

## Knee Pain and Flip Flops By Steve Stanley

In the fall of 2007 Frank Antonacci Jr. brought a nice two-year-old trotter in the shop from his Lindy Farm's stable. This colt had trained well in the winter earlier that year wearing Flip-Flop pads(also called Flappers) but had tried him in PG shoes during the summer racing in an effort to protect his feet from the hard track surfaces he faced over the summer. A PG shoe is a two-piece package that has an aluminum plate nailed to the hoof and a rubber outer layer screwed onto the top of the base plate. PG's are VERY protective, but can be cumbersome to race in for some horses. Frankie felt that this colt was at his best in Flip-Flops during winter training, he uses them extensively on young trotters. We both agree that Flip-Flops are great on two-year-old trotters with "pinchy" knees, which, at some point in the training process, describes a very large percentage of them. We put the Flip-Flops back on him with very little other changes. The horse responded well and finished his freshman year strongly. Staying in Flip-Flops for the rest of his career Crazy had a very good Three year old campaign( earnings and Record)

One of the most significant shoeing improvements I have found for a racehorse is putting Flip-Flop pads on a horse with sore knees. I have had trainers say they could tell the horse was better in the first half-mile. When I watch a horse's knees on high-speed film (2000 Frames per second) in slow motion, going race speed, and at full extension during impact I think "My Gosh, why don't they all breakdown?" The racehorse is a truly remarkable animal. The structures of hoof and lower limb do an incredible job of dissipating the energy of impact with the racetrack, starting at the hoof, then lessening as it travels higher up the leg. While the knee takes less shock than the lower joints, some horses knees tend to have more trouble than others, from a basis of conformation. Horses that are back on the knees can have problems because they are more susceptible to hyperextension to begin with. Watching this type of conformation in slow motion at race speed makes me cringe, and yet many race, and some even do very well. Oddly enough, horses that are over in the knees have the same type of soreness issues, but for a different reason. These horses are simply less tolerant to any kind of hyperextension, not because they are predisposed to it. Other horses, like Crazy, don't have conformation issues, but are simply more comfortable in Flip-Flops.

### How Flip-Flop (flapper) pads can help:

Flip Flops came out of Denmark in 1970's. Flip-Flops are essentially a pad that uses only the front half of a shoe (any type of shoe). The shoe is fitted to the pad and then nailed to the horse's hoof in the normal manner one would use for any other horseshoe. My theory as to the rapid improvement is partially due to the mechanical difference in the way the knee flexes during the impact and loading phases of the stride when wearing these pads. (Hoping to prove this theory with more video analysis). The rear half of a flip-flop is a large continuous ground surface area in back of the hoof that prevents the heels from sinking into the track as far sparing the knee from hyper extending just a bit. A small difference to be sure, but when the knee is fully extended and the hoof impacts the track, even millimeters count. The second advantage is that it employs the use of the

frog and can aid in cushioning the impact through the shear mass of this type pad. The main point here is that Flip-Flops help sore knees

When not to try Flip-Flops:

Some people think Flip-Flops are good for sore-footed horses. I strongly disagree. Flip-Flops do not support the back (caudal) part of the horse's hoof as well as a normal shoeing appliance. Hooves with quarter crack issues or low under-run heels do poorly in Flip-Flops. I have found it sometimes necessary to leave flip-flops off of a horse for one shoeing interval after the horse has had them on for 2-4 shoeings. This gives the frog and heels of the hoof a chance to recover. A Flip Flop may help a horse with contracted heels but I feel like there are other ways to address that issue.

Gait Considerations:

Many horses race at high levels with Flip-Flops on. Ron Gurfein has never been shy about using Flip-Flops or "Flops" as he would say. Both Cantab Hall and Self Possessed raced "in a Flop" at one time or another. I think we can all agree that those are two horses that definitely were NOT flops. The ability to use a variety of different shoe types with a Flop gives versatility to use them on different track surfaces. One gait type that might not benefit from a Flop is the short, choppy gaited horse because in general more weight in the heel exaggerates vertical motion in a horse's gait. (The same kind of knee issues normally does not apply to horses gaited like this anyway since they do not have a long reaching front end). But the main thing I hope for someone to remember is this. If you think your horse has sore knees, try him in a Flop.