

Guides for Artists and Collectors

1



Painting More Realistic

Tobianos



Lesli Kathman



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From the Editor

Welcome to the premiere issue of *Guides for Artists and Collectors: Painting More Realistic Tobianos*. This is the second guidebook series published here at Blackberry Lane Press, following the previously released judging series. It is also the subject that is the closest to my own heart. Although I have worn many hats in the decades I have spent in the equine collectibles community, I still think of myself as primarily as a painter.

My interest in horse color grew out of my passion for painting horses and my wish to create ever more accurate entries to compete in model horse shows. Even after publishing two books on horse color—and mostly retiring from competing at model horse shows—I still find that the act of painting enhances my understanding of the subject, and encourages me to look at horse color in new ways.

I have started this series with the tobiano pattern because it is familiar and easy for most artists and collectors to recognize. That makes it especially useful for introducing some of the concepts involved in white patterning in horses. That will be helpful for the next planned issue, which will cover the (more complicated) appaloosa patterns.

While I have tried to provide as much practical information in this small book as possible, my ultimate goal is to spark your curiosity and encourage you to look at tobianos with new eyes. My hope is that this will deepen your enjoyment of both living and model horses, as it surely has for me.

Lesli

Understanding Pinto Patterns

Before we look specifically at tobianos, it is important to discuss pinto patterns more generally. Pinto patterns are a subset of what geneticists refer to as *white spotting*, which in simple terms means that some portion of the coat is unpigmented—white—at birth. There are four concepts that provide a framework for understanding this type of coloration in horses.

Points of Origin. The point of origin is where the white consistently appears even on minimally-marked individuals. These are the areas most likely to be white and where greater concentration of white is likely to be found.

Pattern Progression. Pattern progression is the direction the white areas spread on more extensively marked individuals. It should be noted that pattern progression in pintos applies to groups of horses with the same pattern, and not to individual horses, since pinto patterns are fixed at birth and do not change significantly with age.

Areas of Exclusion. The areas of exclusion are those parts of the coat that tend to retain color, even in individuals with more extensive patterning.

Range of Expression. The range of expression is the difference between the minimal and maximum forms of a given pattern. Patterns with significant differences between the two extremes have a wide range, whereas those with little difference have a more narrow range. It is also possible for a pattern to have a truncated range, where individuals fall at the two ends of the spectrum but moderate patterning is absent; the incompletely dominant *Sabino1* and *Splashed White1* are good examples of this.

The differences between the points of origin, pattern progression, areas of exclusion and range of expression are what make it possible to tell one pattern from another. Understanding a pattern from this perspective make it easier to incorporate useful details from a variety of reference images to make a unique design without sacrificing realism.

An Overview of Tobiano

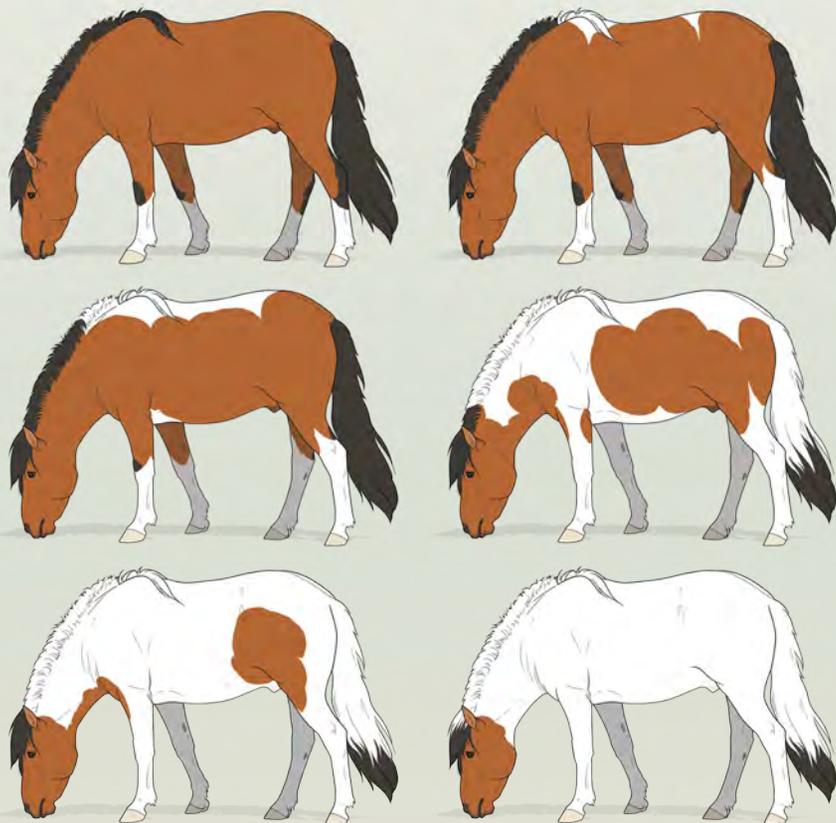
Tobiano is the most familiar of the pinto patterns, and is the easiest for most people to identify. That may explain why the common grouping of patterns into tobiano and overo is in fact grouping horses into tobiano and “all the pinto patterns that are not tobiano”. Even in countries where pinto patterns are not common, the default term for pinto often refers to tobiano.



Tobianos look like white horses that have large, rounded patches of color. Face markings tend to be conservative, much like those found on solid horses, and the eyes are typically dark. Unless certain modifiers are present, tobianos have four white legs and the white on their body will usually cross over their necks, back or croup. The borders of the colored areas are rounded and well defined, though the placement of many spots in one area can make the white areas appear jagged.

