

Understanding Rewards and Punishment in Horse Training

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In this essay there's a little review and repetition from my book, *Teaching Yourself to Train Your Horse*. I'll cite the book as TYTYH.

Everyone knows that animal training is accomplished using rewards and punishments. Horse people are likely to agree that the best trainers understand and apply rewards and punishments more effectively than the rest of us. They might also agree that better understanding of rewards and punishment is the best way for anyone to improve horse-training skills.

All stimuli in the world of an animal such as a horse can be treated by the animal as positive, negative, or neutral (TYTYH, p. 38 ff.). Positive stimuli are all those that bring rewards, such as food, shelter, and grooming. Negative stimuli are those that cause punishment, such as pain and fear. Like other animals, horses learn to do things that maximize rewards and minimize punishment; you should see yourself as cooperating with the horse by helping it accomplish exactly these same things in the training situations you set up.

Prey animals such as horses treat nearly all new or strange stimuli as potentially punishing, therefore negative. Some new stimuli cause mostly curiosity and might be called neutral, at least at first. The horse tends to investigate them carefully until it discovers whether they are likely to lead to rewards or punishment. If they give no evidence of causing either, it may continue to treat them as neutral, and more or less ignore them.

The horse trainer's two jobs are to (1) use positive stimuli (rewards) to convince the horse that a human is neither negative nor neutral but mainly a trustworthy source of rewarding stimuli such as food and gentle grooming, and (2) develop the mildest possible negative stimuli (cues) such as pressure on lead rope, reins, or some part of the body or legs so as to produce desirable responses consisting of calm and appropriate relieving of the pressure. In (2) the horse learns to reward itself by removing a negative or punishing stimulus, and eventually by responding so promptly and well that the trainer reduces to a minimum the intensity of the negative stimulus. Nowadays these two teaching methods are usually referred to as (1) positive reinforcement and (2) negative reinforcement. I keep on using the terms rewards and

punishment because I think they are more direct and easier to understand. I wonder if "negative reinforcement" didn't become popular because it seems to take away the connotation of punishment. Perhaps people also think it tends to cause the intensity of punishment to be reduced. If so, that is good. But negative reinforcement does involve punishing stimuli, whether they are set up by the trainer or just occur naturally. I like to think of the two methods just described as maximizing rewards and minimizing punishment (TYTYH, p. 9).

Now, how many times has one or more of the following things happened to you?

Your horse does not easily let you catch it up in the pasture. You would like it to view your approach with a halter as suggesting a reward, not a punishment. But the horse is apprehensive, meaning that for some reason it views you somewhat negatively. This makes you uncertain about how to proceed, and of course when you go out to get it you're in a hurry -- as usual. When the horse withdraws a bit, you get impatient and reach for it too soon. It gets away.

You just taught your horse exactly the wrong thing: that it is correct to treat your approaches as negative. You punished it in a circumstance in which it already feared being punished. It is now more convinced than before that it should not allow you to approach, especially with the halter in your hand.

But you really need to catch the horse. So you get a bucket of feed and try again. The horse is still leery, but grain is such a big reward that it approaches the bucket hesitantly, watching you closely. Sure enough, when it gets near, you make another grab for it. Off it goes, even more positive that it is right to avoid you.

But you keep offering the grain, and the horse is likely to try again to get some of it without being caught. You let it have little tastes and start backing toward the barn, hoping you can eventually get it inside and slam the door shut. The horse keeps following because the promise of grain is so tempting. But it's really suspicious now. You let it have just enough grain to keep it coming as you back toward the barn. After a while the horse is laying its ears back every time it comes toward you. It's increasingly nervous as the two of you near the barn. Being rewarded only for accepting an increased threat of punishment can become nerve-wracking, even for a horse.

Suppose that at some point you actually do get the horse into the barn and shut the door behind it. Then what? Well, you accomplished your immediate purpose, even though it wasn't pleasant, and the delay caused you to be in an even bigger hurry. So you quickly put the feed away, saddle the horse, and ride off.

What did the horse learn? By far the most important and lasting thing it learned is that you are to be avoided because you are not to be trusted. It also learned that when it follows you, or enters the barn, you take away any reward you were offering. In other words, when it finally does what you want, you don't reward it. Instead you punish it by removing the reward that got it there! Some horses act as though they know that the way to keep those little munchies coming is by delaying or preventing the situation in which the food is taken away -- by resisting entering the barn and by not getting too close to the person with the grain. The horse gets increasingly irritable, because the situation is so full of uncertainties. It becomes increasingly reluctant to enter the barn door. Most important, it is going to like you less and less, even though you need it to like you more and more.

