Conditioning Outline

Def: Preparing horse to withstand stress of competition

Pleasure, Showing. Gymkhana, Jumping,

Competitive or Endurance riding

Goals: 1. Firming the Frame

2. Peaking the Metabolism of Motion

3. Preparing a proper mental attitude

1. Firming the Frame

We are talking about all the parts of the frame:

Bones, Joints, Tendons, Ligaments, Fascia

If the frame is injuried may be out of competition

Time table of conditioning:

a. Metabolism - (12 to 16 weeks)

b. Frame - (6 to 12 months)

c. Mental - Most go as they feel

- some never mentally ready

Can compare body to the mechanical portions of a car

Frame - Skeleton

Drive train and running gear - Muscles, Tendons Joints

Tires, brakes and shock absorbers - Feet, Lower limbs, Joint Angulation

Engine - Digestive and Metabolic systems

Conditioning depends on the stress/response relationship

If you stress system - Get response - Equal to or

- Greater than

4 - Potential Responses:

a. Competence - Within existing capacity

b. Adaptation - Arouse biological resorces

c. Fatigue - Weaken system temporarily

Adaptation (rebound effect)

d. Failure - System breakdown due to excessive stress causing microscopic fracturing

(1) A single major stress

(2) A series of fatiguing stresses without adequate recovery time between them

Conditioning a double edged sword:

a. Stress to achieve effect

b. Don't strain into a breakdown

Conditioning rate is set to the weakest link

a. Heart and Lungs - recovery levels

b. Bones and Joints - size, age, angulation, conformation

c. Mental capacity - mental preparation

Metabolism - What is it

Metabolism is the total sum of chemical functions that keep the systems alive and provide energy for work.

Maintenance energy consumed by: Brain, Heart, Lungs, Digestion, Elemination of wastes Thermoregulation(body temperature)

Work energy: All efforts not required for maintenance.

Locomotion - Motion is produced by contraction and relaxation of muscles.

Muscles do the work, Tendons transfer the action to

bones.

3-types of muscle in body:
a. Striated
b. Smooth
c. Cardiac

Striated muscle produces ambulatory motion

3-types of striated muscle fibers:
a. Fast twitch (FT)
b. Slow twitch (ST)
c. Fast twitch high oxidative (FTH)

Characteristics of each muscle fiber type:

FT - Bulky, Bunchy, High glycogen content, (Qtr. Horse sprinters)

ST - Slinder, Deep red, Dense capillary bed to supply blood, Capable of sustained contractions

FTH- Allround utility workers can be trained to mimic ST or FT fibers

Muscle types are genetically transmitted

No muscles below the knee or hock of the horse

Motion produced by movement of appendages

The horse frees himself from gravity by pushing and lifting the body

Concussion applied to the frame of the horse depends on:
a. Weight
b. Speed
c. Height of elevation
d. Ground surface composition
e. Conformation
f. Joint angulation

Metabolism of Motion:

a. Won't go deeply into chemical or biological reactions

b. Metabolism provides energy to sustain motion

Metabolism is the process of burning fuel to provide energy for action in much the same way as gasoline is burned in the automobile engine.

c. Sources of energy in the body (fuel):

1. Glucose - a simple sugar

(a) most accessible source of energy in body
(b) in blood - 120 mg/100 ml of blood
(c) being absorbed constantly from digestive tract
(d) being converted from glycogen in liver

2. Glycogen - storage form of simple sugars
(a) resupply blood glycose in liver
(b) makes up 5% to 6% of livers weight
(c) makes up .5 to 1% of muscle weight
(d) direct burn of glycogen in muscle possible with or without oxygen

3. FFA's - Free fatty acids, Triglycerides
(a) up to 1/3rd of energy for sustained muscle activity
(b) small supply in circulation blood
(c) large stores in fat deposits
(d) gram/gram provides 2 1/2 times energy in glucose

4. Proteins - last resort for energy supply
(a) Don't burn effeciently for energy
(b) 28 grams of protein in blood
(c) 400 lbs of muscle in a 1000 lb horse

Three phases of conditioning:

Phase 1. Long Slow Distance (LSD)