Although most tobianos do look like they have large colored spots on a white background, the pattern can still be understood in terms of where the white appears on minimally-marked horses, where it pro-

Typical Tobiano Pattern Progression



gresses as individuals have increasing amounts of white patterning, and finally the areas that remain colored even when the horse is primarily white.

Points of origin

White originates on the legs and to a slightly lesser degree along the topline. That is, minimal tobianos with white legs and little or no white on the topline are far more typical than those with a white topline and little or no leg white. Usually all four legs are white to some degree unless the pattern is suppressed or skewed. On the topline, the most common places for white to start are the withers, the croup, and the base of the tail.

Pattern Progression

The most minimally marked tobianos have socks or stockings. When viewed in profile, the markings on the hind legs often come to a point on the side of the leg. This is different from sabinos, where the stockings usually extend up the front of the leg. There will typically be a small patch of white across either the neck or the withers. There may also be a small amount

of white on the croup or at the base of the tail, which will turn the top of the tail white, or at least partially white.

In horses with a little more patterning, the white at the withers will spread along the topline, eventually joining with the white on the croup or tail. As the pattern progresses, the white tends to flow down from the topline towards the white on the legs, and the rounded nature of the colored areas becomes more obvious. When a tobiano horse is about 50 percent white, the pattern takes on the classic appearance of a colored head and chest and large spots on the flanks or hindquarters.

When the pattern becomes more extensive, more of the body becomes white, until the only color left is the head and possibly a small area on the chest or hindquarters. It is likely that this is the most extreme expression of this pattern, and that this is as far as tobiano will progress without the influence of other white patterns.

Areas of Exclusion

Tobianos have a strong tendency to retain color on their heads. That includes the front of the head, forelock and ears. Tobianos also tend to keep some amount of color on the tip of their tail. Homozygous tobianos tend to retain color around their chestnuts, ergots and coronets.

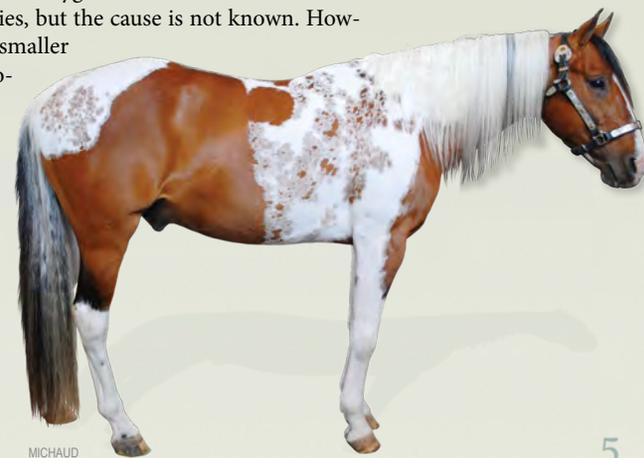
Range of Expression

The tobiano pattern has a relatively broad range of expression. At the lower end of white expression, the horse may not be immediately recognizable as a pinto; some of these horses do not qualify for regular papers in registries that have color requirements. Most tobianos fall within the middle range of expression however, and even the horses with the highest percentage of white in their pattern are still immediately recognizable.

Homozygous Tobianos

Horses with two copies of the tobiano mutation—one from each parent—are not more extensively white and are in most respects not very different from horses that have only one copy. The one exception is that homozygous tobianos often have smaller spots, known as cat tracks or ink spots, in the white areas of the pattern. These can vary in number from just a few to numerous, overlapping spots. The spots may be roaned or set within larger, irregular areas of roaning. The tendency for homozygous tobianos to have extensive cat tracks does appear to run in families, but the cause is not known. However, not all tobianos with smaller spots of color are homozygous. There is also an unrelated genetic factor called belton patterning that adds colored spots to white areas. (See page 12.)

Horses that are homozygous for the tobiano pattern are statistically more likely to have face markings and to have blue eyes.



MICHAUD

And now... some tobiano *HOOKS!*

So what is an artistic hook? A hook is a detail in the finish that adds visual interest. Hooks draw viewers in to look at the model more closely—to take a second look and discover small details not seen the first time. They also convey a sense that the model represents an individual animal, rather than a generic representation. Done well, hooks enhance the impression of realism.



Modifiers and additional patterns open the possibilities for an almost endless variety of hooks, but for the moment we are going to stick with some interesting options that are part of the tobiano pattern itself. These are details that are safe to include in a design even when the breed portrayed does not have other patterns or modifiers.

Mane and tail variations

When the patches on the hindquarters include the tail, a tobiano will have a colored tail. If the area is white, the tail is usually white with color on the end. Those are the two typical colorations of the tail, but there are other possibilities. In some individuals, white patterning can extend across the tailbone creating a patch of white in the tail. Horses with a roaned patch that touches the tailhead may also have a spray of white across a colored tail.

Mane color is entirely governed by the placement of the pattern on the neck. Because of this, it is worth considering how a given pattern design will work with the mane.

Mapping

Mapping refers to the zone between the colored and white areas of the coat. Although mapping is often thought of as white hair over dark skin the reality is a lot more varied. Mapping can be visible in the coat itself, and the ratio of colored to white hairs can vary even on the same horse. The rounded clusters of colored hairs in the image to the right is known as “beaded” mapping. It is even possible to have a mixture of white and colored hair, and have a border of dark skin that extends beyond that.



