20 *The scissors*

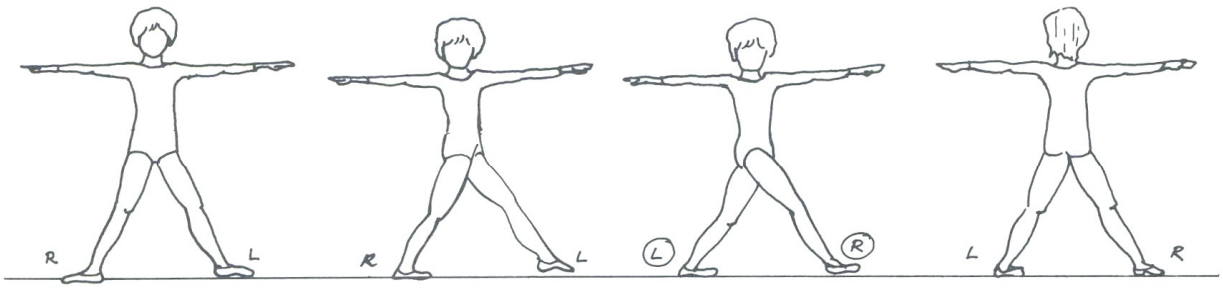
The scissors start block 2 of the compulsory exercises. When the two blocks are performed separately, the mount counts into the scissors. When both blocks are performed in sequence (as in an individual competition) the mill ends with the last leg over the neck, then a 'touch-down' is performed, meaning that the vaulter touches the ground only very briefly and rebounds directly into another mount. The mechanics for the touchdown are the same as for the mount at the jump-off point. This touchdown counts into the exercise of the scissors – so practise it often, as the scissors are difficult enough themselves, without getting deductions for a failed touchdown (or 'ground jump'.)

When training for the scissors with beginners, tell them *not* to be discouraged if it does not work right away...it never does!

What is the scissor movement?

Even among good vaulters there is a lot of confusion about what the judges are really looking for in the scissors, as it is a complex movement. Explain it to beginners as shown in the illustration, in a standing position.

Any scissoring movement will be entered into by turning the pelvis first. This means that the legs, which were in a *straddle position* before the first 90-degree pelvic turn, are now in a *step position*. The shoulders have not moved yet, but the legs look as though they are walking. Now they *do* walk, and this is the actual scissor movement. The vaulter's legs are again in a *step position*, but the other leg is in the front now. Then the pelvis completes the 180-degree turn and the legs are again in a *straddle*



Step 1: person seen from the front: legs are in straddle position

Step 2: upper body stays the same. Only hips turn 90 degrees. Feet are in the same spot, but legs are now in step position

Step 3: upper body stays the same. But the feet have taken a step (exchanging position). *This* is the scissor movement proper. Legs are again (or still) in step position

Step 4: hips turn another 90 degrees. Feet stay in the same spot, upper body turns and person is seen from the back. Legs are therefore again in straddle position

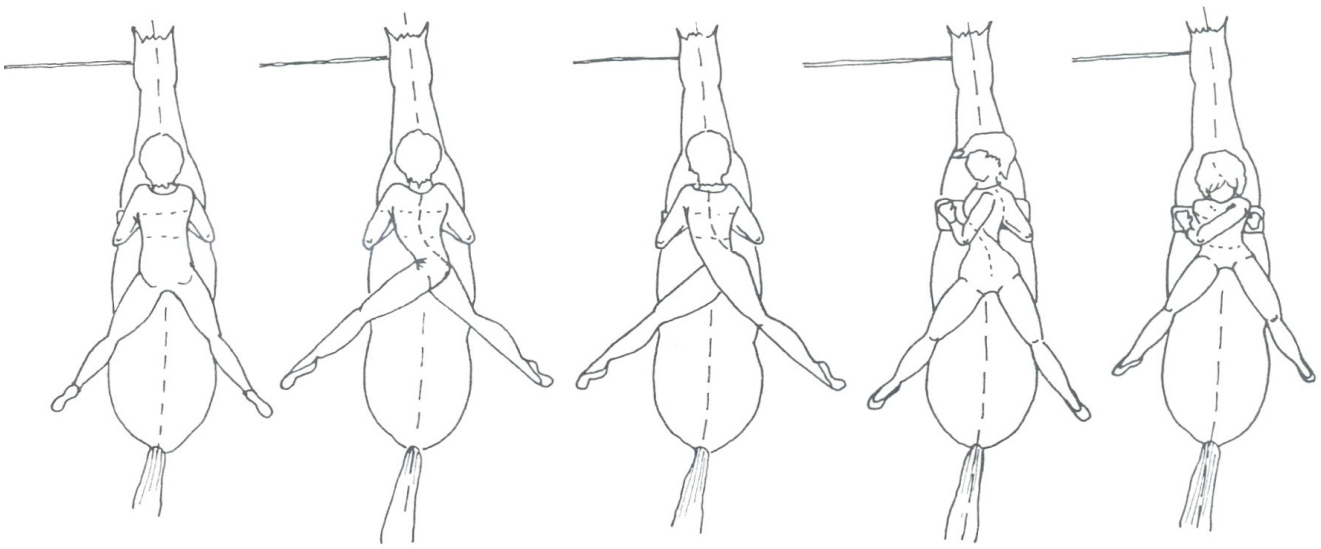
What is the scissor movement?

position. In the scissors on the horse he will now be sitting backwards.

Small children in particular find this a very difficult movement to *understand*, so let them lie down onto the barrel and turn them, by keeping their legs straight. Little vaulters very easily get confused about the direction, and this *is* one of the things that they *must* learn correctly, right from the beginning. Once they have the 'wrong turn' in their system, it will take ages to set them straight again, and confusion will last a long time.

- *Direction*: In competition a scissor exercise, which is performed in the wrong direction, counts as *zero*, just as badly as not performed! It is a mistake that nobody can afford... *The turn is always executed with left leg over the right*, that is, the stomach of the vaulter turns toward the lunger in both turns. Or in other words the vaulter turns to the back seat over the inside of the circle, and then *back* again, *not* performing a full rotation in this exercise, but rather two half ones.

- *Height and pre-exercises*: In order to be able to turn his body in the prescribed way, the vaulter must get his seat into the air, and this again implies a lot of arm work and good balance.



The straddle position seen from the top on horse

The first step position, preparing for the scissor motion

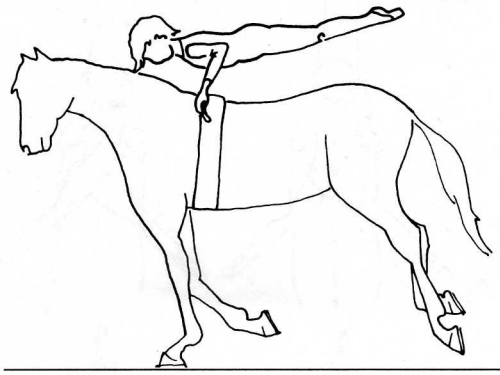
Here the scissor movement has been completed. Right leg is now inside

Pelvis has performed the second 90 degree turn

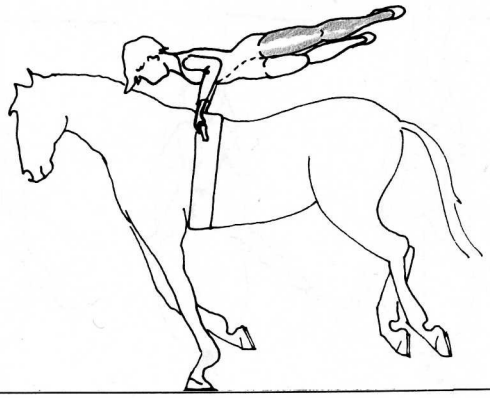
Shoulders follow and vaulter settles into backward seat

The scissors performed by beginners, especially heavier ones, can be a great discomfort to the horse, if the vaulter does not yet manage to position his gravity point over his hands in the swing and has the strength to maintain arm control for a soft landing after the turn. I believe that this is an exercise that should be thoroughly trained on the barrel before trying it out 'for real'. Under 'common mistakes' in the vault-off (chapter 17) we mentioned how to train the arm strength via assisted swings into the handstand on the barrel. The same thing applies to the scissors and the flank. The correct leaning over the hands to be able to maintain body control during the flight and landing phases, and the timing, of *when* to start the arm-push, are essential.

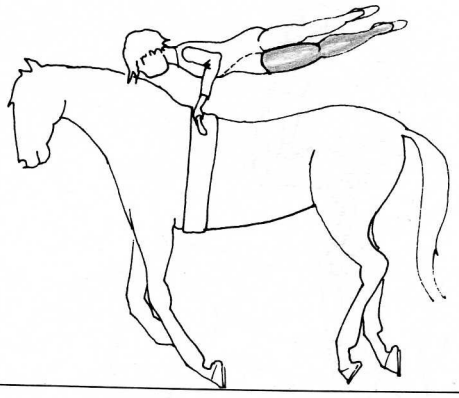
It is a common misconception that in order to perform the scissors correctly the vaulter has to be able to achieve great height above the horse. In fact the height which must be



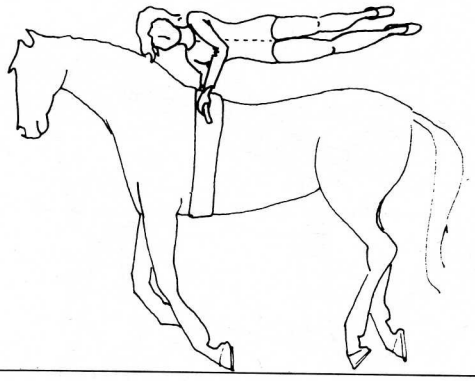
If you could see the scissors in slow motion, you would see the vaulter swing up, legs in straddle position. The following drawings show the scissor motion broken down into its components



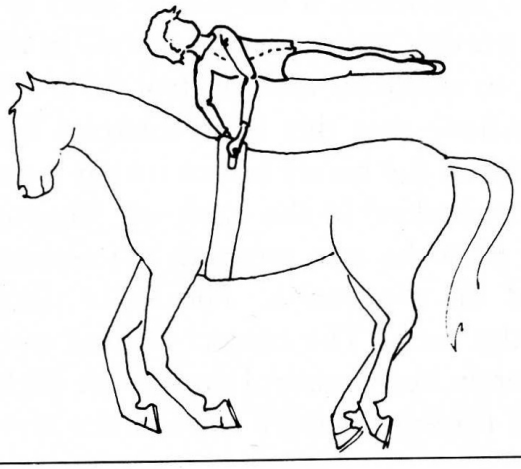
The pelvis now turns 90 degrees toward the lunger, therefore the legs are now in 'step' position. Left leg, the inside leg, is still on the inside.