(a) Backbone of all conditioning training
(b) Develops the steady state oxygen energy system
(c) Strengthens the framework
(d) Average entry level horse:
30 minutes to 1 hour/day at 5 MPH
(e) In 3-6 months (young horse 1 year)
up to 2 hours/day at 10 MPH
gradual increases from entry level to the 6 months level
(f) The more stress involved in ones final goal the more LSD work required

Phase 2. Strenuous work for Strength and Stamina

(a) Need good turf composition this phase
(b) Be sure skeletal strength well developed before entering this phase
(c) Want muscles to burn glycogen in the absence of oxygen - (anaerobically)
(d) Creates Lactic Acid waste
(e) Substitute Quality work for Quanity
(f) Interval training works well in phase 2
30 sec. work at HR 120 to 160
160 sec. work at HR 100 to 120

repeat in a series of 5 to 10 episodes/session

example 1/2 to 1 mile gallop followed by a 2 mile trot

Phase 3. Phosphocreatine (CP) - true anaerobic energy

(a) Provides energy for only 8 to 20 sec.
(b) Requires no oxygen in the energy release
(c) Is resynthesized immediately afterwards
(d) Provides rescue energy for extreme exertion
(e) Trained by quick bursts at HR 160 - 240

30 sec. heavy stress followed by a period of complete revovery then repeat up to 5 times

example 1/4 to 1/2 mile all out run followed by rest at WALK

climb very steep bank 25 to 50 yards followed by rest - WALK

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Equine Conditioning

Conditioning is the process of preparing the horse to withstand the stress of the event which you desire your horse to perform, be it pleasure riding, gymkhana, showing, jumping, competitive or endurance riding.

Conditioning is accomplished by a process of progressive loading which conditions all systems for peak performance and involves both the mental and physical aspects of conditioning.

GOALS: FIRMING OF THE FRAME
PEAKING THE METABOLISM OF MOTION
PREPARE A PROPER MENTAL ATTITUDE

FIRMING OF THE FRAME

The framework of a horse includes the bones, joints, tendons and ligaments that hold the horse together. If the frame is stretched,broken or bent you may find yourself out of competition. At all levels of conditioning we must keep soundness in mind.

The metabolic phase of training may peak in 12 to 15 weeks but the frame conditioning may take 6 to 12 months. The metabolic system is easiest to train and sustain, while the frame is last to show-first to go.

Compare your horse's mechanical system to the frame of an automobile-complete with drive train, running gear, tires, brakes and shock absorbers. Because the horse travels on appendages which extend from their bodies these structures must withstand the concussion forces created by weight and gravity while allowing for progression.Thus, equine mechanics are often likened to a springed pogo stick. Portions of the stick being rigid and portions of which are elastic. Even the hardest material in the horse-his bone-has some elasticity and even the most elastic of his structures-the tendons-eventually reach a point of stretch in which they become rigid.

The horse frees himself from the ground surface by pushing and lifting. The force with which he returns to the ground depends on his speed and height of elevation. The resistance offered by the ground when the horse's weight returns to it is called the ground reaction. How his mechanical structuring manages the ground reaction is the basis of how long the equine athlete will compete. The relationship of speed,weight,joint angulation and ground surface composition is critical to the maintenance of structural soundness. Pushing bones or tendons beyond their physical limits will cause some degree of damage.

The building blocks of the horse include hoof, bone, cartilage, tendons,ligaments and their sheetlike equivalent called fascia. We need to take a look at each of these structure by structure.

Hoof: The hoof wall is made up of hornlike tubules lying parallel to one another and cemented tightly together. These tubules run in the same direction as the forces which are applied to them. While they are inert biologically and relatively stiff, they have an amazing elastic capacity which works to protect them from fracturing and crushing.

Stress applied gradually to the hoof over a year or more can produce horn that is more elastic and more capable of withstanding damage. Since the hoof wall grows at only 3/8th of an inch per month it takes almost a full year to completely regrow a damaged hoof. The stimulus from concussion can invigorate the growth of the hoof wall while thickening and strengthening it as well. Sudden overstress will cause structural injury and potentially cause permanent damage.

