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The Hoof Teachings of Dr. Hiltrud Strasser – From Prejudice to Pseudoscience

0) Dr. Strasser

Dr. Hiltrud Strasser stands for holistic horse keeping and care. She has strong beliefs as to the design of stables, to horse feed, and to equestrian use; her primary focus is, however, hooves. The majority of her publications deal with her take on species-appropriate hoof treatment. At her “Institute for Hoof Health and Holistic Horse Treatment IfH,” she trains “Hoof Natural Health Professionals according to Hiltrud Strasser” in a two-year course system.

Her reputation is due in part to her uncompromising advocacy of barehooves – she is known as a modern pioneer in this field – as well as to her scientific justification in support of her beliefs. Dr. Strasser believes in her findings: she certifies the accuracy of her anatomical “constants” from “leading anatomists” with her personal signature, located on her website www.hufklinik.de. Prof. Cook, Prof. Silver, and Prof. Kumar – all Americans – have likewise certified their accuracy with their own signatures. The signature list remains open for others wishing to sign.

1) From a “healthy” to a “normal” Hoof

The following details are integral to Dr. Strasser's hoof trimming.

First of all, Dr. H. Strasser defines a “healthy” hoof: “Hoof ailments of free-living horses are not described as a potential cause of death despite the fact that they inhabit inhospitable, rocky regions where their hooves are constantly subjected to stress. Even the hooves of half-wild, breeding studs are healthy.” (Strasser 1991: 9) This assertion is of little scientific worth: the fact that something was not previously detailed does not mean that it does not exist. The descriptions of breeding herds are also evidence of not dealing with the hooves; therefore they are assumed to be healthy. Every hoof practitioner who sees untreated hooves, e.g. those of an untreated horse before its upcoming sale, can surely report completely different observations. The same is true for foal hooves.

Why place an unproven claim at the beginning of one's own investigations? To open up the antithesis: “On the other hand, horses have had hoof problems ever since people started labeling them ‘pets’ They always attempt to prevent deterioration, deformation, and disease with new methods, but particularly with horseshoes. One is thus lead to conclude: hooves quickly become unusable and needy of treatment under human care.” (ibid.)

The praise of a “natural” hoof has a sheer argumentative nature. It is just a negative reference point: “A hoof is only healthy when growth and abrasion of the horn are such in balance that the animal has no pain or other problems. Thus, any hoof treatment would be unnecessary.” (Strasser 2002: 47) The success of the natural hoof supports the claim that hoof problems are primarily the result of poor keeping conditions and wrong trimming. Photographs with the label “natural wear, healthy hoof” (Strasser 2004: 39) uncritically depict all the phenomena of a “working horse” that justify the necessity of great interventions. “It should become evident: all grave hoof problems do not stem from the animal's ‘genetic predisposition’, but are the product of humans, either through unnatural husbandry conditions or incorrect hoof treatment, often because of both mistakes made by humans.” (Strasser 2002: 351)

“When the natural abrasion is not possible due to a lack of time, hooves must be treated with general knowledge about hoof functioning and the physics of the hoof; in other words, the hooves must be optimized, or returned to their natural form... **We humans can only produce a physically optimal form, not the optimal form for an individual!** (emphasis G.J.) This in turn means that the optimally treated hoof looks a bit different from a naturally worn, problem-free hoof.” (Strasser 2004: 39)

I call this the Strasser "Exclusion of Liability Clause": While farriers have to stick to official regulations, American NHC practitioners advocate the "wild model" and hoof orthopedists strive to realize each horse's hoof potential, the Strasser hoof treatment exclusively relies on her personal physical insights. There is no further corrective for monitoring the method.