Ermine spots and patches

Tobianos with ink spots often have ermine spots that cluster around the coronet. These can be quite closely spaced, even on individuals with relatively sparse ink spots. Because the colored section of the hoof often extends past the edges of an ermine spot, even when the spots remain distinct from one another, the hoof itself is may be wholly dark. Some tobianos have large, irregular areas of color on the coronet that would more accurately be called patches than spots.

Ringed chestnuts

Many tobianos have a colored ring around one or more of their chestnuts. There are not set rules so horses may have rings around some chestnuts and not others. Generally speaking if the horse is heavily marked with ink spots, or if the edge of the color on the leg passes close to the chestnut, they are more likely to be ringed. Horses with extensive ink spotting and ermine spots often have ringed chestnuts and ergots. Tobianos with additional patterns that add significant white to the legs are less likely to have ringed chestnuts.



Soft edges and roaning

When a sabino pattern is present, tobiano patches tend to have ragged or roany edges. It is possible, however, to find patterns with roaned outlines in breeds where sabino patterns (and even white markings) are not found. The edges of the pattern on these horses are soft and blend in with the rest of the coat in a way that is somewhat different from either mapping or erosion from one of the sabino patterns.

Roaned and mottled patches

Although some tobianos have soft roaning concentrated around the borders of their pattern, other tobianos have a discrete roan patch on a random part of their body. These patches can be soft and indistinct in outline, or they can be well-defined against the rest of the coat. Streaks, swirls or spots of original color can be found in many of these patches. Sometimes an entire section is roaned, but it is rare for this type of roaning to cover a large percentage of the body. The varied appearance of these patches, and the fact that they can occur on just about any portion of the body make this one of the more versatile hooks for unmodified tobiano patterns.



The center top image is the neck of the Icelandic mare pictured on page 18. The center bottom image is the roan-edged pony pictured on the previous page, and is included for comparison.

About Blue Eyes and Face Markings

Tobianos are often described as having conservative face markings and dark eyes. Indeed, you don't have to look far to find someone claiming that any white on the face is proof that a tobiano carries an additional pattern. The truth is a little more complicated.

Most New World breeds have white markings and that is even more true of the breeds where tobiano is common. In North and South America it can be quite difficult to find a population of horses that have pure, unmodified tobiano patterns to study. In the Old World, however, there are breeds where tobiano is present but the sabino patterns are absent or exceedingly rare: Shetland Ponies, Icelandics and Huculs. Indeed, these breeds are notable for their lack of ordinary white markings.

Within those breeds, it is possible to find white face markings and even blue eyes on some of the tobianos. What is informative is that the tobiano ponies do not pass their face markings—or white markings of any kind—to their solid offspring. This was the basis for allowing crosses between solid and tobiano Huculs despite the fact that the breed standard forbids solid ponies to have white markings; breeders have found that the face markings are inherited as part of the tobiano pattern.

It is also true that across a wide range of breeds, white face markings are quite common on homozygous tobianos. Researchers have also noted that blue eyes are more prevalent in tobianos than in solids, particularly in homozygous tobianos.

It is not known if the tobiano mutation itself causes this white, or if these horses are acquiring small changes to the gene where tobiano is located. However for the purposes of designing patterns for model horses the end result is the same. Tobianos can have white face markings and blue eyes even when no other pinto patterns have been documented in their breed.



Pattern Modifiers

Although the pattern progression chart for tobiano shows a fairly wide range of expression, the majority of tobianos have a fairly symmetrical pattern that includes a colored head and chest, and large spots (or grouping of spots) along the flanks and hindquarters. This consistent look makes tobiano the easiest pinto pattern to identify. Not all tobianos reflect this stereotype, however, and some stray far enough from the expected appearance that they might not be immediately recognizable for what they are. In most cases, those individuals have modifiers that have altered their pattern. These modifiers act on the existing pattern, which is a little different from the influence of additional white patterns, which are discussed in the next chapter.

Pattern modifiers are of special interest because not only because they alter an otherwise predictable pattern, but because they break what has long been thought of as an absolute rule for tobianos: that all four legs must be white. Each of these modifiers carries the potential for one or more colored legs. Colored legs can serve a number of design purposes on models—everything from enhancing visual flow of the sculpture to hiding repairs—so it is important that artists recognize the contexts in which they occur and how they differ from one another visually.

Pattern slipping and skewing

In normal circumstances, the points of origin for a pattern can be thought of as anchors. Not only do they determine where white appears in the most minimally-marked individuals, but because more extensive white radiates outward from those points, they usually represent the areas with the highest concentration of white no matter where an individual pattern falls on the range of expression.

The first modifier in this group breaks those anchors, allowing the white areas of the pattern to slip. In its most simple form, a slipped tobiano pattern changes position but retains its basic outline. The strip of white that might normally cross the withers and spread down both shoulders instead appears on one side of the barrel; it has slipped from its characteristic location on the back to the side of the horse. Although white no longer “crosses the topline” as the old rules for tobiano insist, the pattern is still pretty recognizable. In other cases, it is the colored areas that appear to have slipped, either off to one side or to the front or the back of the horse.

Color that has slipped sideways, forward or backward is one of the more common causes of colored legs, and the one that occurs in the widest range of breeds. Clos-



Right and Left Sides of Skewed Patterns



er examination of the colored leg will often reveal that some white remains, usually a heel or partial coronet, on the lower leg. It is possible to get a completely colored leg this way, but it is less common.