Bone is a dense, rigid structure that is alive and dynamic. It has the ability to respond to stress by thickening of the cortical bone and to increase the strength and thickness of its periosteal cover. Bone will realign itself to lines of force which are applied to it and in early life can straighten mal-alignment if the hooves remain properly trimmed.

The younger you start your horse with a proper trimming program and start a phase of long slow distance conditioning the more you will maximize his bone mass, strength and correctness of structure. Long slow distance (LSD) conditioning will increase the quality and competence of his tendons and ligaments. Improved thickness of his joints will also occur.

Contrary to popular belief, there is no proof that training makes the bones more dense. Exercise results in the cortical bone increasing in thickness. Adaptation of bone to athletic demand requires an internal reorganization of the matrix into its strongest configuration. Younger bones are more responsive to athletic stress than older bones and are better able to adapt. Maturity makes bone progressively stronger while its flexibility actually decreases.

Ligaments, fascia and tendons, the spring elements of the system, share with bone and hooves a similar structuring. They have spiraled constructed longitudinal fibers which lie parallel to one another and to each other,much like the strands of a cable. They have cross-bonding that is relatively feeble but their resistance to breakage by stretching is tremendous. Like bone, they are capable of the greatest adaptation when the horse is young. Youngsters encouraged to run, play and exercise grow with thicker tendons and stronger joints. The equine athlete raised in a stall or a small paddock is truly disadvantaged.

The healthy joint is large, smooth and well developed. This design eases the leverage of the ground reaction in favor of the horse. The joint cartilage is the most peculiar of the horses structural materials because it must withstand not only the forces of vertical support but also the of friction of motion. The cartilage structure is that of fibers in a vaulted

arrangement in combination with synovial joint fluid which offers resistance to crushing shock and friction of motion.

When exposed to manageable demands, joint cartilage improves by widening at its edges and thickening. Excessively high demand can inflame the joint lining, thin out the lubricating fluid and generally cause destructive wear with degeneration of the joint.

Strengthening of the horse's mechanics for work depends on the stress/response relationship.The stress/response relationship is the key to the best development of the system and to the best protection during that development. Man's specialized demands on the equine athlete-be they speed, strength or endurance-predicate the level of stress within the system and the answer by the system equal to or greater than the stress. Without this challenge the athlete can never develop.

At any given level of stress there are four potential responses:

A. Competence-This indicates that the stress level is within the horse's existing capacity.This level of stress produces no increased biological demand for an adaptive response. No new demand-no new capacity. No strain-no gain.

B. Adaptation- The stress is at a level sufficient to arouse the horses biological resources into developing new capacities without damaging or overwhelming them.

C. Fatigue- The stress is enough to weaken the horse temporarily but not to disable him. Adaptation is still possible if the system is allowed time to regain its composure and make adjustments (the" rebound" effect). In fact adaptation would be impossible without some fatigue.

D. Failure- This is the fourth and final possibility resulting from excessive stress. This is a state in which the biological properties of the system breakdown as the result of a single major overload, or more commonly, a series of fatiguing stresses occurring without proper system recovery time.

The stress/response relationship is a double edged sword. We need to stress the system to achieve a training effect but we must be on guard that we do not strain the system to the point of causing permanent injury. Rememberd that the horse can be trained at a rate no greater than the tolerance of his weakest link.

If you thrust a gross stress on a system immediate failure can be the result. Repeated smaller stresses can also lead to mechanical fatigue and eventual failure. A single strenuous workout can lead to microscopic fractures (microcrushing) near the joints, a plastic deformity that needs about 10 days to heal. Sharp work demanded of a young horse without allowing for adequate recovery time causes the bone to become progressively weaker. Eventually successive close overworks can lead to a gross fracture and permanent damage.

PEAKING THE METABOLISM OF MOTION

What is Metabolism? It is the sum total of the chemical functions that keep the horse alive and whose functions provide the energy

to sustain motion. Metabolism breathes life into the muscles, brain and internal organs of the body.

