

# Twenty-Minute Quarter-Crack Repair

*New Techniques  
and Materials  
Allow Faster,  
Easier, and Safer  
Treatment*

by Drs. M. John Pautienis and Richard Shakalis

The term quarter crack has confused many people over the years. As a result, treatments for it have not improved significantly from those listed in Lungwitz's classic *Textbook of Horseshoeing* published in 1897. The word crack implies a stable one-time event, such as a crack found in a sidewalk. If this were true, treatment would consist of simply filling up the crack with material to keep out dirt, etc., to complete the repair. In reali-

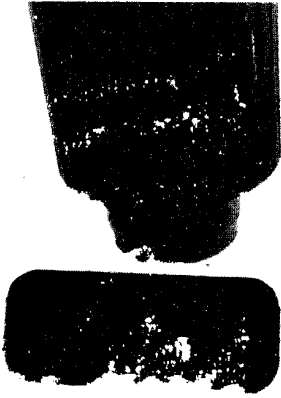
ty, a quarter crack is a dynamic situation. A more appropriate term, hoof-capsule tear, describes this active condition that requires a four-part approach for successful treatment. The first three are extremely important: rebalancing the hoof for level landing, the use of a bar shoe to stabilize medial-lateral shearing, and controlling infection. This article will concern itself with discussing the fourth aspect of treatment, that of immobilizing the crack with a patch.

The importance of early detection of a crack cannot be overemphasized. Because it is a tear, the longer it exists, the more likely it will reach the coronary band and cause permanent damage to the horn-producing cells. The longer the crack is exposed to dirt and manure, the greater the possibility of developing an infection as well. Thus, a patch should be placed on the crack as soon as possible. By treating it early, a horse can remain active. This activity will result in an increased blood supply to the coronary band and will encourage the crack to grow out faster. The patch does not cure the crack, but allows the hoof to grow out while arresting any additional tearing of the wall.

The ideal patch for a quarter crack should be easy to place, rigid enough to stabilize the crack while allowing for normal expansion of the hoof wall, and not require the use of screws. Metal patches with screws were used back in Lungwitz's time but have some built-in disadvantages. Metal is too rigid for use in the quarters because it restricts normal hoof expansion. Screws weaken the wall structure and can impose on the sensitive laminae. On the other hand, very flexible patches are far from ideal as well. They act more like a band-aid, providing little, if any, needed rigidity to immobilize the crack. This can lead to additional tearing of the wall. However, today's



**Photo 1.** This is a long-standing quarter crack. Early treatment was not provided, resulting in a chronic condition.



**Photo 2.** The resin patch can be heated with a paint-stripper heat gun. The dull surface becomes shiny when it is soft enough to mold. Move the heat gun farther away from the patch surface if it begins to blister.



**Photo 3.** Hold the patch next to the hoof wall, using finger pressure. As it cools, the patch will become rigid again but will retain the contour of the hoof wall.

science has given us many new resins and adhesives to make treating a quarter crack easier and more successful.

The technique of quarter-crack repair described in this article uses a patch made of unique resin. It is lightweight, strong, has flexibility that matches the hoof wall, and is thermoplastic (heat moldable). The resin patch can be softened with an inexpensive paint-stripper heat gun in minutes. By pushing the softened

patch against the hoof wall and waiting 30 seconds for it to cool, the patch conforms to the exact shape of the hoof wall. The custom-fitted patch can be easily nipped or rasped for further alterations.

The adhesive used is a two-part mix that is very strong and is impervious to moisture and urine when it cures. It bonds both to the protein of the hoof wall and the resin patch. As with all adhesive systems, it is important to have a clean, dry surface to

bond to. Hooves not only have to be thoroughly cleaned, but should also be dry and devoid of any oils. It is very important to spend the time to clean and dry the hoof if you expect the adhesive to do the job. The inside surface of the resin patch should also be clean and dry.

Cleaning agents make a difference. Acetone works well, as does denatured alcohol. Isopropol alcohol does the job, but use ninety percent, not seventy percent. Seventy-percent iso-



**Photo 4.** The two-part adhesive is mixed and liberally spread on the clean, dry hoof wall. Adhesive is also applied to the inside surface of the patch.



**Photo 5.** Duct tape is placed over the patch and adhesive while curing takes place (approximately 10 minutes). In cold conditions, the heat gun accelerates the curing.

## Quarter-Crack Repair



**Photo 6.** The adhesive is considered cured when you can no longer dent it with a fingernail. The tape can be removed and the patch can be rasped to a smooth finish.



**Photo 7.** Notice that the contour of the patch matches that of the hoof exactly in this finished repair.

propol alcohol has thirty percent water. The protein of the hoof will soak up this moisture and this will weaken the bond. The heat gun is very useful for drying the hoof wall

prior to the placement of the patch.

Quarter cracks have intimidated many who have attempted to treat them over the years. Today, however, due to advancements in resin-adhe-

sive systems, it is much faster, easier, and safer to provide a patch that will immobilize a crack before it has a chance to cause permanent damage to the hoof capsule. ■

# Hoof Patch™

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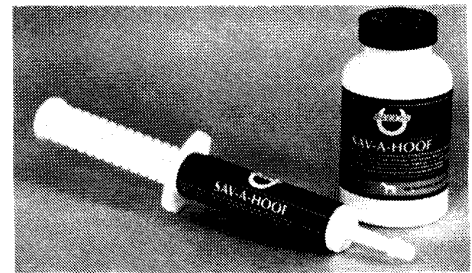
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