What you just did is not just an isolated or trivial event. Instead, it's a backward step in the long-term training of the horse. You caused the all-important positive aspect of cumulative training to be replaced by a negative one.

There are two ways to solve the problem of catching up your horse while keeping it on a positive lifetime training pathway, in which every interaction with your horse makes the next one easier. The first is to accustom the horse to being fed in a pen or stall so that it will enter any time you promise feed. Feed it after it enters the pen or stall rather than using food to entice it and then taking the food away. Once the horse is confined in a pen or stall, where you can restrain it further with a halter, you can prove that nothing (else) bad will happen to it, and that good things happen -- as by grooming it quietly. This first method of imposing restraint (halter, pen), followed by positive stimuli, can be timesaving for any particular training effort. However, unless you work hard to reduce the negative aspects of the events leading up to the restraint, and overmatch them with rewards, it can end up being a more time-consuming method across the long haul because you'll have to repeat the imposing of restraints each time you wish to handle the horse.

The second and better way is to acquire the horse's trust, meaning to convince it you are always a rewarding stimulus, so that you can halter it anywhere, any time. Trust lasts, and it pays off in all training circumstances.

Consider initial approaches to a foal or weanling. The most desirable method is to keep all stimuli associated with human nearness so mild, and increases in nearness so gradual and patient, that from the horse's point of view you are not a source of any negative stimuli at all. You must not allow yourself to be pushy. At best, just hang around the horse, far enough away that it does not retreat, while letting it do all the approaching. This method will be much more time-consuming if there have previously been any false starts that might have taught the horse that nearness is

negative rather than positive. It's a false start, for example, if anyone ever moves toward a young, untrained horse, even accidentally, until it retreats out of fear.

You can instill trust in a young horse just by staying near it without ever doing anything scary or noticeably deceptive trust that may not be obvious to you for days or even months, when the horse "suddenly" does something like walking up unconcernedly and allowing you to scratch it or halter it.

Let's consider another example, this time trailer loading. I will describe two ways to load a horse in a few seconds or minutes -- usually. These methods work reliably only with a quiet, relaxed, trusting horse -- one that has never been subjected to forcible training methods or severe punishment, has never been made fearful by the actions of a human, and has always had trainers who used the mildest possible punishments, and treated them as ways of setting up opportunities to reward the horse. My overall training goal is to have all these things be true for every horse I raise and train. I never want to work with any other kind of horse. Any time I don't know how to do things that will contribute to building this kind of horse, I try to back off until I can figure it out. Not surprisingly, I don't always achieve my aim.

Here are the two positive and quick trailer-loading methods. Obviously, I cannot guarantee them always to work, because horses and people are both too complicated. Nor can I guarantee them to be positive and quick if they do work, and especially if anyone has tried previously to load the horse, or actually loaded it, using some other procedure. All I can offer in the way of a guarantee is that, most of the time, you can load a horse easily and quickly, using the methods I'm about to describe:

1. Place a horse trailer in the horse's paddock or pen. Tie the trailer's doors open. Let the horse get used to the presence of the trailer on its own for a day or two. You may think this is already a lot of time to use teaching a horse to load. But this "preparatory period" involves practically no effort, and it will pay off handsomely. In a day or two, at the usual feeding time, let the horse see you place three small piles of grain on the floor of the trailer, one just inside the door, one halfway to the front, and one right at the front. Place the rest of the feed in the manger of the trailer. Go away, at least to where you can watch without the horse paying any attention to you.

In my experience, a horse with the background described above is likely to have all four feet in the trailer in approximately the time it takes to eat the first two piles of grain and go for the third one.

2. Teach the horse to lead, at first without tightening the lead rope and always without causing the horse any fear. Accomplishing the first steps in leading this way will take a little while, but it will have a positive effect on the entire future of the horse's

training, not merely on how it loads (see Chapter 10 in TYTYH). After starting the horse in leading, you are going to lead it until it will follow you without the lead rope, even if you run, change directions abruptly, or race in a circle around and around the horse.