The metabolism of motion is what gets your performance horse going and keeps him going. Producing motion is accomplished by the contraction of opposing groups of muscles.These are attached to the skeletal structures of body by ligaments and tendons. While muscle fibers do the work through their contraction and relaxation,they depend on ligaments and tendons to transfer their efforts to the bones and joints to create motion. Motion consumes energy and produces waste by-products which must constantly be removed for the actions to continue. It is the goal of conditioning to develop the body metabolism to its highest efficiency.

Each equine activity has its own unique and special requirements for conditioning. Race horses, polo ponies, gymkhana, pleasure and endurance horses each have differing requirements for training and conditioning. The level of exertion depends on the level of stress and duration of stress. It means that to do the best in any sport, training must duplicate the demands that are encountered in competition. The equine athlete responds best to specific training of the muscle groups used during their respective athletic competitions.

In the horse there are three major muscle types: slow-twitch (ST),fast-twitch(FT), and fast-twitch high oxidative (FTH). Each type has its own particular characteristics which make it best suited to a specific type of activity.

Slow-twitch (ST) muscle cells are the lean, flat motion makers of our endurance horses. They are aerobic(functioning only in the presence of a steady supply of oxygen) and characterized by having a dense capillary network. They are deep red in color,have a smaller diameter, are slower to"fire" and are capable of sustained contractions.

Fast-twitch(FT) muscle cells are often filled with glycogen fuel and are the bulky bunchy hallmark of our quarter horse sprinters. They can operate only for brief periods at a time,up to about three or four minutes at most.Because they fire without oxygen, they leave an "exhaust" of lactic acid.The system must rapidly remove the lactic acid or risk muscle protein coagulation. The process of clearing out the lactic acid is referred to as "paying off the oxygen debt".

Fast-twitch high oxidative (FTH) muscle fibers are the most versatile of the horse's muscle cell types. Between one-third and one-half of your horse's muscle fibers are these allround utility workers. They are capable of taking on the roles of the fast-twitch (sprint) or slow-twitch (distance) muscle cells as the situation demands. Furthermore, through appropriate training they can increase their fast or slow twitch activity which adds even more performance specialization to your horse.

Muscle fiber types are believed to be genetically transmitted

from a foals parents and this makes it possible to predict in advance the probable potential ability of a given foal. The more ST fibers your horse has, the greater his potential for distance sports. If he has an abundance of FT fibers he will tend to excel in sports calling for raw speed and power.

What fuels these engines? All energy requirements are met by the presence of carbohydrates, proteins, or fats in the horses regular rations. It is not until the substrates have been freed up by the digestive process in the bowel and absorbed into the blood stream that they are made available to the body for burning.

Blood glucose is a simple sugar broken down from carbohydrates. It is the most accessible type of fuel for everyday activities, both physical and mental. Glycogen is the storage form of simple sugars.It can be stashed away in the muscle cells and liver and made available for energy to meet future demands. As exercise intensifies or lengthens the blood glucose levels run down, and the horse begins to draw on his glycogen reserves.

Free fatty acids (FFAs) and their stored equivalent, triglycerides, are a major source of energy used in the steady state or oxygen energy system.In the LSD phase of training and competition they provide up to one third of the total body energy requirements. During prolonged, moderate exertion, FFAs are mobilized from fat tissue stores join forces with the triglycerides to provide a supplemental source of energy to the glycogen stores. Adding fats to the diet will increase a horses endurance. FFA's burn aerobically to produce energy for such activities.

During exercise, as much as 85 percent of the oxygen and energy available in the body goes to the muscles. Thus, there is a reduced blood flow to all other tissues. The reduced blood flow to the bowel inhibits bowel motility and often leads to colic in the equine athlete. Because tear production requires energy from glucose metabolism there is often a failure of tear production in the fatigued horse. This accounts for dullness and lack luster in the eye.

Muscles operate in three differnt energy modes:

1. The most urgent explosive sports depend on a locally stored form of anaerobic energy called creatine phosphate (CP). Muscles keep enough of this chemical on hand to support maximal movement and all out effort for eight to twenty seconds. No oxygen is consumed in the release of this energy. The CP stores are resynthesized immediately afterward.