Slipped patterns can also be skewed. In addition to becoming unanchored from their point of origin, the shape of a skewed pattern is distorted. The most consistent traits of a skewed tobiano

pattern is a patch of color across the topline that comes to a point across the back or loins. In some individuals, there will be an angled band of white between this point and another area of color on the hindquarters (*page 4*). Skewed tobianos are even more prone to colored or mostly-colored legs than tobianos with slipped patterns.



Moderate slipping and skewing occur on rare occasions in most breeds with the tobiano pattern, but exaggerated distortions appear to be unique to a handful of pony breeds. For that reason, using references images of tobianos from those breeds when painting unrelated breeds may lead to errors.

Pattern suppression

Although all white patterns have a natural range of expression that is thought to be governed at least in part by random chance, there is increasing evidence that there are genetic factors that work to suppress the level of white patterning. Some of these factors are subtle; black



horses, for instance, have less white on average than chestnut horses with the same pattern. Other factors have a more pronounced effect.

One such modifier is the proposed cryptic gene. While an unmodified minimal tobiano may have little to no white on the body, and may even had a colored leg, tobianos with the cryptic modifier may have only small hind socks. The cryptic gene narrows the range of the tobiano pattern so that first two images in the pattern progression chart (*page 4*) represent the *upper* end of the white expression. Like pronounced skewing, this modifier is believed to have a limited distribution so is not appropriate for patterns on all breeds.



The other situation that tends to suppress the tobiano pattern is when it is inherited in mules. At one time it was believed that ordinary tobiano patterns were not found in mules, but that is not the case. Certain South American breeds, when crossed with donkeys, produce typical tobiano patterns. In the United States, however, most tobiano mules have strongly suppressed white.

Three ways to get a colored leg



Minimal and Cryptic Patterns

Tobiano patterns with minimal white can have a colored or mostly colored leg, and those with the cryptic modifier may have more than one.



Slipped and Skewed Patterns

When the tobiano pattern slips or skews, a leg may be colored, though this is the cause that most often results in a mostly-colored leg.



Patterns with Recoloring

Some forms of recoloring add a colored sock to an otherwise ordinary tobiano pattern. This is the rarest cause of colored legs.



Recoloring

The previous modifiers scaled back the white or shifted its placement. This group of modifiers add color back again to the white areas of the coat. Although these modifiers do increase the percentage of color on the coat, they operate differently from and are unrelated to the factors that suppress white. Instead of resisting white, they *recolor* the areas of the coat that were left white. Included in this group are belton spotting, leg patches, colored socks and badger faces.

Belton spotting is similar in appearance to ticking in dogs; the term itself comes from the traditional name for the color of an English Setter. The size of the individual spots and the density of their placement varies among individuals. Although they look similar, belton spots are unrelated to the ink spots associated with homozygous tobianos. (It is likely that the mare pictured above has both a belton pattern and ink spots.)



Leg patches are larger areas of color that tend to be somewhat irregular in shape. The more extreme version of this is a colored sock. These markings look like an ordinary sock or stocking in reverse, so that the sock is colored and the leg is white. Some horses have a stocking that extends far enough that the only clue that the horse does not have a slipped pattern is a white ring where the stocking meets the flank spot. Both leg patches and colored socks are closely associated with belton spotting, though their exact relationship is not yet understood.

The final example of recoloring, badger markings, are unrelated to all the others. Badger-faced horses have a large colored patch that overlaps their face markings, leaving an incomplete outline wherever the original marking was not covered. Because so little white is visible, badger faces are often mistaken as proof of suppression. Suppression, if it was present, would reduce the large face markings that make it possible to detect the badger marking in the first place.

Badger faces and other forms of recoloring have become a popular among artists in recent years, but it is important to note that these factors do have a genetic basis, and they appear to have a fairly limited distribution across the different breeds.



Belton Patterning vs. Ink Spots

1. Ink spots are usually more numerous around the perimeter of the existing colored patches. Belton patterning is more evenly spread across the white areas of the coat.
2. Colored spots will cluster around the coronet on both beltons and homozygous tobianos, but on beltons the spots continue up the leg. The typical homozygous tobiano will have fewer spots on their cannons relative to the spots on the coronet.
3. Belton patterning will cover the full length of any white face markings, rather than just the forehead or the nose. These spots often have exaggerated mapping.
4. Ink spots are more likely to be set inside large roaned patches.

Pintaloosas



We know that both homozygous tobianos and belton-patterned tobianos can have colored spots in the white areas of the coat. So how are those visually different from pintaloosas? The answer is that with pintaloosas, the appaloosa pattern modifies the patches of color and not the white. No matter what type of appaloosa pattern is involved—varnish roan, leopard or blanket—the white of the tobiano pattern is placed like a mask over the top.

This makes sense if you understand that the basis of appaloosa patterning is gene that causes progressive roaning. Like grey horses, appaloosas lose color with age. Additional modifiers to the basic appaloosa gene, known as patterning genes, reorganize varnish roan so that the horse has permanent areas of white and colored spots. However, these still alter a colored horse; they do not add color to a white horse. That is what makes recoloring factors like belton spotting unique, because they *do* add color to the white areas of the coat.

Spots replace the **colored** areas.

When paired with appaloosa, the tobiano pattern is layered over whichever appaloosa pattern is present. The appaloosa pattern appears as if viewed through a keyhole. The two patterns do not interact with one another.