From the start give a kissing sound every time you are about to move out or change direction. At first, lead the horse into only pleasant places where it might comfortably go on its own. Later on, start leading it gently into and through scary, narrow, and dark places -- all you can find -- without causing it to be frightened. Start out going between parked cars, trees, rocks, or any large objects. Use barn doors, gradually closed to a narrow opening. Use anything you can find that is safe. Work gradually, patiently, in small steps, and without using force. Force is to be avoided, especially in the early stages of leading, because it needlessly adds punishment to an already fearful (hence, punishing) situation

Still later, as the horse comes to understand the lead rope, and your role in leading, gradually become less forgiving if it either lags or tries to move too fast for you. React to the horse getting out of position, or lapsing in its attention to you, by making sudden direction changes without looking back, changing pace, or letting up on the lead rope (see "Power Leading," TYTYH, p. 128 ff.). Give the kissing sound each time just before you change direction. Do this until the horse is consistently paying very close attention to you and keeping the lead rope loose. The horse can resist your efforts to control it on the straightaway, but not when you make decisive and unpredictable direction changes of 90 or 180 degrees. Do your best not to cause the horse any hurt or fear other than the tug of the lead rope. Remember that all of this is going to work only if you do not make any mistakes if you do not frighten the horse or hurt it in one of your efforts to teach it to follow unhesitatingly. If a mistake does happen, you'll just need to spend more time in getting the horse ready in re-establishing its trust before you head for the trailer. In horse training there are very few things that cannot be overcome by continued care and good judgment.

Stop frequently to scratch the horse and talk to it positively, especially after it has done something new or right. When it finally appears to trust you completely -- for example, when it's following you consistently rather than waiting for the pull of the lead rope -- lead it up to the trailer. Pause quietly at the door for a second or two, then give the kissing sound and step briskly into the trailer. Don't pull on the lead rope. The horse will almost always hop in right behind you. Sometimes I sense that the horse is so ready to follow me that I don't even pause at the door, but this way of doing it involves a little more risk. If the horse doesn't follow you, either stand quietly and talk nicely to it to give it a further chance to come forward and be scratched, or else walk quietly out, lead it away as if nothing unusual had happened, and start over.

If, during the leading, you also teach the horse to step forward past you when you make a clucking sound (use a gate or small barn door for this, starting with doors or gates the horse wants to go through, and nudging the horse through first), you can usually put it into the trailer easily and quickly without going in yourself.

What's going on here? The answer is simple: in both cases the actual loading was, for the horse, all rewards and no punishment. In neither case did you give the horse any reason not to trust you. In the second case you took time to teach it some trust beforehand, using punishment when you changed direction, by pulling on the lead rope as hard as is necessary to keep the horse coming, until the horse started paying attention to you alone, and following you readily. This allowed it to learn how to keep anything bad from happening to it while being led, and gave you the chance to stop to groom it and talk positively. Finally, you used the horse's trust to load it. From the trusting horse's point of view, walking into a trailer is almost incidental. It happens because trust has caused the horse to anticipate rewards from you, and only the mildest and most brief punishments. Trust makes it more likely to do almost anything you ask.

Consider the first example. The horse encounters the grain inside the trailer, on its own, without any interference from a human. A horse obviously knows how to reward itself without punishment, even if humans don't. It quickly discovers how to enter the trailer with no pain, no fear, no force, and no punishment -- at least no punishment as important as the food. Even a calm, trusting horse may take a minute or two to be sure about all of this. Then it simply reaps the reward by walking in and eating the grain. On its own the horse just maximized its reward and minimized its punishment.

It's surely not surprising that a horse knows more about how to avoid punishment and achieve rewards for itself than do most humans. But the basic challenge to every would-be horse trainer is to try to become as good at it as the horse is. The horse will start trusting you if you prove repeatedly that you know how to reward it without accompanying punishment, or with punishments so mild that the rewards vastly overpower them. You can then teach the horse faster than it can learn on its own because you can set up better and more appropriate learning situations and also use its trust of you to take away fears that will plague it when it is operating on its own.

In the second example, my description of how to lead the horse is intended to be a method that grabs and holds the horse's attention, and establishes its complete trust of you. You lead it interesting places without punishing it -- except, eventually, for those attention-grabbing direction changes, which are followed by a rewarding loosening of the lead rope caused by the horse putting itself back into position. While you were

doing all this you rewarded the horse at intervals with grooming and positive talk. You made it like you, and like being led.

Once trust is firmly in place the horse will be willing to go just about anywhere you do. Eventually it will do this unhesitatingly, unless and until it somehow gets hurt or scared, whether accidentally or on purpose. Best of all, such careful preparation facilitates not just trailer loading but everything any human ever asks the horse to do.