2. The lactic acid energy system functions in speed or strength sports for up to three minutes. It can operate in the presence of oxygen aerobically,or shift into the anerobic state when the demand is sufficient.Because oxygen is not utilized in the anerobic state waste products pile up rapidly, including the infamous lactic acid. Ideally the totally burned fuel should

leave only CO2 and H2O but in the absence of sufficient oxygen, glycogen will not be completely metabolized.

3. In the steady state or oxygen energy pathway, enough oxygen is delivered continuously to the muscle for complete burning of glycogen, free fatty acids and triglycerides. As a horse becomes conditioned by exercise the cardiovascular, respiratory and musculoskeletal systems are capable of delivering oxygen to maintain a steady state. Obviously, the goal of conditioning is to establish an optimum efficiency of the oxygen energy pathway.

Lactic acid is the culprit associated with muscle fatigue during exertion and muscle soreness afterwards. Lactic acid is what weekend athletes groan about after a brisk tennis match or two mile run for which they were not prepared. Despite its inherent inefficiency, the lactic acid energy system is the one the body relies on in the majority of equine sports, such as those that require relatively brief (one to three minutes) bursts of effort. The longer a conditioned athlete can perform in the face of high lactic acid levels the more successful he is likely to be.

Each of these energy systems, once conditioned, are more efficient and are made more productive through specific workouts. The CP system, through short quick bursts of speed, or demanding uphill stress,will create greater CP stores.The energy storage process is intensified when only short recovery periods are allowed between short bursts of exercise. The steady-state system can be improved through long slow distance work, while the lactic acid system benefits most from interval training.

There are no short cuts to completely condition a horse. You cannot do it overnight. It will require many wet saddle blankets and six months to a year to complete in the case of a young horse. Older individuals will require marginially less time. You will need room to ride. The equine athlete cannot be made in the stall or riding ring. You need to be doing miles of walking, strong trotting and galloping to complete the task of conditioning. This will give you the opportunity to see a great deal of the countryside as you strengthen his mechanical and metabolic systems.

PROGRESSIVE LOADING FOR PEAK PERFORMANCE

The perfect horse is every horseman's dream-the perfect integration of biomechanical structuring and mental attitude accentuated by power,precision and endurance.

All horses are athletes to some extent. They come equipped with a powerful but rather specialized locomotor system that gives them the capability of all-out speed for a very short distance while allowing prolonged action for a considerable duration at reduced speeds. This combination has left the horse well suited to his "fight or flight" existence and aided his survival. In the context of the modern competitive arena the term athlete encompasses much more. The equine athlete requires more capacity

than is needed for normal everyday existence.

At any given moment a horse has a finite capacity to perform. His innate capacity is a reflection of his breeding, rearing, conformation and experience. It is his natural capacity we hope to enhance by our conditioning program. Through a program of exercise and practice we can prepare him to participate but if he is to compete equally with the best,he will require superior physical training to reach his ultimate genetic capacity.

Your horse's body perceives demands that are within his current capacity as "no threat". It will respond to an adaptive stress threat by improving its ability to handle such a threat the next time around. Through a carefully applied program of graduated exercise known as "progressive loading", you will have succeeded in alarming the system into thinking there is an imminent crisis ahead. The body will react by chemically preparing for the next expected round of stress,This concept is called the "rebound effect." Judiciously applied stress serves to strengthen the system; while excessive strain (stress gone to far) will tend to break down and destroy the system. Trainers whose competitive goals are very high walk a tightrope between these two end points.

In training we are going to place some stresses on the horse. We are going to get him tired and make him sore but keep him in the rebound zone for recovery and improvement. We have as a primary goal to teach the body to use more oxygen, and to stay in the aerobic energy pathway for longer periods of time. We want to increase the transport of oxygen-laden red blood cells to the muscle and improve the efficiency of waste removal from these cells.

The key to monitor progress through all the months of training is your horses heart rate. The resting pulse of a well-trained equine heart is between 28-48 beats per minute, with most being 36-40 beats per minute. The working pulse rate desired early in the training program is 80 to 120 beats per minute. As the level of fitness improves a working rate of 120-150 beats per minute would be more desireable. The goal is to have the athletes heart rate return to a normal rest rate of 48 or below within 10 minutes after work activity ceases.