In many ways, this is just a more extreme version of the way tobiano works with many of the pinto patterns. More than any of the other forms of white spotting, tobiano tends to keep its

integrity when paired with other patterns. Whatever else is inherited, horses with the tobiano gene almost always retain a strong suggestion of the pattern.

This is easily observed in what are commonly called toveros. A tovero is a horse that has both the tobiano pattern and one of the “overo” patterns. In the last ten years, the term overo has become problematic because it refers to any pinto pattern other than tobiano. With close to thirty patterns formally identified by geneticists, and many more still left to study, a term that indicates that a tobiano also has any one (or more) of several dozen options does not provide much information.

Fortunately for artistic purposes, it is possible to place toveros into two broad visual categories: white-faced and sabino-influenced. The first type of tovero is characterized by extensive white on the face, often including one side or the lower half of the head and one or both ears.

Often a tovero is just a tobiano with a very white face.

Although toveros in this group tend to fall on the whiter range of the progression chart, the appearance of the tobiano pattern is not significantly altered. There may be subtle skewing or slipping of the colored areas—for example, the chest patch may fall off to one side or extend up the neck—but the general placement of the colored areas remains the same. Most significantly, the colored patches retain their distinct, relatively smooth outline. Horses in this category may have frame overo or one of the splashed white patterns, but for many the second pattern cannot be identified by testing, even though it is assumed that they have one.

The second group of toveros have an additional pattern that does alter the appearance of the original pattern. Like the first group, these horses are whiter on average than a horse that only has the tobiano pattern, though in many cases they have less extensively marked faces than the toveros from the first group. But the biggest difference is that their white areas are broken into smaller, irregular patches. The outline of the pattern is also changed, often becoming ragged, lacey or roaned.

Horses in this group are believed to carry a pattern from the sabino family. Because a wide range of phenotypes fall under the generic heading of “sabino”, this group of toveros can vary quite a bit. The important thing to remember is that sabino changes both the structure and the outline of the tobiano pattern. If tobiano is the pattern that overlays all others, the sabino patterns are the ones that influence them all, and tobiano is no exception.

Toveros



“Sabino Boost”



The effect the sabino patterns have can be best understood by comparing the Icelandic mare to the left with the tobianos on the facing page. Her pattern is simple: there is color on the face, chest and flanks. The edges are smooth and suggest large, rounded shapes.

Contrast this with the patterns to the right. Their structure is more complex, with numerous patches that vary in size and often

overlap. Furthermore, the patches are less rounded, and outlines are often ragged or irregular. Some of the horses are extensively roaned or ticked with white.

These horses all carry some form of sabino patterning. The effect that sabino has on other white patterns is known as *sabino boost*. The presence of some kind of sabino-type pattern

Sabino patterns amplify white and erode color.

tends to increase the amount of white at the expense of the colored areas. The sabino patterns do more than just push tobiano towards the upper limits of its own pattern progression. If that were the case, tobiano-sabino would look like the Icelandic mare with possible addition of a white blaze. Instead they amplify the white while simultaneously breaking apart the colored areas into smaller patches. The end result is a more complex pattern. For most artists, trained as they are to value the interplay between positive and negative shapes, this is particularly appealing. Given the choice most would gravitate to the patterns on the facing page over the simple pattern on the Icelandic.

The other way that sabino alters tobiano is to erode the outline of the pattern. It is as if, after breaking the pattern down into smaller patches, sabino then applies its own characteristics to the edges.

Just how much the tobiano pattern is changed varies. Sabino is not a single, discrete pattern but a group of patterns that, while they share some traits in common, are themselves visually quite diverse. One of the best ways to get a sense of how sabino boosts the tobiano pattern is to pay attention to the differences between tobianos with a star (or less) and those with broad blazes. At the same time, compare those with heavily suppressed patterns. Boosting and suppressing white are mutually exclusive things, so recognizing how each one changes tobiano can help an artist avoid combining features of both on the same horse.



Color relationships



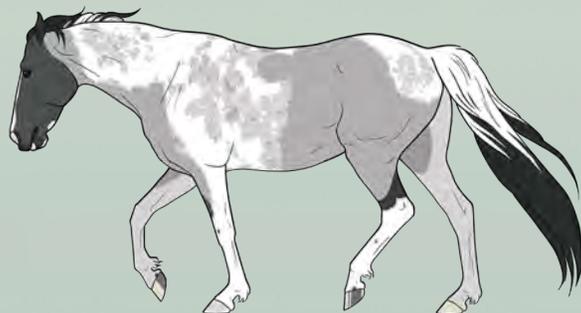
Horses inherit two copies of any given gene, one from each parent. In the past, each color or pattern was thought of as a gene. That meant that the options—the alleles—at the “tobiano gene” were *Tobiano* and *not-tobiano*. Horses that were homozygous for the pattern had gotten the *Tobiano* allele from both parents.

When scientists began to map the equine genome, some colors and patterns that had historically been thought of as distinct and separate were revealed to be mutations to the same gene. This was true of the tobiano pattern. Tobiano was mapped to a gene known as *KIT*, and the alleles there are not just *Tobiano* and *not-tobiano* (solid), but *Roan* and all of the formally identified sabino phenotypes (*Sabino1* and the twenty-one *White* mutations). Visually, these colors could not look

more distinctive from one another, but they are all options at the same genetic location. And because they share a location, a horse can only have some combination of two of them, one from each parent.