Horse people tend to think there are numerous everyday stimuli that are neither rewards nor punishment to horses. The term "aid" (cue) makes me think about this because it seems to imply that the horse and the rider have the same interests, and the rider simply "aids" the horse in accomplishing what both desire (I talk about this in TYTYH on p. 31). It implies that rein and leg signals are actually rewards to horses, or at least not punishment. This is a mistake that can obscure important problems in training.

Training aids may be thought to become rewarding because they lead to rewards in the overall interaction of the trainer and the horse. During training, the horse learns that even the lightest rein or leg signal can be eliminated by giving the response the rider desires. It learns to reward itself by terminating the negative signal. By becoming prompt and accurate in its response it also gains the reward of causing the capable trainer to reduce the signal to a mere touch, perfectly timed.

Reducing the intensity of a punishing or negative stimulus -- reducing the level of punishment -- makes it into a cue, but does not change it into a reward, no matter how much the trainer would like it to be so. The horse's continued negative reaction to the aid or cue is what causes it to do what the trainer wants, even if the stimulus has become a mere touch. This claim can be understood by remembering that even the lightest possible touch can put to flight an untrained horse that has never experienced it before.

These seemingly small points about cues are important because horse people are often not aware of all the rewards and punishments that occur in the training sequences they undertake with their horses. Some of these are scarcely noticeable to humans but immensely important to horses. An example is the faintest movement of a human toward (negative) or away from (positive) an untrained horse. Recognizing that every stimulus is likely to be either a reward or a punishment -- either positive or negative -- and that even the mildest aid is still a negative stimulus, can contribute to the keener perception that describes the capable horse trainer.

It is possible to change a punishing stimulus into a rewarding one. Horse trainers do it all the time. Consider again that the initial approach of a human to an untrained horse

(except for a newborn susceptible to imprinting) causes the horse to retreat, therefore qualifies as a punishing stimulus. The approach is evidently interpreted by the horse as dangerous or negative. Similarly, touching an ungentled horse will cause it to retreat, usually in an abrupt and frightened way. The horse trainer's first job is to find a way to show the horse that when humans are close the things they do are rewarding, such as scratching, rubbing, or feeding. Once this fact has been established to the horse's satisfaction, it will approach humans without encouragement. The approaches themselves have become rewards, because the horse has come to see them as harmless routes to rewards that occur only when a human is near.

The horse may also come to regard as rewarding whatever eventual action the trainer is eventually seeking by using aids or cues. For example, it may begin to enjoy (1) setting out on a ride, a purpose of the rider that is achieved only by applying in sequence numerous negative stimuli, as well as some positive ones; (2) originally negative stimuli such as catching up in the pasture, haltering, saddling, mounting, and signaling direction and speed; (3) positive stimuli such as grooming, positive talk, and scratching after mounting and when starting the ride. If the stimulus sequence leading up to riding consistently yields an overall negative effect to the horse (or if any single negative stimulus over-rides all the positive ones), the horse will begin to avoid being caught up and all the rest. On the other hand, if the trainer includes sufficient well-placed rewards the horse will begin to seek at least the start of the sequence. So, to repeat, the best training procedure is to strive always to maximize rewards and minimize punishment while working toward your immediate training goal.

I try never to punish a horse except, as with riding cues, when I can say beforehand that the purpose of the punishment is to create an opportunity to reward the horse. I try to identify the reward, and the exact way and time it will be applied, before I punish the horse (including merely cueing it). For times when I cannot do this, as when a horse suddenly bites or kicks at me, I think up a reward, such as grooming and quiet positive talk, that I can apply as soon as the horse is no longer misbehaving (meaning, within seconds). Punishment should not be allowed to threaten the bond of trust between horse and human.

The caution to reward the horse immediately after punishing it causes the trainer to be keenly aware of the importance of knowing about even punishments that happen inadvertently. This awareness can be achieved only by constant reflection about every single thing we do to the horse as we work with it, or indeed merely go or remain near it. As already noted, avoiding the admission that cues are punishing or negative stimuli fosters the overlooking of all kinds of seemingly mild or insignificant punishments that people inflict on horses, sometimes almost continually. This lapse keeps us from knowing why in some circumstances our training did not work as fast

as we expected, or as fast as the horse might have proceeded by itself. Realizing that we are unlikely to notice all the same punishments that the horse notices explains the value of frequent spontaneous rewards in keeping the horse positive in its reactions to training.