Working heart rates of 160 and above demands the fit horse to dip into the anaerobic zone. They are anaerobically tapping into the glycogen stores of the liver and muscle for energy. This will result in some lactic acid build up. Pulse rates that remain high following workouts or fail to recover to target levels signal certain fatigue and are a clear message to return to a lower level of training.

The approach to condition training is one of applying moderate, graduated increments of stress. Moderate increases will ask the horse to respond by compensating to this progressive loading. Every time we add an increment of stress,we will stay at that level long enough to see what kind of response we are getting.

There is often a delay before one can see the effects of each progressive level of stress we wish to evaluate.We want to be certain we are making positive progress before we go on to the next level. One must be ever conscious of the soundness state of the equine athlete as you increase the work load lest you wind up with a broken down frame supporting a metabolic dynamo.

There are three phases of conditioning: the phase of long slow distance training for firming of the frame; the phase for developing strength and stamina; and the maximal speed and quickness phase. The lengthe of time one stays in a phase of conditioning is dependent upon the level of conditioning at which the athlete enters a phase. However, all three phases must be completed to achieve the goal of the ultimately conditioned athlete. Let's look into the phases now.

Phase 1: Long Slow Distance For Frame Integrity
Long Slow distance (LSD) steady aerobic training is the backbone of all conditioning programs, Whether your goal is racing, rodeo,three day eventing or endurance riding LSD training is essential. In this phase of conditioning we strive to strengthen the frame through steady gradual increases in distance over varied terrain.This will add oxygen-carrying (aerobic) capacity to his cardiovascular system while challenging the framework.

For the average entry level horse this means alternate walking and trotting of about 30 minutes to an hour a day at an average speed of 5 mph. The athlete should stay in this phase for three to six months gradually increasing his distance and speed until he can easily handle 10 mph without undue stress. Previously fit horses will follow a similar overall regimen and achieve the maximum speed rate much sooner than the unconditioned horse.

After only a couple weeks of conditioning you may notice a dramatic improvement in your horses ability to handle work. Don't be tricked into too much increase in speed work as it may lead to disaster. The systems of the horse vary in their rate of conditioning and while the metabolic system has progressed the mechanical (skeletal) system may not be ready for any increased load. The horse;s skeletal framework improves at a rate of about one-fourth to one-fifth that of the muscles and this discrepancy can lead directly to a soundness disaster. Too much stress placed upon the framework too soon creates the potential for unsoundness.

The quickest systems to respond to training are the muscular and cardiovascular systems. These two are the most visible and easiest to detect a difference in. An increase in skeletal strength must be achieved before one procedes to a higher level of muscular competence. The more severe the stress involved in ones final goal the more LSD work will be required.

Be on the alert for signs of progressive fatigue. Is he dull? Are his feet breaking up? Is he off feed? Is there heat or filling in his lower legs? Is he shortening up his stride or trotting with

an uneven cadence? Is he sulky and hard to catch? When you come in from a workout do his pulse or respiration remain elevated after 20 or 30 minutes? If the answer is yes to any of these questions, then you must be progressing to rapidly through the levels of stress. You may be pushing him too far, too fast, too soon.

Most horses go as they feel. They don't fake soreness or fatigue. If you see any of the signs of fatigue or soreness don't hesitate to give him a day or two off in order that he may recover. S Subjecting your horse to a stress that is more than his system can handle will cause potential damage. If damage does occur,he will need time to resolve it before heaping another new stress upon him. Return to an earlier level of training and go into a holding pattern until complete recovery is assured.

If your training schedule has been on target, within three to six months time you should begin to see genuinely reliable signs of fitness. The consistency of sweat will change from thick, frothy and sticky to thin,watery and odorless. You may see small blood vessels bulge in the skin of the neck and limbs, especially following exercise. Your horse's attitude will be bright and willing. His coat will be finer and he will take on the glow of good health. An early morning confrontation may be the order of the day.