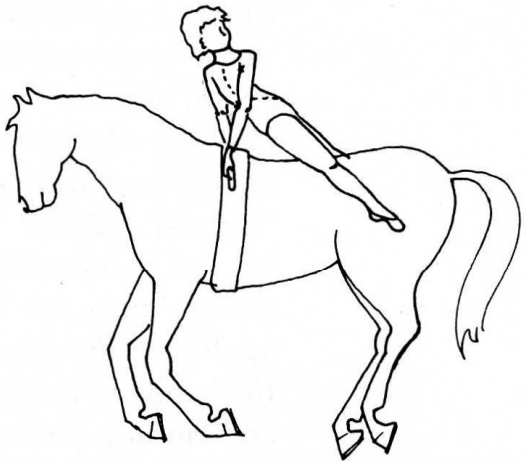
Here the legs have taken the 'step' which *is* the scissor motion. Now the right leg is on the inside



While this step is being taken, the shoulders will start to turn. The rotation must however be initiated by the pelvis



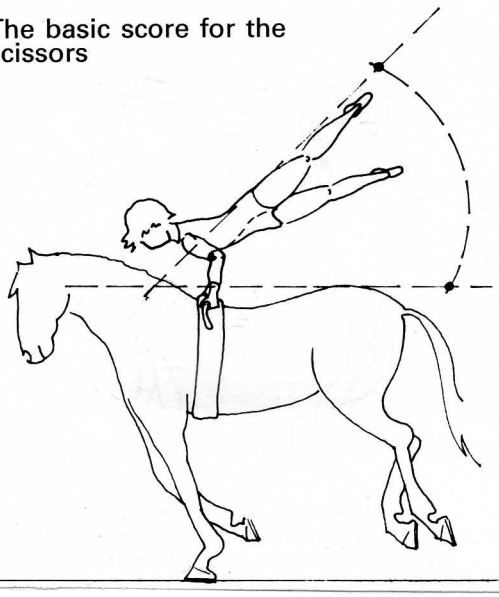
The pelvis performs a second 90 degree turn and now faces upward. Right leg is on the inside and...



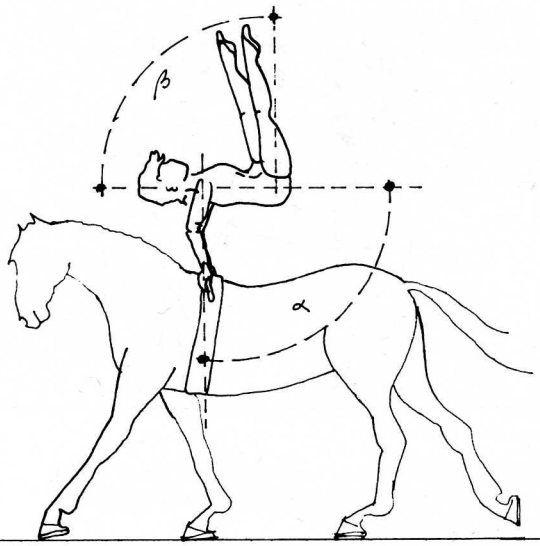
...the vaulter is in the correct position for the backward seat. Only the handchange must take place to free the shoulders for completion of the turn with the upper body

reached for a technically correct turn is only a clearance of the horse – and even, if beginners do in fact not yet clear the horse at all, the same technique applies. The illustration shows a technically correct exercise without great elevation. What can't be demonstrated in the drawings is that the rotation movement of the pelvis is of course not stopped at any point: so the scissoring motion must be performed while the pelvis continually turns – but it should be quite evident that the hips lead the movement and the shoulders follow. It is not desirable to chop the various parts of the motion apart, but rather all movements, the lifting and turning, should be executed simultaneously. The image to keep in mind is that of a 'Gothic arch', meaning that the feet should meet (or come together as closely as possible in the scissoring movement) at the highest point of the lifting and when the hip is at a 90-degree angle.

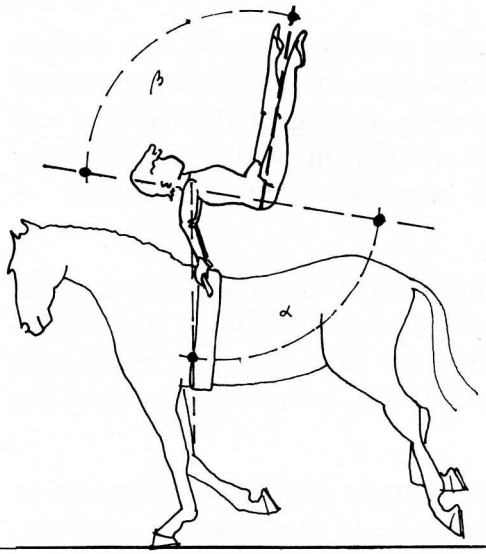
The basic score for the scissors



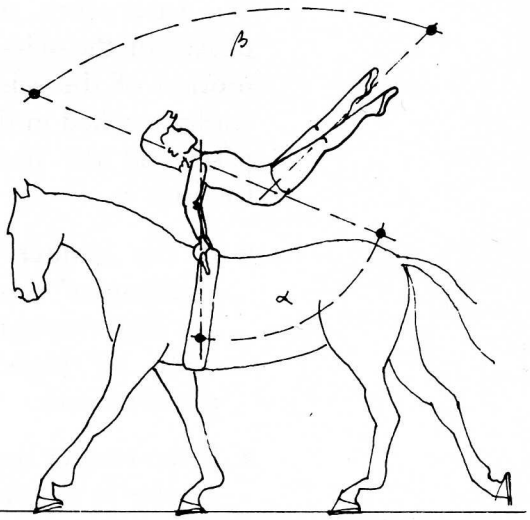
If the vaulter does not achieve an angle greater than 45 degrees, the basic score for the first half of the scissors can't be higher than 7.0, even if all else is perfect



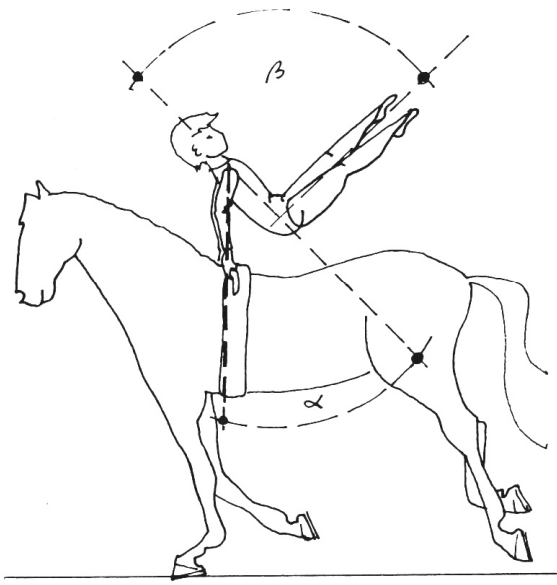
Reverse scissors: If angle $\alpha = 90°$ and $\beta < 90°$, this means perfect basic score of 10.0 for this phase



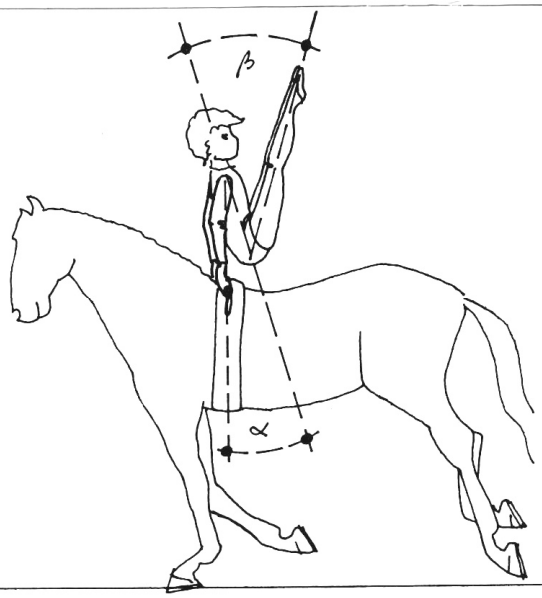
If angle $\alpha < 90°$ but $> 45°$ and angle $\beta = 90°$ then the basic score will be (as shown) ±8.0



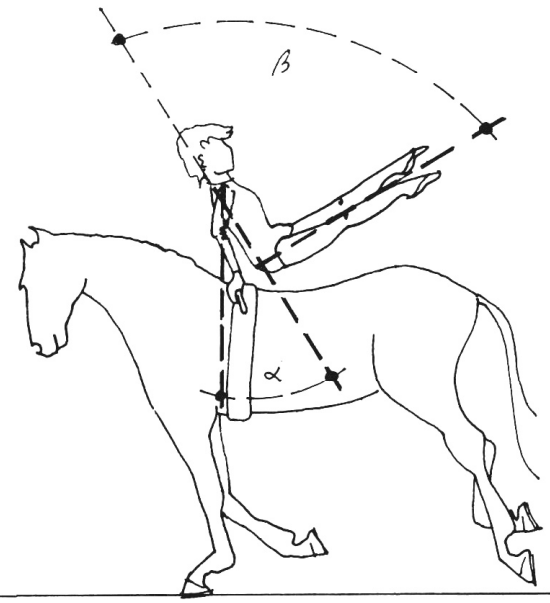
If angle $\alpha > 45°$ and angle $\beta > 90°$ then the basic score (as shown) will be ±7.0 to 7.5



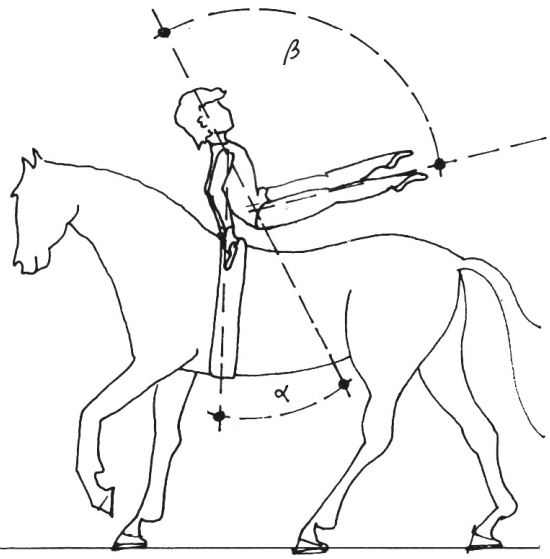
If angle $\alpha = 45°$ and angle $\beta = 90°$ then the basic score (as shown) will be ± 6.5



If angle $\alpha < 45°$ and angle $\beta < 90°$ then the basic score (as shown) is not higher than 6.0



If angle $\alpha < 45°$ and angle $\beta = 90°$ then the basic score (as shown) is not more than 5.5



If angle $\alpha < 45°$ and angle $\beta > 90°$ then the basic score (as shown) will be 5.0 or less

Basic score

The basic score, which the judge will give for the two distinct phases of the scissors, will depend on the mechanically correct motion of the scissoring as well as timing of the rotation and angles reached in the height, in relationship to the vaulter's body parts and the horse. This is best shown by illustrations, as follows.

