any injury. This includes any needed surgery and physical therapy.
- Begin planning your training for the rest of the year.

Endurance Phase (first phase coming out of the rest period)

- Prepare the body for the more intense training to follow later in the year.

Strength Phase (second phase coming out of the rest period)

- Begin to build up strength and get the body ready for the heavier weights associated with power training.

Power Phase (last phase before the competitive season)

- Peaks strength and primes body for competition.

Once you have outlined your training cycle, it is time to determine how much resistance to use.

Determining Your Training Weight

The first step is determining the amount of weight you can lift with good form and without assistance, one time. Ideally, you would do this for

Continued on page 5

all your weight training exercises. If that is not possible, use the guide below to determine if you should increase or decrease your resistance. For less experienced and younger lifters (below age 13) or those who do not wish to “go for the max” use the 5 Rep Max test (five reps instead of one as described above). If you utilize this test procedure, take a longer rest between sets (3-4 minutes vs. 2-3 minutes)

Treat this like a regular weight training session. Give yourself enough rest (2-3 minutes) between reps to fully recover. Use 6 to 10 one (or five) repetition sets to determine your max weight. Technique should not be ignored at the expense of being able to do more weight. If you are not sure what proper technique is, check with a fitness professional.

- Begin with a short warm up (i.e. a short jog of 1-2 minutes followed by 10 push-ups if doing an upper body test or 10 squats, without weight, if doing a lower body test)
- Begin with a weight amount you can *easily* handle for 10 reps, then a challenging load for ~6 reps, then a heavier load for ~3 reps. Now, you're ready to try your 1 rep max.
- Do one rep of the exercise with a weight heavier than your 3 rep challenging load.
- Do one rep of the exercise.
- Add 5-20 pounds to that weight (depending on difficulty of the repetition).
- Repeat the exercise for one rep.
- Continue to add weight *until*:

Your technique becomes poor (which should happen first with inexperienced

weight lifters).

You need a partner to assist you in completing one rep of the exercise.

Once you have determined your rep max for your exercises, use the percentages below to determine how much weight you should be using to train. At the end of your specific training cycle, you will need to retest your maximums and adjust your percentages as needed.

Strength Training Methods based on Percent Rep Max

- Endurance (1-2 sets)
Reps (15-20)
Weight (30%-50% of your maximum)
Rest/work ratios (1-2 minutes between sets)
- Strength (2-4 sets)
Reps (6-12 reps)
Weight (60%-80% of your maximum)
Rest/work ratios (2-3 minutes between sets)
- Power method 1 (5-8 sets)
Reps (2-6 reps)
Weight (80%-100% of your maximum)
Rest/work ratios (3-5 minutes between sets)
- Power method 2 (2-4 sets)
Reps (5-8)
Weight (30%-40% of your maximum)
Rest/work ratios (2-3 minutes between sets)
Done as quickly as possible without losing body control or control of the weight

Time-based Endurance Training

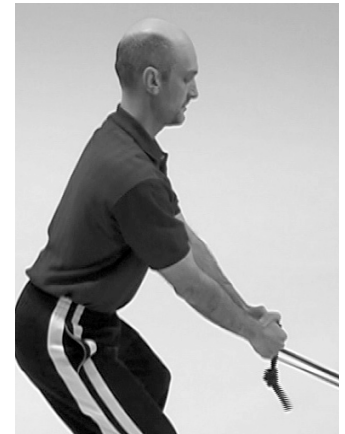
The time based endurance training method is often used with functional activity. The activity ranges from 30 seconds to 2 minutes with rest periods double the

amount of activity time.

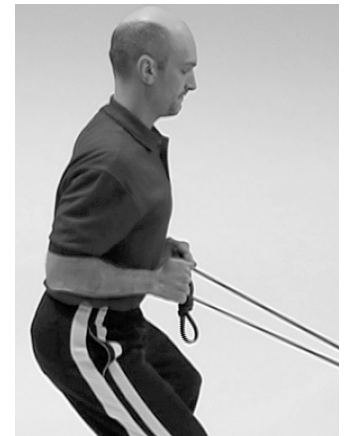
Functional Training

“Functional training” is the generic, but more recognizable term for all resistance training done within a “sport specific” training program. It is a compliment to traditional strength training methods. Functional training emphasizes strengthening a specific movement that you would expect to perform during competition. The difficulty of the exercise is increased by changing body position and sensory input (such as closing an eye), which challenges the body's ability to be in control. It is most often used in the strength or endurance method of training.

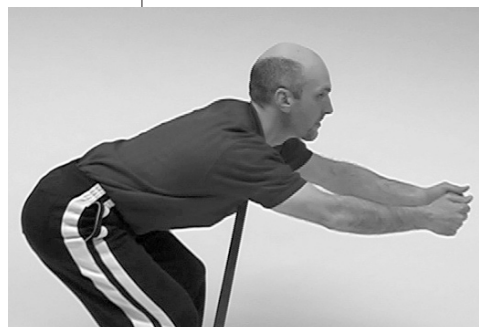
An example of a functional exercise is the “drop press” and standing horizontal row. What makes the exercise functional? It simulates a motion that you would experience while riding.



Standing horizontal row start, above, and finish, below.



Drop press start, above, and finish, below.



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He began researching how to minimize equestrian injuries and maximize a rider's physical fitness two years ago after meeting Dru Malavase. His other research projects include body padding and snowmobile racing injuries. He is an active member of F08-55 on body padding and chair of the lacrosse body padding committee.

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