This has importance when painting homozygous tobianos. By definition, a homozygous tobiano already has its two alleles at *KIT* taken. Filling in an ink-spotted homozygous pattern with a dark-headed roan color would be unrealistic because the finished model would represent a horse with three copies of the same gene.

If what is wanted is a complex outline with softer contrast between the pattern and the body color, a roany sabino-tobiano combination will give a similar look without being unrealistic.



Do not paint **this**.



These are toveros, right?

At first glance, the two horses pictured above appear to have tobiano patterns influenced by “sabino boost”. The custom glazed Okie Rio at the bottom of the page has a similar pattern, with color on the head, chest and flanks. Are his black socks caused by a recoloring factor?

These horses do have sabino-boosted patterns, but they are not tobianos. All three are frame overos. The pattern on the Okie Rio was directly copied from a registered Paint Horse; that horse did not have a single tobiano in her extended pedigree.

The traditional rules for distinguishing tobianos from “overos” were made with the frame overo in mind. How then could a frame overo ever be mistaken for a tobiano? It happens more often than many might expect, and part of that reason is that those rules—however familiar!—are inaccurate.

One common rule states that with overos, white does not cross the topline. When a frame overo pattern is boosted, the white often does cross the neck and may even cover large areas of it. At the same time the white will often extend down the girth area, breaking the characteristic “frame” along the ventral side of the horse. This isolates the colored area on the chest in a way that closely resembles the shield of a tobiano pattern. That is why many sabino-boosted frame overos have forehands that could easily be mistaken for the forehand of a sabino-boosted tobiano.

Most frame overos retain color on their hindquarters even when their pattern is boosted, because it is part of that pattern’s area of exclusion. Extensively marked frame overos often have “rosettes”—patches of color on the flanks. As the Okie Rio shows, that also mimics the placement of the colored patches on a tobiano.



Tobiano Mimics

The black front feet on the Okie Rio are a good clue that he is a frame overo, but as the previous section on recoloring discussed, some tobianos do have colored socks. How does an artist know that he is not a tobiano? The best indicator is the band of color along his spine. This image of the roany frame overo from the previous page shows how that same strip travels over

This strip of color is the clue.

the croup to include the tail and the buttocks. Often there are patches of color on the backs of the hind legs as well.

The horses pictured here have what looks like sabino influence on their patterns. There are frame overos with extensive white with smoother edges. Those unfamiliar with how frame overo interacts with tobiano will sometimes see the tobiano-like forehead and smooth outlines paired with colored legs and imagine that the two patterns are “fighting it out”. But as discussed in the chapter on pattern combinations, tobiano asserts itself over all the other patterns. Even the sabino patterns, which will influence any white pattern present, do not obscure the fundamental look of the tobiano pattern.



There is another feature of the frame pattern that can mimic tobiano, and that is the characteristic narrow slashes of white on the inside forearms. Those familiar with the partial white rings on some tobianos with high colored socks might wonder if the horse on the facing page had recolored legs. If most of the legs are colored and the only white on the legs is found on the inside forelegs like this, chances are good that the horse is a frame overo and not a rare recolored tobiano.



Tovero vs. Splash White

The placement of the colored patches on white-faced toveros and some splashed white horses can be very similar. If the horse has a dark eye or partially dark eye that is a good clue that it is a tovero; unless strongly suppressed, homozygous classic splashes have two blue eyes.

Tobiano vs. Markings




Some breeds are prone to high leg white while the face is conservatively marked, closely mimicking a minimal tobiano pattern. The suppression caused by the cryptic modifier can also result in tobianos that could be mistaken for solid horses with ordinary white markings.

Phenotype overlap

As the three frame overo horses show, even patterns with significant differences can be misleading. That is because phenotypes—the outward appearance produced by a particular gene—almost always have some visual overlap with one another. This is particularly true for patterns that fall on the extreme ends of expression (either minimal or maximum amounts of white) or that have been altered by modifiers.

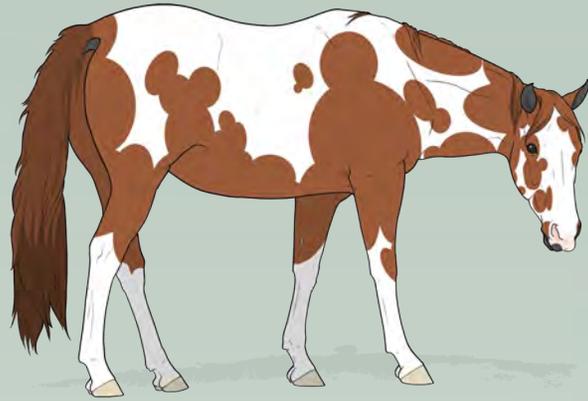


For this reason, visual identification of patterns does have its limits. A good example are those tobianos that have been dramatically suppressed by the cryptic modifier. The most common result is a horse or pony that has only small amounts of white on its legs. There may be no white on the body and even the tell-tale shape seen on the hind leg markings of some minimal tobianos may not be there because the markings are too low. In those cases the only way to know that tobiano is present is a genetic test or perhaps production records. Sometimes knowing the breed can provide clues, if either tobiano or ordinary white markings are known to be absent in the population. But if all the artist has on hand is a reference image with no identifying information, it may be impossible to know for certain.



This is a good reminder that there are times when good notes can eliminate potential confusion. It is never a bad idea for artists to include relevant information like breed and testing status in their files, when those things are known.

Design Errors



This is a design error.