- If the vaulter does not perform the scissor movement ('helicopter' scissors), that is, keeps the straddle position of the legs throughout the turn, the basic score for mechanics can't be higher than 5.0 (then minus deductions for performance).
- If the vaulter does not reach an angle of at least 45 degrees or greater in relation to the horse's back, the basic score can't be higher than 7.0 for the first half of the scissors.
- If the pelvis rotates too early or too late (slicing scissors) the basic score will not be higher than 7.0.

In the second phase of the scissors we are dealing with two angles:

- If angle alpha reaches 90 degrees (that is, the vaulter's back is parallel to the horse's back) and angle beta is 90 degrees or smaller, the basic score will be between 9.0 and 10.0 (the smaller angle beta, the better).
- If alpha is a minimum of 45 degrees and beta a minimum of 90 degrees, the basic score will be between 7.0 and 8.0 (the smaller beta, the better).
- If alpha is smaller than 45 degrees and beta around 90 degrees, the basic score will be between 5.0 and 6.0 (the smaller beta, the better).
- If alpha is smaller than 45 degrees and beta larger than 90 degrees the score can therefore never be higher than 4.5, or worse.

Keep in mind that these basic scores are concerned with the mechanics of the exercise only and from them will be deducted all other performance faults. Lacking height off the horse as well as a collapse on the elbows because of incorrect gravity point (a deduction of up to 3.0 points) are examples of performance faults.

Training 'whole–part–whole'

As the scissors contain the most complex movement of all compulsories, it is very important to train this piece by piece on the barrel. Start with the previously mentioned assisted swings into handstand and then introduce the first 90-degree turn of the pelvis into the swing. Tell the vaulter to swing up, keeping the shoulders facing to the front throughout, but performing the hip turn and landing with the legs in a clear 'step position'.

Now let some speed come into play, to train for precision. Tell the vaulter to execute the previous exercise, but rotate the hip *back* into straddle position before landing in the basic seat again. This introduces the feeling for moving the legs independently from a complete turn, and thus avoids getting into the bad habit of performing 'helicopter scissors'. (This means turning the whole rotation with legs in straddle position – no real scissoring movement.)

After these pre-exercises are mastered, perform the whole first part of the scissors. Keep in mind that this is the way to train your advanced vaulters! Don't bore your little ones with such detail, just make sure they turn in the right direction and maintain balance.

First phase

- *The pre-swing and downswing*: The vaulter starts from the basic seat position, then leans his upper body backward very slightly, but without rounding the back, to lead the legs (stretched and toes pointed) into the pre-swing. At the apex of this swing the

legs do not stop, but reverse direction in a fluid, ongoing motion. Greatest possible acceleration should be achieved in the downswing, and the vaulter should understand that the highest and most flexible pre-swing is of no use, when the down-movement is performed in slow motion, or when the legs are *guided* down. Maybe the vaulter's parents play golf: compare the swing of the club with this action of the legs: the momentum you want to get out of the swing, to aid you to gain height for the turn, *must* come out of the acceleration of the leg downswing. The arm push then helps raise the body and sustains the height achieved.

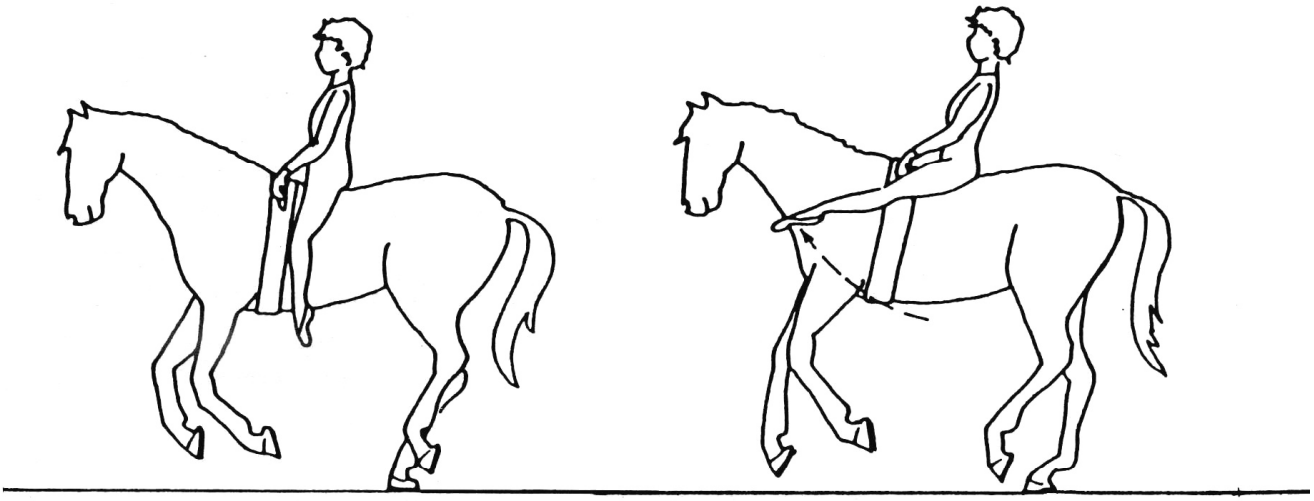
- *Through-swing*: In the through-swing phase the shoulders start to come down. Again, we are basically aiming for a straight body line throughout the first half of the turn, and if the shoulders don't come down, the legs can't come up, at least not without overarching the back (which is wrong). The approximate point as shown on the drawing, where the through-swing goes into the second upswing of the legs, is the latest timing of where the arms start pushing. In training I prefer the vaulters to collapse on the neck of the stationary horse (realizing that the arm strength is still missing), rather than avoiding the difficulty of the arm push by keeping the torso (the shoulders) up too high.

- *The up-swing*: The gravity point of the vaulter must stay *over his hands* during the whole flight phase. If this point shifts too far to the front, the exercise will collapse onto the neck, even if the arm push is strong. If it shifts too far back (which is common), the vaulter will push himself onto the back of the horse, rather than *up*, and land very hard approximately right in the kidney area of the horse. If the gravity point is not controlled and *over the hands*, the vaulter can not break his fall, and for both reasons, the going up as well as the coming down, the pre-exercises of swinging into the handstand on the barrel are essential.

- *The turn*: To explain the turn in the scissors we have to understand the concept of 'scissoring motion'. When the vaulter does his upswing, his legs are in a straddle position. As soon as he clears the horse's back the hips start rotating and the legs assume the step position. At the highest point of the upswing they interchange places, bypassing each other closely, and again are in step position – this motion resembles the opening of a pair of scissors, hence the name. Throughout, the hips continue their rotation so that the legs resume straddle position again just before landing back on the horse. You will experience that if you open your 'scissors' with a strong emphasis of 'left leg over right' opening, the correct turn will follow almost automatically. It will greatly diminish the confusion about the right direction of the turn. It is incorrect to straddle the legs wide and turn in this position. Also, if the vaulter just flails his legs through the air and lets the body follow, the rotation will usually not be terminated by the time the vaulter lands on horseback again. The rotation of the pelvis will start as soon as the vaulter clears the horse's back, and the scissor motion of the legs should happen at the highest point of the flight phase, and with the hip at about the 90-degree angle turn. In the scissor turn the left leg should cross over the right, forming said 'gothic arch' at the highest point – legs stretched and toes pointed, of course! As the hips complete the rotation, the arms continue pushing all the time to assure a soft landing in the backwards position.

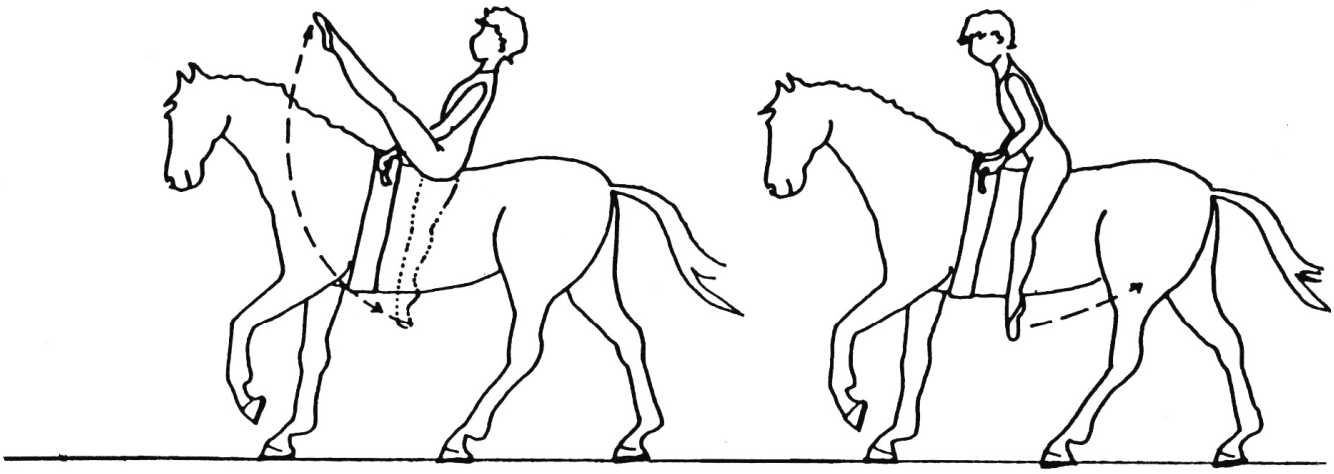
I keep pointing out to my beginners that there is *no* danger of their body *not* coming down again...it is very important to train them for the continued push after reaching the apex of their upswing. Only this, in conjunction with the *control* through keeping their weight over their hands, can assure the soft landings you want for your horse. If a vaulter crashes down onto the horse – back to the barrel! Don't let your most important team mate suffer unnecessarily.

