Reasons to use a ‘Safety Stirrup’ that opens at the top.

In the majority of accidents, when a rider is caught and dragged, the first contact of the rider’s boot with the ‘safety swing arm’ is at the upper, outside edge of the stirrup at the 11:00 or 1:00 o’clock position.

The two most common occurrences of being caught and dragged in Safety Stirrups are 1) when the rider loses their stirrup and falls backwards from the horse. This is the primary cause of being caught and dragged. 2) When the rider similarly falls from the horse, often at low speed or when mounting, the toe of the boot is caught in the upper / inner arch of the Safety Stirrup at the 12:00 o’clock position. This location is not an integral part of the swing arm, safety release mechanism. In general, Safety Stirrups are not designed to open if the rider is thrown over the ears, the shoulders or even to the side of the horse.

Several actions must take place for Safety Stirrups to function, including force.

1) When falling off the horse, the rider’s boot must lose position from the stirrup.

2) The natural tendency for a lost iron is to turn back towards the horse and lie flat against the horse’s side. During this process, the ‘closing door™’ effect takes place, and the turning stirrup traps the falling rider’s boot at the location of the small toe (11:00 or 1:00 o’clock). As the rider falls backwards towards the ground, their ankle rotates in relation to the rider’s falling body causing the toe of the boot to rise towards the top of the stirrup.

3) Force is necessary to initiate the caught boot to release the safety mechanism. This force is generated when the slack is taken from the stirrup leather as the rider is falling backwards towards the ground. The falling rider’s weight being dragged, plus the speed of the horse, creates the force necessary to open the safety swing arm. Without the application of force, the swing arm will not open.

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Summary: During a fall where the rider is dragged, the little toe of the rider's foot comes into contact with the outside, upper, outside arch of the stirrup. This is the first opportunity for the safety swing arm mechanism to release. Specifically, this location is at the top of the stirrup, on the outside branch at the 11:00 or 1:00 o'clock position.

The force needed to activate and open the swing arm safety mechanism is less at the open end of the swing arm as compared to the hinge or opposing end of the swing arm.

It is an engineering fact that the least amount of force to initiate the release of the swing arm is at the opening of the swing arm and not at the hinge area, where that force is greater. These forces are substantially different between the opening of the swing arm and the hinge area, due to the concept of leverage. Having the opening of the swing arm at the top of the stirrup at the 11:00 or 1:00 o'clock position, allows the swing arm to open at the area of least pressure to affect the release of the safety mechanism, compared to the far greater pressure found at the hinge. Locating the swing arm opening at the 11:00 or 1;00 o'clock position allows the swing arm to open more easily and expedites the escape of the rider's boot when being caught and dragged.

Summary: To initiate and expedite the opening of the swing arm, it is logical and preferrable to locate that release in the area of least resistance, which is located at the first area of contact of the boot, which is at the top of the stirrup, on the outside branch at the 11:00 or 1:00 o'clock position.

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Examples of Ancient Riding Stirrups




THE SPORT OF HORSEBACK RIDING INVOLVES MANY INHERENT RISKS, INCLUDING, BUT NOT LIMITED TO, THE DANGER OF A BOOT BEING CAUGHT IN A STIRRUP. THERE ARE MORE KNOWN, AND UNKNOWN, WAYS OF BEING CAUGHT IN A STIRRUP OTHER THAN THOSE DISCUSSED HERE. MDC CANNOT BE HELD RESPONSISBLE FOR DAMAGE TO OUR PRODUCTS THAT ARE SUBJECTED TO EXTERNAL FORCES NOT NORMALLY OCCURRING DURING DAILY TRAINING, COMPETITION OR PLEASURE RIDING.
NO STIRRUPS CAN 100% GUARANTEE THE USER'S SAFETY. NO WARRANTIES IMPLIED OR EXPRESSED.

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