Most of what we horse trainers think we have to teach our horses, free-running horses already do perfectly well by themselves. We elaborate the behaviors, recombine them, and teach the horse to do them in the combinations and sequences that we desire, and when and where we want. To accomplish this most reliably and efficiently we must understand rewards and punishments so well that we rarely err in their application, never apply rewards so that they seem like punishment, never apply punishment when rewards can be used instead, always use punishment so as to facilitate rewards, and always seek to maximize rewards and minimize punishment.

Anyone who reads much about horse training knows that the very best trainers often speak about things like feel, timing, and balance in ways sometimes difficult for the rest of us to understand. They also talk about "setting it up for the horse," "letting it be the horse's idea," "letting the horse figure it out," "getting out of the way," "not interfering with the horse," and not telling the horse to do something he was going to do anyway (I talk about this on p. 150, TYTYH). Competent horse people's writings and talk also occasionally border on the mystical. Some even invoke what have been called "Zen-like" interpretations of training methods. Anyone who attends horse-training clinics by the best clinicians knows that audiences can be so awed by what is being accomplished that they too are ready to believe in magic.

But it's not magic. It really is feel, timing, and balance, which mostly translate as a keen knowledge of how and when to apply rewards and punishment. So do all those other phrases listed above.

If ever I understand rewards and punishments well enough to do a whole lot of things like loading a horse easier and faster than it would go on its own into a grain-baited trailer, and each time leave the horse changed in a positive way that will make every aspect of training cumulatively easier from then on, then I might begin to think of myself as a "real" horse trainer.

Here's a final example of positive one-lesson learning. One morning I went out to feed four yearlings I had been keeping in a corral so I could step by step assure them that my close presence was always to their benefit. To them the corral situation seemed all rewards and no punishment because I not only fed them twice a day but also began touching, rubbing, and scratching them whenever I was near, being careful not to start this by being sneaky or pushy. Once I felt they'd learned that I'm invariably a good guy, I opened the gate and let them run out into a large pasture. For several days they

were up and ready to be fed whenever I brought their feed. On this morning, however, I am a bit late. I discover they're somewhere out of sight over a hill about a quarter of a mile away. At first I am impatient because I can't feed them right away. I've got other things to do. If I put out the grain when they're not there, the cows in the pasture with them are likely to eat it. I don't really want to trek all the way out to get them. But then I realize it's an opportunity to teach these yearlings something important that they don't know yet. So I take the feed bucket and head out into the pasture. Now and then I give a loud whistle, of the sort that attracts the attention of horses because it resembles a horse's whinny, which I think may say something like: "Who are you?" Or: "Why are you over there? Or: "Are you interested in joining up with me (us)?" It's a continuous whistle that slides smoothly up and down across about three half steps, 3-4 times per second (but any attention-getting whistle will do). I keep walking and giving the whistle. Eventually I see the yearlings topping the hill in front of me. They're not coming to the call, which they've never heard before. They're just checking to see what's making that funny noise that keeps getting closer. There they stand, heads up, ready to bolt. Instead they see me with that familiar feed bucket. They know all about that bucket and me. As soon as they come into view I turn right around and start back to the barn, still whistling. They come tumbling after me and follow closely all the way to their feed pans. In one lesson they've learned to come to that whistling call. I kept rewards known to them right in front of their faces as I presented the new signal, and then I carried the interaction straight to their feed pans. All rewards. No punishment. They won't forget it. Positive one-lesson learning.

Of course I could easily have taught the yearlings to come to the whistle from a distance by whistling every time I approached to feed them, even when they were already there waiting for me. In this case I just hadn't done it before this occasion.

A general lesson from these two examples is that whenever a human trainer takes longer to teach a horse to do something new than the horse does without the trainer present, then the trainer has surely missed something about rewards and punishment. As long as that is true, the horse is a better trainer of itself than the human is. This is why nothing is more important to anyone working with horses than being able to figure out exactly how to eliminate punishment and provide rewards appropriately in every interaction with every horse.

Here is a paraphrasing and expansion of an old adage about training, which summarizes everything I just said:

To teach a horse quickly

- 1. Do everything slowly.**
- 2. Time every reward and punishment perfectly.**
- 3. Seek always to maximize rewards and minimize punishment.**

What a challenge!

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