The correct scissors: first phase



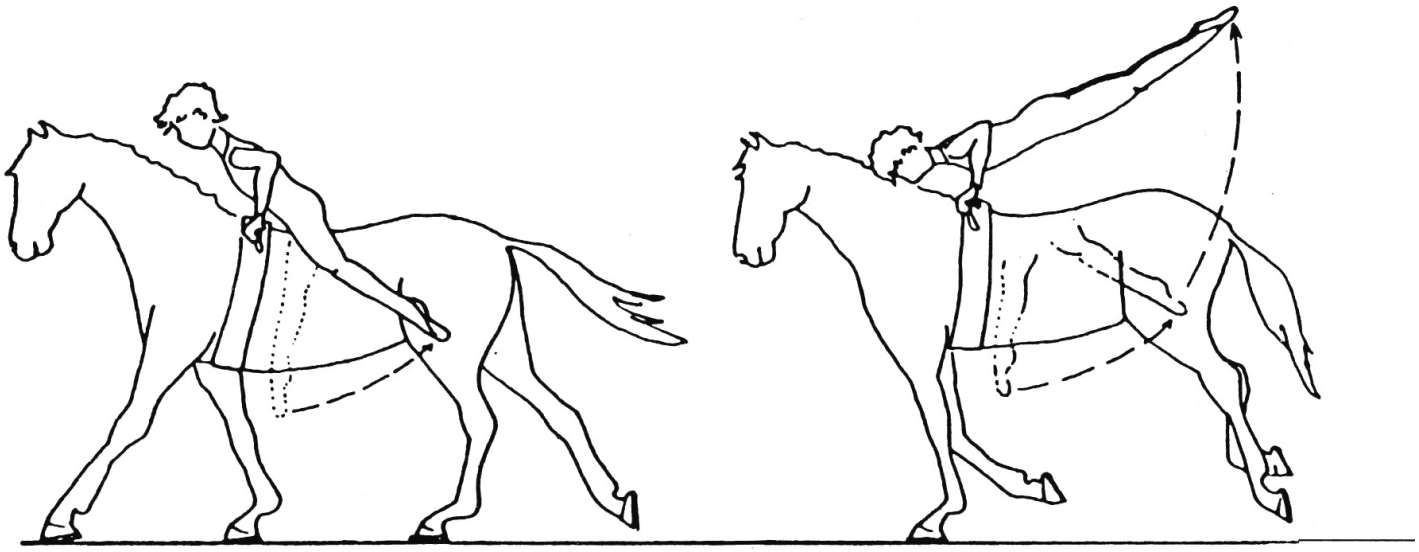
From the correct basic seat position...

...the vaulter goes into the up-swing. Body line stays straight, back may lean slightly



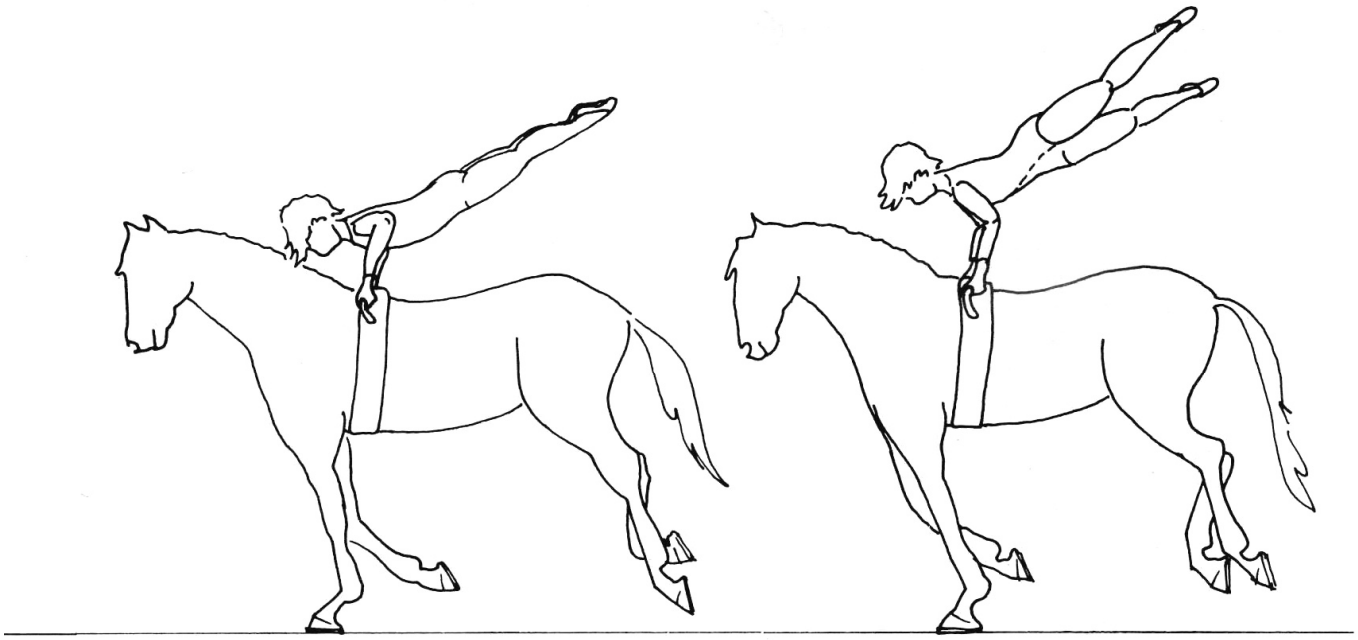
In the down-swing, legs accelerate

Vaulter must have his gravity point over his hands for effective arm push



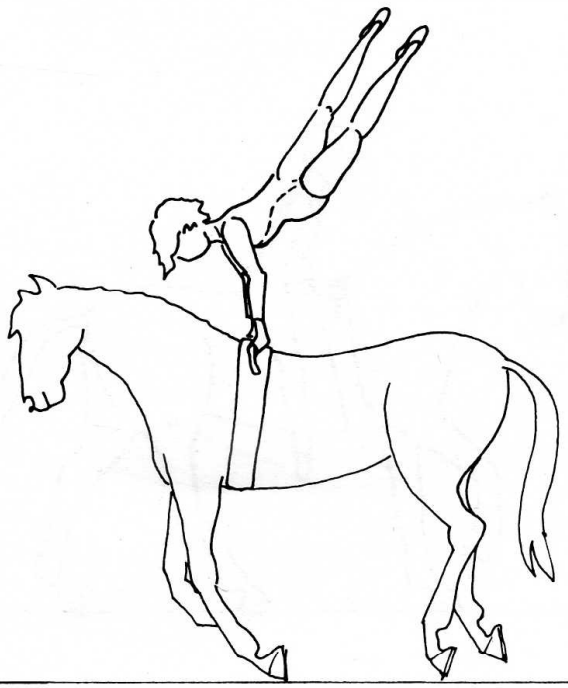
The vaulter keeps his weight over his hands while pushing, also retains straight bodyline from head over spine to toes...

...as the momentum of the horse's canter stride is used effectively for added height

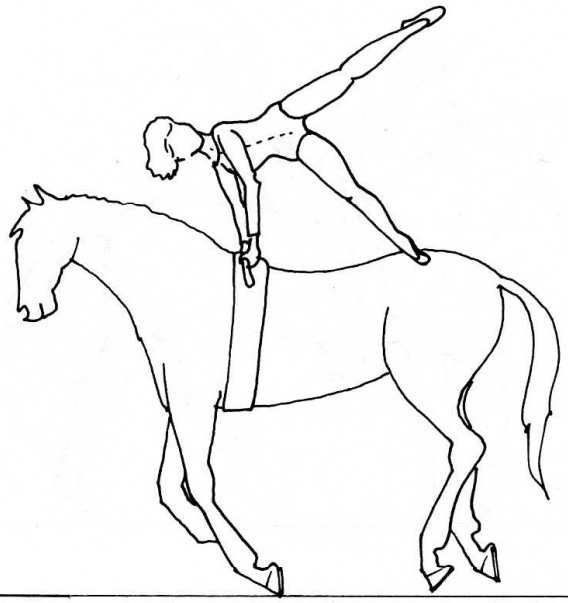


All stages of the scissor movement must be executed in one fluid, continuous, simultaneous motion. The vaulter swings up, legs in straddle position, gravity point must be over the vaulter's hands throughout

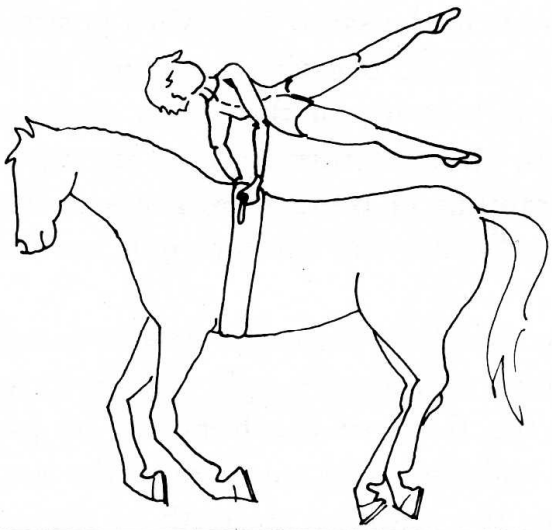
The pelvis starts to turn, left leg is still on the inside, (shaded leg in background) legs are in 'step' position



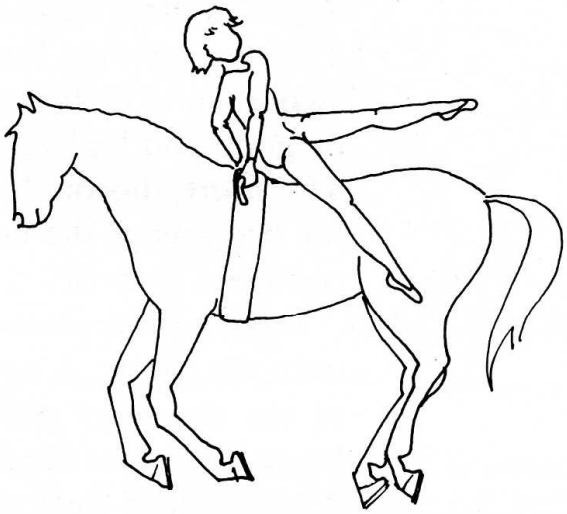
While gaining more elevation, the scissor movement was performed and the right leg is now on the inside, still in 'step' position. Legs come close together at the apex of the flight. Hips are at 90° rotation, this is the tip of the 'gothic' arch



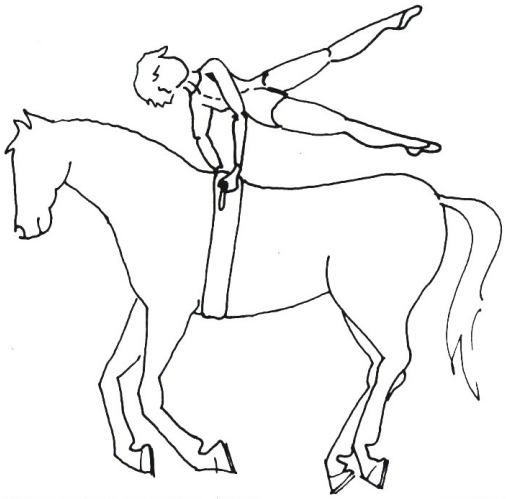
The vaulter continues arm support while coming down. Legs change into straddle position again, while the pelvis continues the rotation



The pelvis is now rotated 180° and legs are back in straddle position. Legs should not be apart wider than the width of the horse's body



The pelvis must be fully rotated before the vaulter settles down into...