Early in an artist's career a great deal of focus is placed on the mechanics of painting, of applying and blending colors with finesse. Although skillful execution is an essential component of realistic finish work, there is another equally important aspect: accurate pattern design. While an inexperienced eye may not be able to explain the exact reason, inaccurate patterns will look wrong. Design errors break the illusion that the viewer is looking at a living horse.

The figure above illustrates the common design error of taken the concept of the tobiano pattern as a network of interconnected circles to an unrealistic extreme. While it is true that the pattern does give the appearance of round spots that have grown together, it should be remembered that while basically oval in shape and clean-edged, tobiano spots are not completely round or completely smooth. Furthermore, their intersections with one another are not always precisely defined. While indistinct, undulating blobs are inaccurate for almost any white pattern, not all overlaps produce a crisp point or notch.

Diagraming the circular construction of a tobiano pattern, as was done with the image on the facing page, can be helpful when trying to understand the basic structure of a particular pattern. However, it is just the



framework of that particular pattern; it is not the actual pattern itself. A closer look at each circle shows that the pattern regularly deviates from the template, dipping inward or straying outside the line. The close-up images of the croup (*lower left*) and the shoulder (*lower right*) show these irregularities even more clearly. Although the complexity of this particular pattern suggests that it has been boosted by sabino, the outline of even the simplest pure tobiano pattern is going to show some degree of irregularity. Capturing that reality is essential if the goal is producing a life-like finish.

The second error in the design is that instead of breaking and eroding the large areas of color, the influence of the sabino pattern is portrayed as shrinking and then multiplying what look like almost perfect circles. The overly round, overly smooth spots of color would be inaccurate for an ordinary tobiano, but that is even more true with boosted patterns because it omits the ragged, irregular outline that is characteristic of the way sabino patterns interact with tobiano.

Not all sabino-influenced tobianos have pronounced ragged outlines. The extent of this does vary quite a bit depending on the type of sabino pattern that is inherited. Some, like *Sabino 1*,



are notable for the degree to which they disrupt the shape of the colored areas. A good rule of thumb is that as the average size of the colored areas of a pattern get smaller, they become less recognizably circular.

The irregular outlines of sabino-boosted patterns introduce another common problem, which is excessive regimentation. Unlike the previous problem with the circles, however, this is not generally an issue with understanding, but with the difficulty the human mind has with generating random sequences. We are designed to make patterns, and artists perhaps more so than most!

That means the chaotic outline of a sabino-influenced pattern is a considerable challenge. Even when you notice that you have slipped into a regimented pattern, your brain will be inclined to offer an alternate pattern to replace it. The solution to *ABABAB* then becomes *ABBABBAB*. There are a few tricks to get around this, like rotating through multiple projects with each painting session or varying the size and type of tool used. It is also helpful to recognize what some of the common regimented patterns look like.



Common types of regimentation

Trees and clouds

These round scalloped shapes, and the notches that are their negative space counterpart, call to mind the way young children draw clouds or trees. They are probably the most common form of regimentation for artists who paint white over colored areas. A good exercise for overcoming this type of regimentation is to print out close-ups of edges from similar patterns to your references, and then go over the outline with a thick black magic marker. When you sense you are drifting into autopilot, attempt to copy the twists and turns of your reference lines.



Solar system clusters

This type of regimentation is so named because it features sporadic clusters of circles, usually featuring one (possibly two) larger ones orbited by a collection of slightly smaller ones. While the “trees and clouds” pattern of regimentation tends to crop up when adding white, this one tends to be an issue when an artist is applying colored spots to a white background. It is an especially common problem on leopard appaloosas, but artists painting ink spots fall into this trap as well. Referencing a negative image (so that the spots are white on a dark background) sometimes helps overcome this tendency.

Waterway maps

This type of regimentation resembles the aerial view of a typical man-made lake, with branching “fingers” of white at regular intervals. Variations on this type of interpretation are very common when artists attempt to duplicate the lacey, irregular nature of sabino-influenced edges. This is a situation where outlining close-up edge references can help. Another trick for very ragged or lacey patterns is to block in the general shape of the pattern with tool that introduces an element of true randomness. This can be a brush with cropped bristles or even some crumpled sandpaper. Afterwards the edges can be cleaned up and refined with your regular tools.

Not circles, but not lines

At the opposite end of the spectrum from covering a horse with colored circles, some artists become intrigued by the shapes made in the negative space formed by overlapping circles. Instead of a white horse covered with colored bubbles, the image is of a colored horse covered with broken, irregular white lines.

What makes this type of design visually interesting is the vague suggestion of circles. There are real tobianos with white “lines” that suggest connecting circles of color, as the photo

to the right shows. This becomes a problem, however, when an artist decides to use a large number of smaller circles. Tobiano patterns become more complex—they acquire more “circles”—





You can boost or suppress, but not both.

when a sabino pattern causes the white to spread. If the white was suppressed, the pattern would not have spread in the first place.

This situation highlights the importance of context when designing patterns, especially when creating a composite pattern from multiple reference images. What may seem like a small detail may tell a significant story. The bay tobiano above has a strongly minimized pattern, yet she also has a broad blaze. A face marking might not seem very important, but when it is present, suppression affects *all* the white on the horse. Likewise, while the badger-faced horse at the bottom of the page looks like she has only minimal white, her face markings are not suppressed. Underneath that badger spot, she has the same unrealistic broad face white as the mare at the top of the page.