Phase 2: Strenuous Work For Strength And Stamina
Once skeletal strengthening is well under way, we need to challenge the horses anaerobic threshold. We want the muscle cells to burn fuel without oxygen and to tolerate and shed the waste products of anaerobic metabolism(lactic acid and heat). We start by substituting quantity of work for quality of work. This is accomplished by engaging in short periods of strenuous work to stimulate the burning of glycogen in the absence of oxygen. Continue the background mileage,but avoid the excessive stress of pure speed which will stimulate the creatine phosphate(CP) energy pathway.

Start off with short easy gallops and continue applying the principles of progressive loading. Within the first 30 days of phase 2 your horse should be able to handle gallops of one to two miles interspersed with trots of equal distance. Plan the workout so that the most strenuous part comes at the end of the session. Precede workouts with sufficient warm up and leave time for proper cooling upon completion.

Obviously, forethought must go into planning these exercises so that the footing of the terrain will be suitable to conduct these speed sessions. Ideally one would like to have a race track surface available but in lue of this,a non-paved graded road surface free of large rocks will be adequate. If a sufficient area of level road surface is unavailable one might substitute an inclined surface. The inclined surface increases the work load and allows you to control the level of stress by decreasing the distance of the gallops. Use whatever stress is adequate to raise the level of the heart rate to between 120 and 160 beats

per minute.

It is helpful to intersperse the phase 2 training sessions with the phase 1 sessions in order to avoid boredom that comes from constant repetition. Vary the schedule and keep it fun for you and the horse.

Listen to the horse. Ask him to lope but don't demand it if he is not ready. Carry this thought with you whether you're training or competing. Like people, horses have bad days so expect highs and lows in their performance. Remember the more slowly you go the further you go. The faster you go the shorter the work out.

In general I like to train for endurance by training at slightly higher levels of speed than I expect to travel during competition. For speed, strength and stamina training, I would recommend a combination of LSD and interval training to peak a horse's performance.

Regardless of the method of conditioning it is important to always allow for a proper warm-up and warm-down period. Bring a horse in from a work session with the heart rate below 60 beats per minute and a respiratory rate of 20-40 respirations per minute. Allow the horse in training to cool down at his own rate but don't hesitate to assist him if weather conditions so indicate.

Ideally the cool out period should take thirty minutes to an hour after a strenuous workout. To meet this time frame judicious application of a cooling blanket in cold weather conditions is helpful. The use of room temperature water for application to the skin during excessively hot periods will aide the removal of accumulated body heat. With ambient temperatures of 60 to 80 degrees no assistance is necessary. Cleansing of the head and face, especially the eyes, is refreshing to the horse. Washing of the body to remove sweat and dust makes the horse feel better and increases the pride of ownership.

PREPARE A PROPER MENTAL ATTITUDE

No conditioning program can be complete without the preparation of a proper mental attitude. It is so easy to select only the good days, with ideal temperatures and humidity readings, to ride on. This approach may not allow for proper mental preparation. In other words, don't try to prepare for a marathon in July by running in an air-conditioned gym.

The best avenue to a proper mental state begins with the selection of a horse with a superior mental attitude. To quote the words of Maggy Price, "It's not the wild you want, it's the willing".

In what ever sport you chose to participate the attitude requirements are basically the same. You need a horse with a good disposition, that is quiet but alert, with good memory retention and a strong will to please. Couple these traits with

the qualities of a natural curiosity, a bold self-assurance and just a touch of the "show off" and you have the perfect combination to create an ideal competitive temperament.

When a horse has all of the traits and qualities above, it is easy to train his mind to the state of mental toughness necessary to compete in very strenuous sports. It takes a special athlete to run in 100 degree heat, with 90 percent relative humidity and maintain his desire for work.It takes a horse with superior competitiveness to keep going after 85 miles and twelve hours on the trail. You cannot expect your horse to come fresh out of the pasture and compete under such conditions without prior exposure.They first must be exposed to warm weather training sessions to develop a proper mental attitude. Likewise, riding in pouring rain or heavy wind can be utterly discouraging if there has been no mental preparation. This does not mean that you should not ride on good days but by the same token don't necessarily avoid all the bad ones.

There will be obstacles along the way that horses must overcome if they are going to be successful. The obstacles will vary from sport to sport but some means must be devised to expose the equine athlete to these obstacles.