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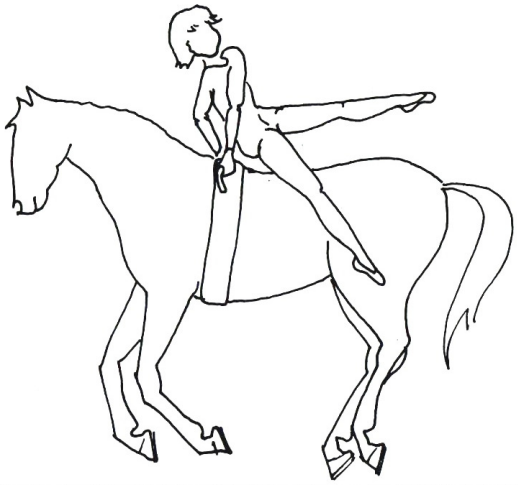


The pelvis must be fully rotated before the vaulter settles down into...

Second phase

- *Back kick and upswing*: The backwards seat position should be straight, chin up, legs long, pointed down and to the horse. The time delay before going into the backwards turn, although there is no prescribed canter stride count, should be as short as possible, which of course heightens the difficulty. Very good vaulters start phase two right after landing in the seat. A delay longer than four canter strides before phase two is considered too long for international vaulters, but for beginners it is important to draw a deep breath and briefly concentrate, and this delay can last as long as half a round on the circle. Longer than this shows great indecision: they must learn to make up their mind within six canter strides!

  Phase 2 starts with a back-swing of the legs, for which the stomach is stuck out to achieve greater extension (arc tension). The further the vaulter can take his legs back, the more momentum he can get out of the upswing of the legs.

- *Pre-exercises*: For this phase we also do pre-exercises during training. For the pre-exercise the vaulter swings both legs up and clicks them together over the croup of the horse. He then separates them again and lands in the same backward position. This is necessary for the beginner, because the action of the swing alone is difficult enough (without the turn.) and must be good and high, before an effective turn may be attempted. The more thorough the training in these pre-moves is from the beginning, the better and faster the vaulters will learn the complete exercise.

  During these pre-swings, train for a complete weight transfer onto the hands. A new vaulter can usually only feel the extent of the necessary shift (to the front of the horse) if he goes beyond it a few times and collapses backwards onto the neck. It also makes clear to them the required strength of the arm push, as we are aiming for a moment of suspension in the air.

  This 'leaning and pushing' motion, which must result fluidly out of an efficient swing, is very difficult. Little vaulters must literally lift their bottom over the step which the surcingle forms behind them. All vaulters have the conception that their torso is leaning much further behind the vertical than is actually the case. Use a video camera during barrel session, if possible, then stop the motion at the high point during replay.

  The leaning brings the vaulter's buttocks off the horse and is quite independent of the achieved leg elevation. In the basic score both aspects are addressed separately. Bringing the legs high is much easier than bringing the back into the ideally horizontal position, parallel to the horse's back. But swinging the legs up vigorously of course helps gain elevation for the back as well.

  It helps the vaulter to look at the point in the air where the toes should arrive at the highest point – imagining them there, brings them there. It also keeps the vaulter's eye level up, which is essential for the success in this exercise. If the back curves and the chin drops onto the chest, no height will ever be achieved in the back scissors.

You must train for soft landings (with strong arm control) in these pre-exercises, before the vaulter should attempt the actual turn.

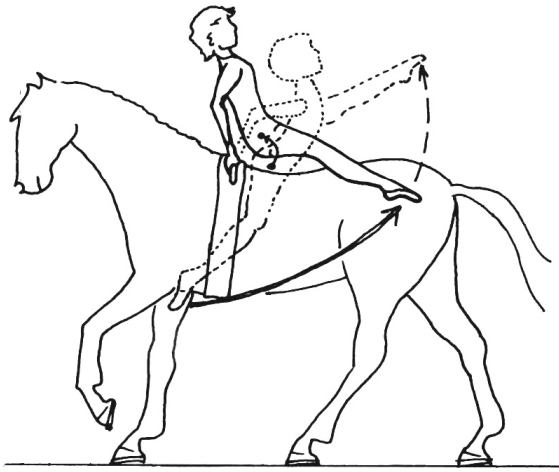
It is important to notice that the leaning angle of the back will greatly determine the scores which your scissors might achieve later. The more you lean your back to the direction of the horse's neck, the more difficult the exercise becomes. However, it is the *only* way to achieve greater height, as the performance progresses. It requires an optimum sense of balance, control of your gravity point precisely over your hands, and exquisite timing to 'lean' in step with the horse's canter motion, because the vaulter does not have much time to spend on this 'lean–push–turn' motion!

- *The second turn*: Once the pre-exercise works, the vaulter will train for the second phase of the scissors. The rotation of the pelvis again 'leads' the motion, and pre-exercises can be similar to those described under the first phase. The weight transfer onto the inner hand (the right hand), which makes for an easy and clean turn, can be practised by trying to release the left hand during training.

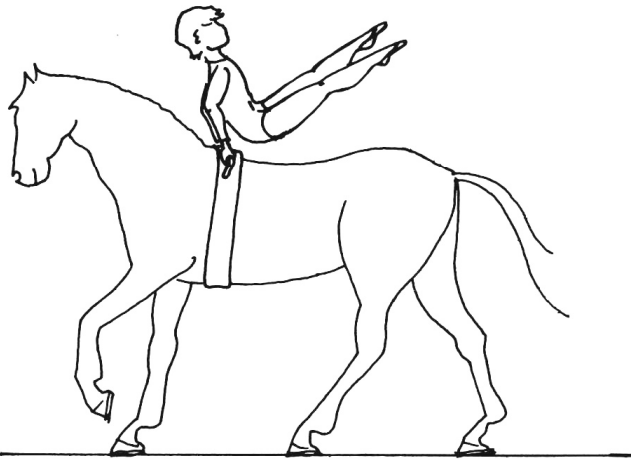
  At the apex of the swing, where maximum height over the horse and maximum scope of the legs is achieved, the legs will perform the scissoring movement and pass each other as closely as possible, while the arms must push strongly to sustain the height. The weight must shift onto the right (the inside) hand at the highest point of the turn. (Tell your vaulters to shift it even earlier, because they always have the time lag between thinking of it and doing it, and correct timing is of the essence.) The pelvis completes rotation before the upper body does, and the lower body must be fully rotated before landing in the seat astride at about the point when the weight shift onto the right hand is complete.

- *The weight transfer*: Vaulters with strong arms can actually let go with their left hand during the last phase of the turn, although they should not do so in competition. (The rules are

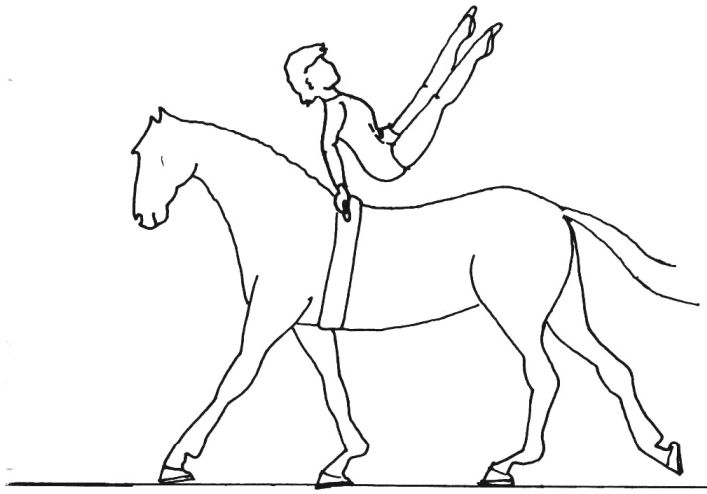
Correct scissors: second phase



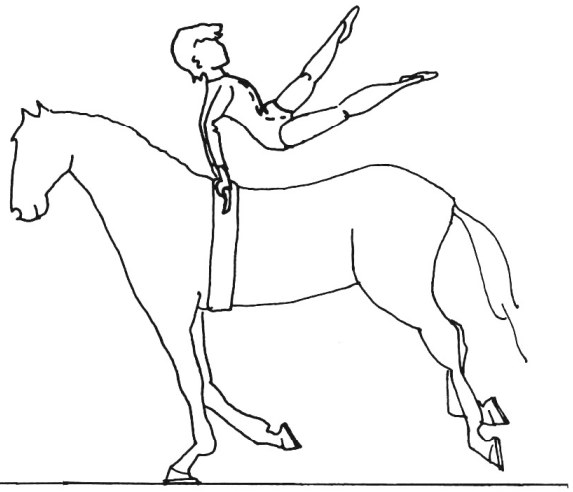
From an up-swing (out of good arc tension) the vaulter leans and lifts: gravity point must be over the hands again to be able to bring torso and hips up via arm push



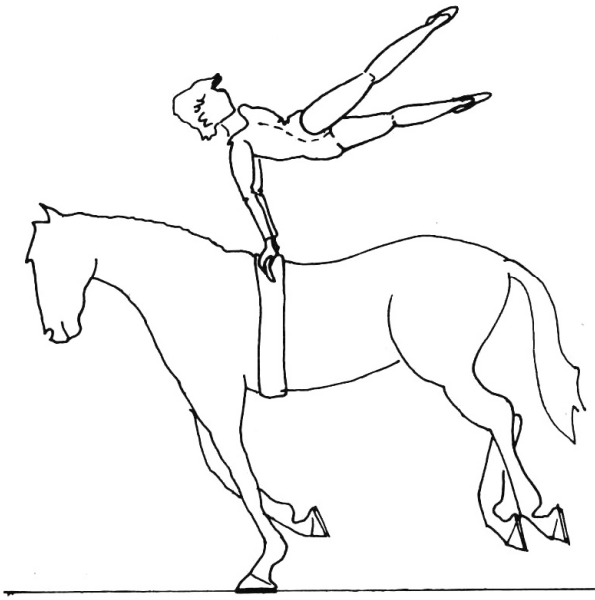
The pelvis starts turning as soon as the legs come up. Legs are still in straddle position.