Just as with the problem with roan homozygous tobianos, there is almost always a way to get a similar visual effect that are realistic. For example, it is possible to find minimally-marked homozygous tobianos with abundant, interconnected ink spots. That type of pattern is not exactly the same as the buckskin pony depicted above, but it might be close enough to have similar design advantages for a particular sculpture.



Adding a badger face does not fix the problem.

A three-dimensional sketchbook

One of the most useful tools for training your eye for patterns, and your hands to capturing their details, is a three-dimensional sketchbook. Although keeping a traditional paper sketchbook is a useful practice for any artist, there is something fundamentally different about rendering patterns on a sculpture. Having a dedicated form for exploring and practicing pattern design can greatly aid understanding.

Any model horse can be used, though selecting one with reasonably accurate anatomy in the scale you most often paint is the best approach. Unpainted plastic, bisque or resin are ideal, but a spray can of black chalkboard paint can be used to transform a factory mold into a reusable canvas. What you want is a surface that will show a line drawing but that can be easily erased and reused. The best tool for drawing on unpainted plastic or resin is a grease pencil. Opaque watercolor (gouache) will also work since it can be rinsed off. For those with ceramic bisques and a kiln, ordinary pencils can be used and removed by refiring, provided light pressure is used.

You can use this approach when designing a pattern for a specific project. By working out the design in advance, you can solve potential problems before working on a prepared model in less forgiving mediums. Where will the white cross the topline? If the pattern intersects the neck, just where will that place color in the mane, and how can that be used to advantage? What kind of edge will the pattern have, and what will be mapped?

Sketching patterns can also be used to assess your basic understanding. This best way to do this is to attempt to draw a particular type of pattern entirely from memory. The result can then be compared to a reference photo of the same pattern. For those with access to digital photo editing software, this is best done by taking a picture of the drawn pattern and placing it as a transparent overlay over the reference. Overlays can be particularly helpful for identifying habits of regimentation.



Breed Options

The mutation responsible for the tobiano pattern has been found in European remains dating back to the Bronze Age. By the Iron Age, samples can be found from China, Mongolia and Siberia. Because the pattern is ancient, it is present in a wide range of breeds and in many different countries. Its popularity has fluctuated with changing fashions, so there are a number of breeds where it was present in the past but can no longer be found.

Note that the breed groupings in this section are a little different than the ones familiar to exhibitors in model horse competitions. This system, which is based on outline and proportion, is discussed in detail in the upcoming *Guides for Judges and Exhibitors*. That issue, "More Effective Breed Assignment", has a publication date of March 2017.

Rustic Ponies

These pony breeds have not been selectively bred for refinement, and have a more primitive appearance



Current population: Banker Pony • Chincoteague Pony • Huzul • Icelandic • Java Pony • Kerry Bog Pony • Mongolian Pony • Pottock • Shetland Pony **Historical:** Fjords

Improved Ponies

These pony breeds have had Eastern blood added to give them a more refined appearance.



Current population: American Shetland Pony • Australian Pony • Batak • Felin Pony • German Classic Pony • German Riding Pony • Lewitzer • Miniature Horse **Historical:** Hackney Pony

Cobs and Light Draft

These stout breeds are not quite as massive as large Draft horses, but are heavier than riding horses.



Current population: Gypsy Horse • Noriker
Historical: East Friesian • Groninger • Jutland

Large Draft

These are the true draft breeds, which can be further divided into Hitch and Heavy types. Hitch horses tend to be tall and more upright whereas heavy types are rounder and heavier in build.



Current population: North American Spotted Draft (hitch) • Polish Draft Horse (heavy) **Historical:** Shire (hitch)

Baroque Coaching

The first of the old Spanish types, the ancestors of these tall, upright horses were primarily harness horses, though many of the current breeds are not.



Current population: American Saddlebred • Campolina • Dutch Harness Horse • Standard-bred **Historical:** Hackney Horse • Gelderlander

Baroque Riding and Jennets

This second group of old Spanish horses were traditionally used for riding. Jennets descend from the Spanish horses used to colonize the New World.



Current population: American Curly • Brazilian Pampa • Criollo • Mangalarga Marchador • Mangalarga Paulista • Missouri Foxtrotter • Paso Fino • Spotted Saddle Horse • Spanish Colonial • Tennessee Walking Horse (all jennet type) **Historical:** Lipizzaner (baroque)

Eastern Bloodhorses

These light riding breeds were used extensively for outcrossing at the turn of the last century, and are associated with speed and refinement.



Marwari/Kathiawari • Malopolski (Polish Anglo-Arabian)

Warmbloods

These breeds were created by combining Eastern Bloodhorses with native light draft and coaching breeds.



Czech Warmblood • Danish Warmblood • Dutch Warmblood • Selle Francais • Trakehner • Wielkopolski

Stock Horses

These breeds were created using Eastern blood on primarily Jennet stock.



American Paint Horse • Australian Stock Horse



Early writers spoke of a pattern once found in the Fjord called skjevet. Described as having a white patch "from the neck over the wither and shoulder downwards" with "white on the legs", we know this pattern by a different name.

SKJEVET

TOBIANO

\$10.⁰⁰ US



Understanding the nuances of colors and patterns is essential to realistic finish work. In *Guides for Artists and Collectors*, Lesli Kathman takes the latest developments in coat color research and explains what they mean for those who create—or just appreciate—realistic equine art. Using primarily photos and illustrations, this series is targeted at visual learners as well as working artists.

Painting More Realistic **Tobianos**



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