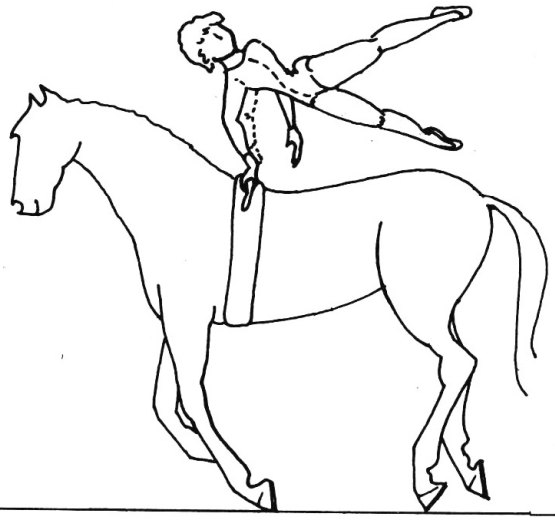
Torso and hips continue to move up while the pelvis starts to turn



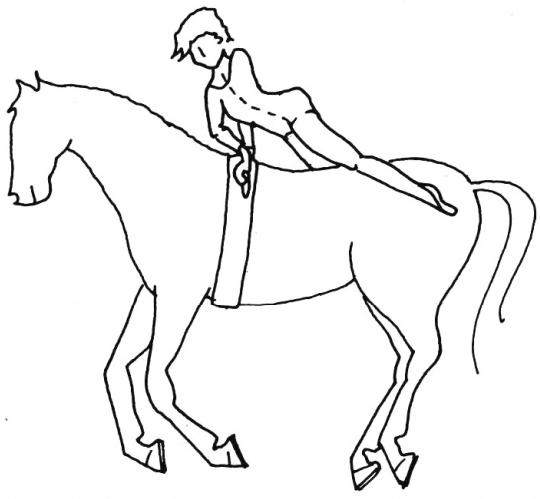
The hips have nearly reached the 90° turn, right leg still inside in 'step' position – now the scissor movement



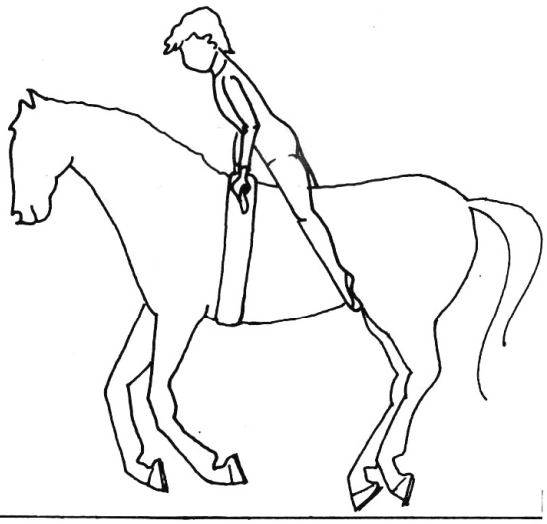
Scissor movement was performed at approximately the point of highest elevation. The right leg is now on the outside, still in 'step' position, hip at 90° and continuing the turn



The pelvis has turned nearly 180° again, legs are in straddle position (left leg inside). The weight transfers to the right hand. Let hand go in training only

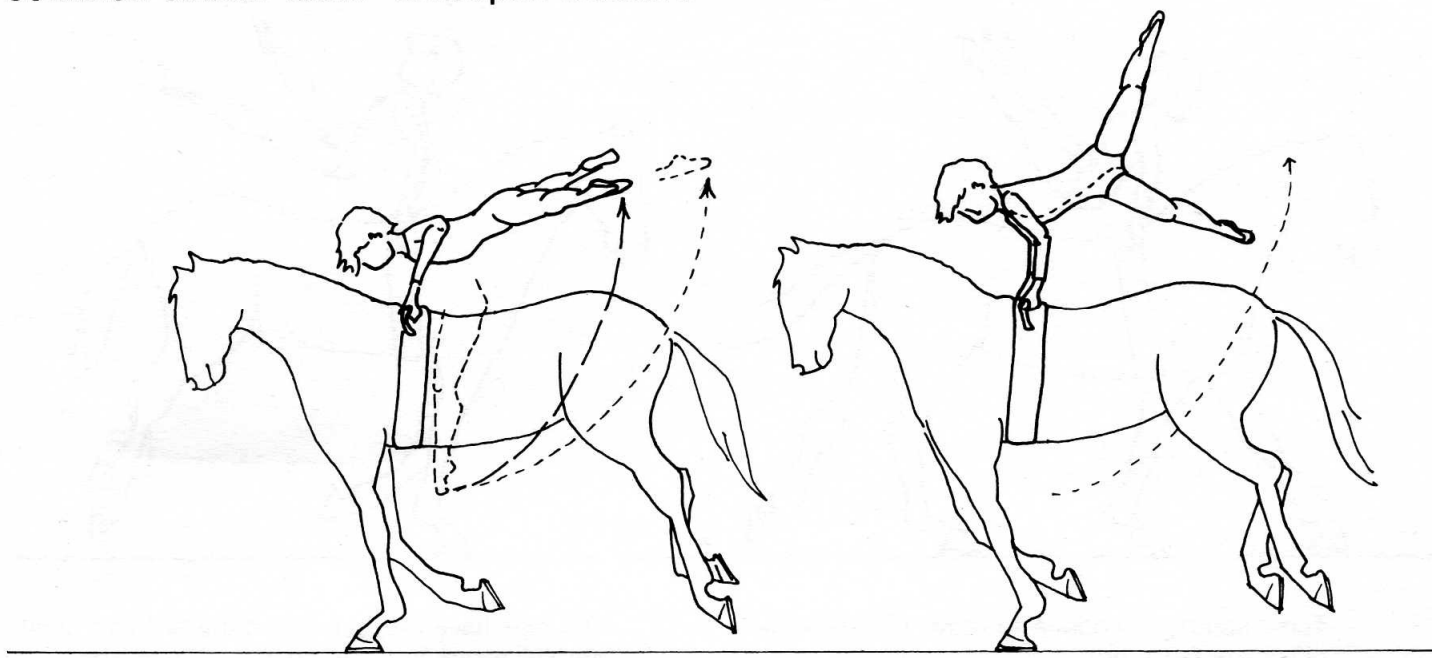


The gravity point must be over the hands throughout. The arms continue pushing until the very end to ensure a soft landing, and the legs (straddled no wider than the width of the horse's body) help in the braking action

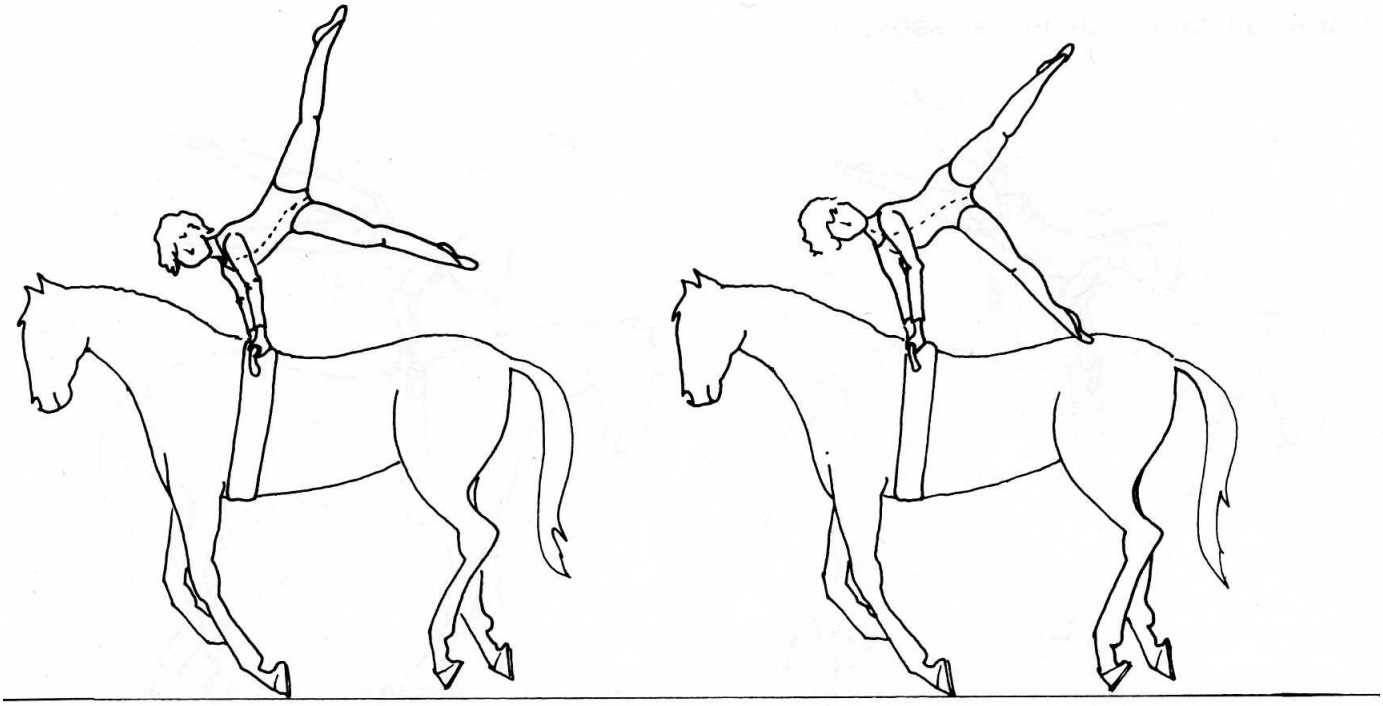


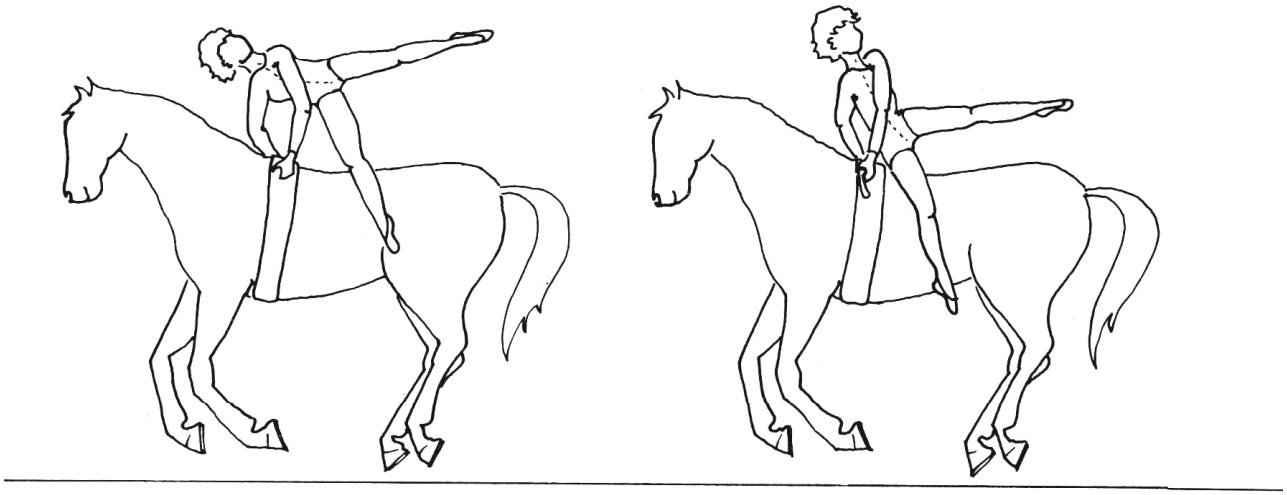
The hand change is performed during the end of the turn or immediately after landing softly in the correct spot for the basic seat

Common scissor fault: 'helicopter scissors'

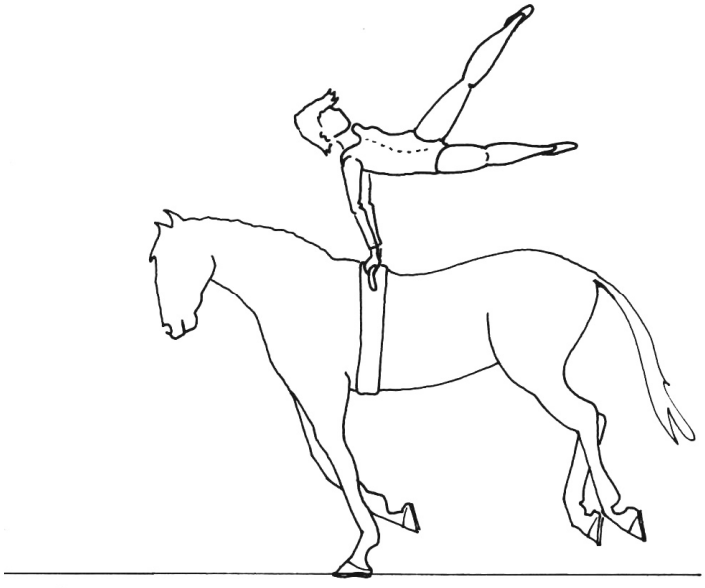


This is a common mistake, where the vaulter swings up in straddle position and then turns, retaining the wide straddle throughout. The actual scissor motion is never performed. The legs turn *with* the pelvis and never make the independent step movement.



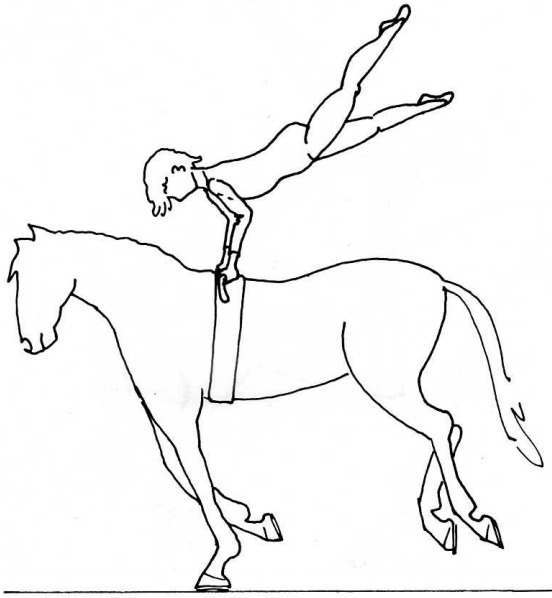


Although good height can be achieved, this performance will never reach a good score, because the mechanics of the exercise are wrong

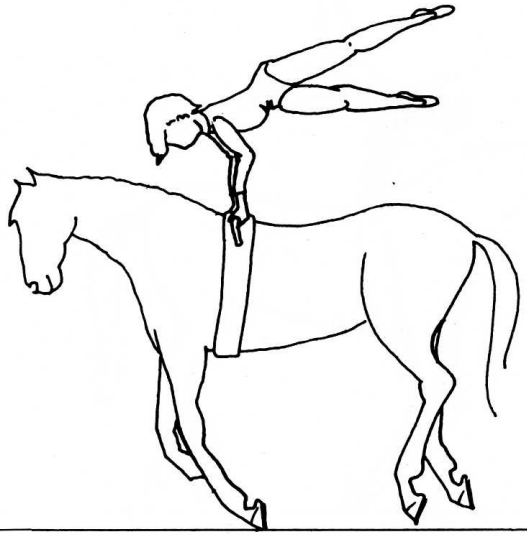


and the same applies backward

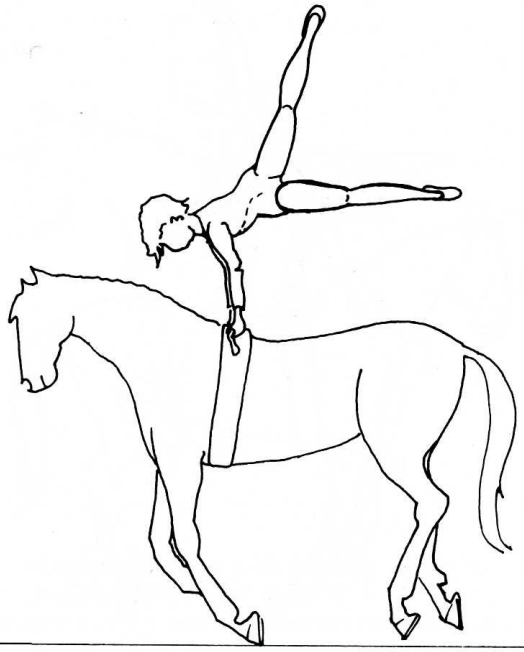
Common fault: 'slicing scissors'



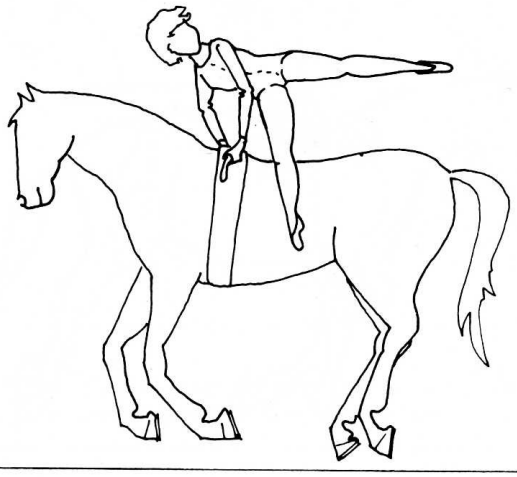
The legs, instead of the pelvis, introduce the turn. The hips come too late



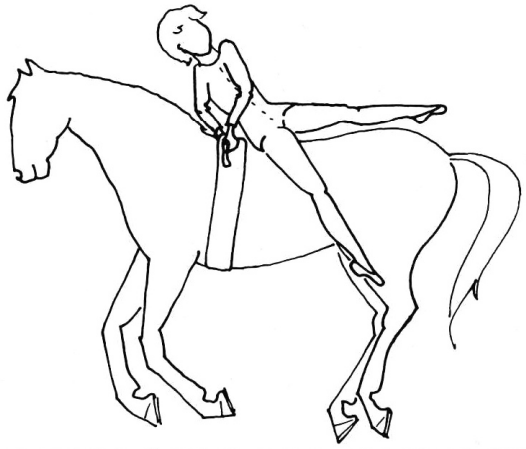
The right (outside) leg is trying to slice by to the inside, although the pelvis is not yet sufficiently rotated to permit a free scissor movement



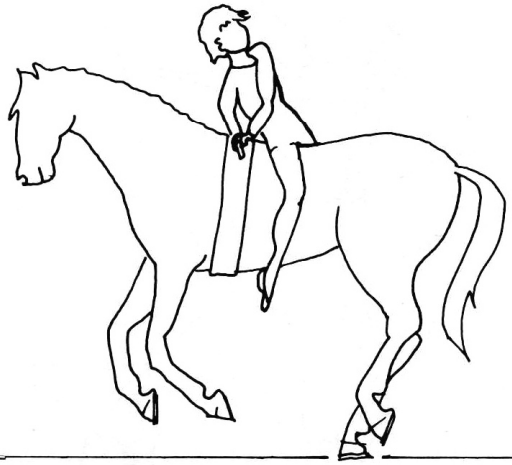
The legs have scissored long before the apex of the flight was reached. The 'gothic arch' with a tip is not achieved



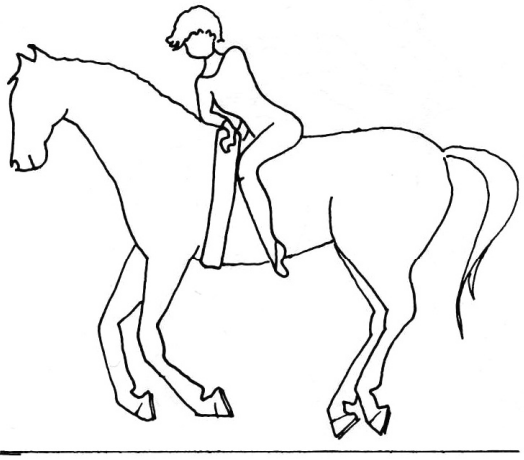
The rotation of the pelvis lags behind



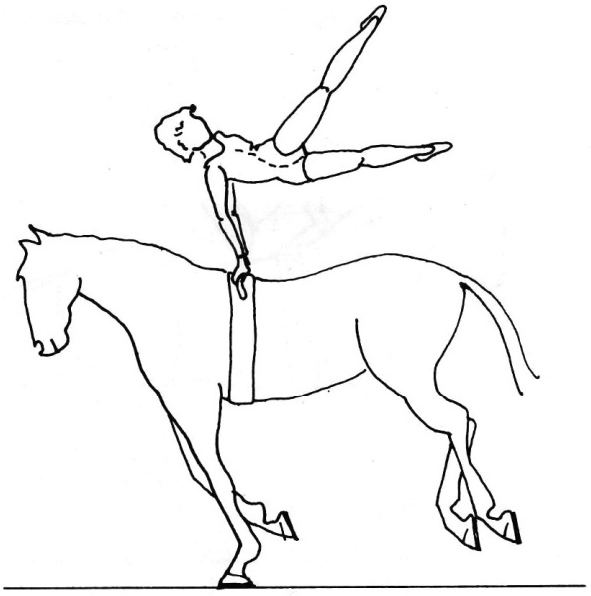
The vaulter lands with the legs before the hips have completed the full 180° turn



With incomplete rotation the vaulter lands off-centre and therefore usually hard

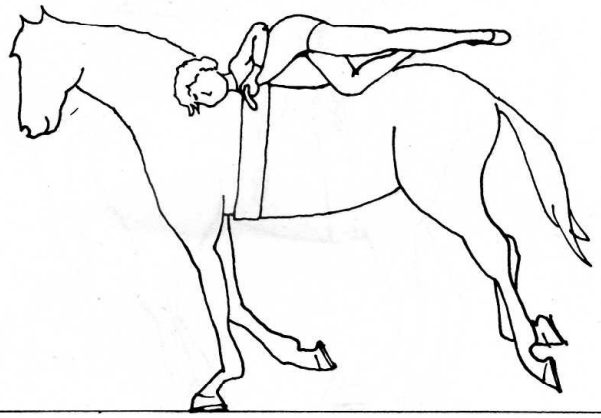


Especially in the second phase this means that considerable seat corrections are necessary

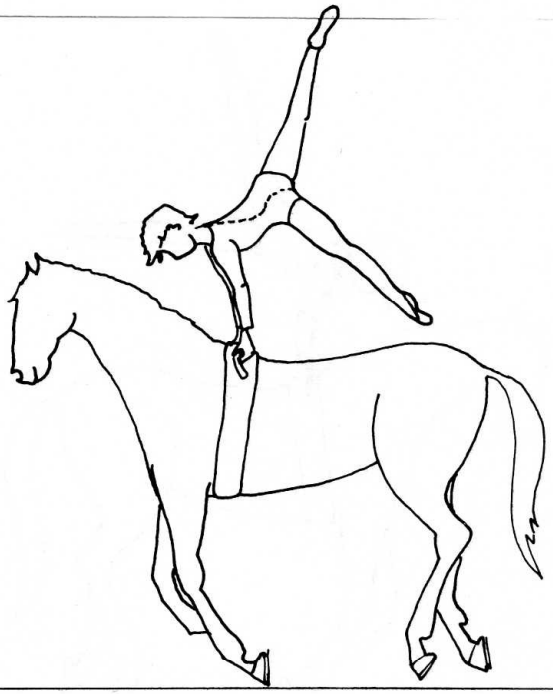


Slicing backward: at the apex of the height, the legs have already scissored and are fully back in straddle position

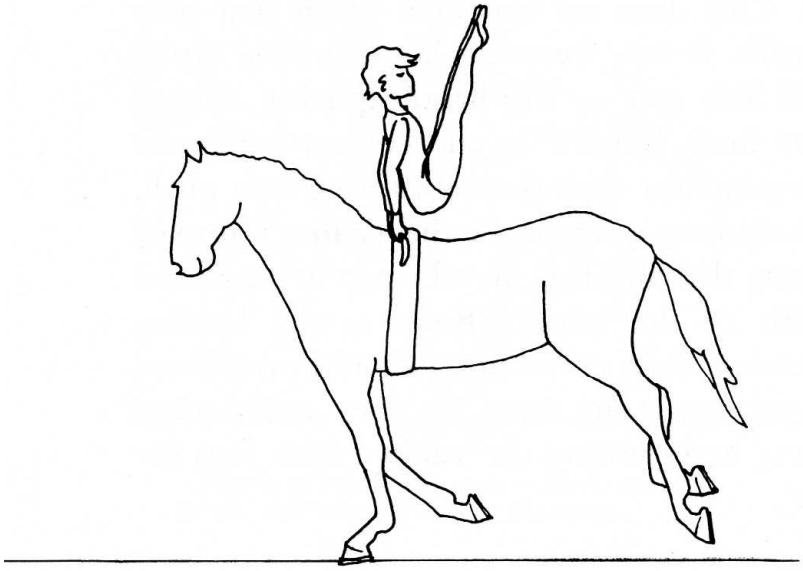
General common faults in the scissors



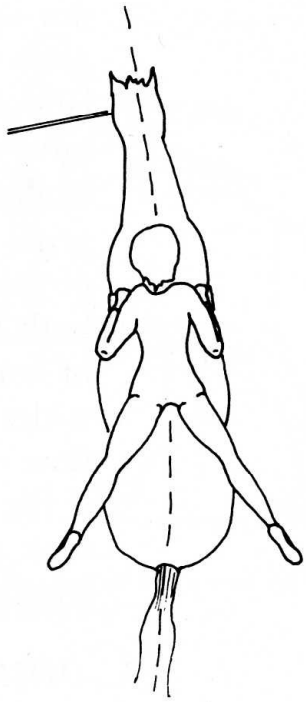
Typical beginner: collapse of supporting arms, trying to 'cheat' the right leg under the left which is made even more difficult by bending the legs (first phase of the scissors)



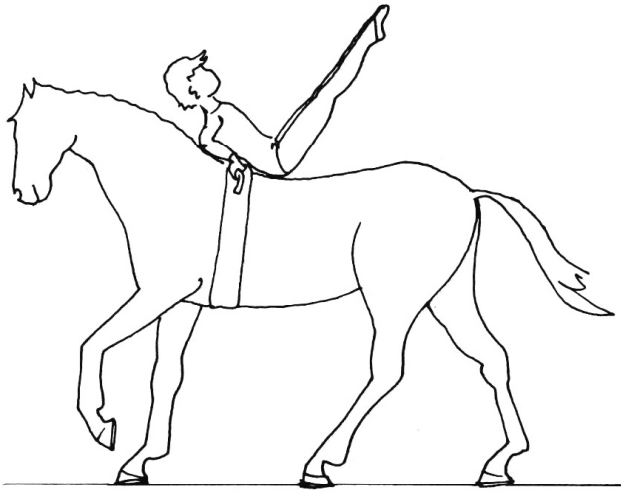
Wrong turn (first phase)



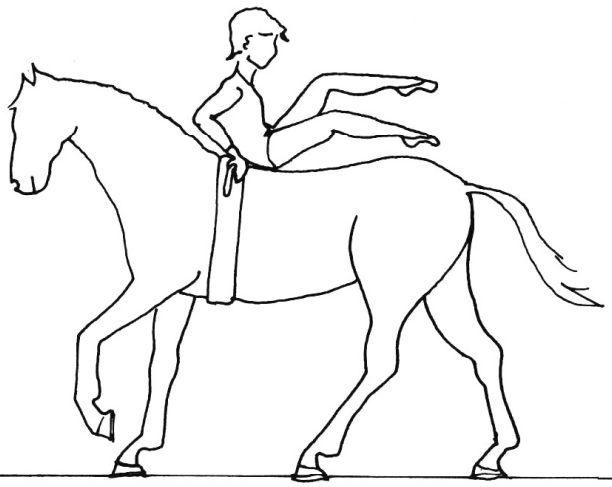
Upper body does not lean back, hips don't come up sufficiently



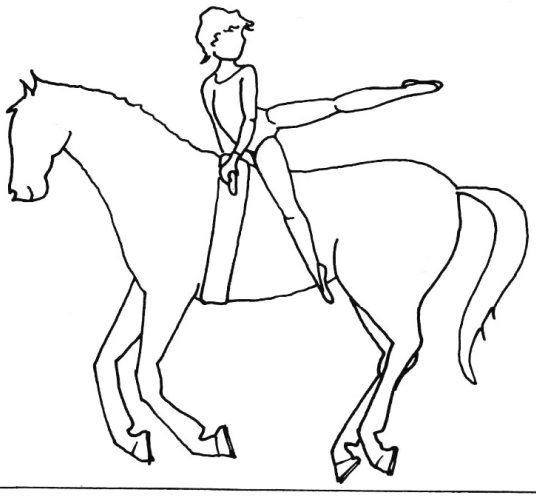
The vaulter pushes himself toward the croup: a sure sign that the gravity point is not far enough forward over his hands



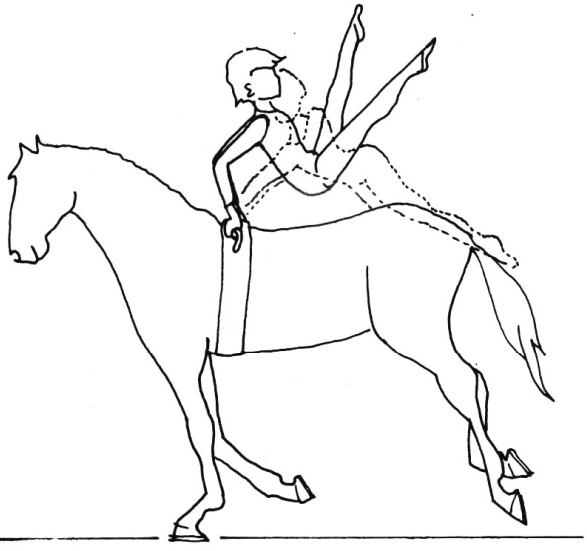
Collapse of supporting arms in the second phase, buttocks don't clear the horse



No arm push, the weight is not over his hands, bad form with bent legs



The upper body did not go down in the swing of the first phase of the scissors, no straight body line. Overarched and kinked back try to make up for the mistake. The right leg never came up in the swing



The gravity point is too far back. This will result in a hard landing in the kidney area of the horse's back

not very explicit on this point.) Most vaulters hang onto the grips the way they did in the backwards seat, until they have landed fully rotated. This does *not* however mean that they omit the weight transfer. It only becomes less obvious. Upon landing – controlled and soft – the hands quickly change grips and the vaulter finds himself in the correct basic seat position again. In conjunction with the continuing arm push, both thighs should help evenly to break the vaulter's impact of landing. This means that the legs should not be straddled wider than the width of the horse's body at the landing time – in both directions. Seat corrections should not occur, if the gravity point was over the arms, so they could exert their power of pushing and guiding the vaulter back into the correct 'landing spot'.

Common faults

hard landings on the horse (consideration of the horse)
motion too slow, or working out of sync with the canter stride
shoulders kept high, while legs swing up, in the first phase of the scissors
turning the wrong way
crossing at the wrong moment
no acceleration in downswing, no momentum as result
no arm push, body not raised off horse
rotation not complete before landing, off centre
seat shift to the back of the horse before starting turns, rather than starting from basic seat position (evasion of difficulty)
flailing legs rather than controlled quick rotation
extended time lapse between two phases of scissors
sticking: interruption in coming to erect position astride
not enough height achieved
gravity point not over hands, push goes to back of the horse
stopping in the high (handstand) position to show off arm strength (motion must be continuous in a dynamic exercise)