The Strasser hoof physics poses the following task: "We must create a hoof form that both enables the hoof mechanism and places the coffin bone in a ground parallel position." (Strasser 2004: 39)

2) Hoof Mechanism

Whether or not a hoof mechanism exists or how it functions is not the point of this section. There is a great amount of literature, covering an array of standpoints, regarding these topics elsewhere. A general definition is located in Ruthe (1997: 91): "Hoof mechanism refers to various, elastic movements of the single parts of the horn capsule during extremity strain and relief. The single parts of the horn capsule become visible through certain, slight changes in the form of the horn capsule, which also affect the inside structures." It is generally accepted that a hard hoof exhibits flexibility, albeit to a limited degree.

My opinion is that the Strasser hoof mechanism does not exist. Her hoof mechanism is derived from the image of her "horn-shoe design" in which she simply illustrated her views, the image of the "leaning conic section", but particularly the image of the "oblique cut bucket". At the end the image accounts for the fact, namely that Strasser forces this fact onto the horses treated by her: "This only exists to a small extent in natural hooves because the hoof mechanism of horses in herds is not extensively used." (Strasser1994: 12)

How does Strasser develop the hoof mechanism, and which treatment instructions does she deduce from them?

"Figure 19 should serve to create a better understanding of this 'horn shoe structure': one can image the horn capsule as being a bucket cut at an angle (conic section) with the shortest perpendicular side (behind) cut open. The bottom corners were folded inwards and anchored to the sole. The whole cover of the hoof can be folded over with paper: a rectangle, which is circularly rounded off in the front, is creased into four radial folds from the middle outwards. When one pushes the folds together, the round, unfolded part of the paper arches just as the sole arch. By glueing this to the previously described conic figure, one can observe how the arch flattens out under pressure of the upper edge of the 'upside down bucket'. The paper does not tear. This same principle can be found on the hoof of equids. **This means, however, that an intense spreading movement of the hooves must be provided!**" [Emphasis throughout G.J.] (Strasser 1991: 43f)

The bucket model demonstrates Strasser's hoof mechanism and shows how it works. "Under strain, the front wall sinks minimally into the direction of the middle of the hoof, the front bottom half remains almost motionless, and the rear wall segments expand from the widest point. The sole arch then flattens, the frog approaches the ground, and the heel bulbs dip. After release, everything resiliently returns to its initial position." (Strasser 1991: 50)

The exact dip values, which occur under maximum splay (assumed 4 mm per side), are calculated exactly by Florian Pforte through the use of a red plastic bucket: "Alpha h1=18,4 mm and Alpha h2=9,6 mm. Only the second solution is sensible because Alpha h must be smaller than h (arch height). A movement of the hoof walls of 4 mm on the broadest point of each side, consequently must flattened the sole arch by approximately 10 mm. Because the frog width increases or decreases with varying hoof width (healthy hooves assumed), these values should remain relatively similar for all hoof sizes." (Pforte 2006: 17f.)

It makes little sense to delve into the abstract teachings of older textbooks; nonetheless, Strasser's

style of argument makes this imperative. Concrete trimming instructions are derived from her definition of the hoof mechanism = the bucket model:

a) "Down half its length the bar should be neither higher nor lower than 1 cm in relation to the lateral supporting edge of the wall as well as to the collateral groove. Thus, the collective height difference of the lowest point of the collateral groove and the supporting edge of the wall should be no greater than 2 cm. ...The sole between the frog and the new wall height should be subsequently formed into a **smooth slope**. ... The sole should be neither convex nor concave but instead be flat like the paper sole from the bucket model. Any other sole shape would hinder the flattening of the sole (the hoof mechanism)." (Strasser 2002: 49) "The heel angle of must be able to increase in size when the hoof capsule spreads out. This means: The sole horn must be thin and elastic." (Strasser 1994: 25) Such instructions create the famous thin hoof soles that hardly provide any protection and often lead to hoof sores because pathogens can utilize micro entrance ports.

b) The elasticity of the sole is still not deemed sufficient enough to allow the preferred hoof mechanism. The side walls are shortened as well from the bottom to form an arch:

"Thanks to this curved line, labeled 'valley', the mobility of the hoof walls by the hoof mechanism is permitted and can correct certain asymmetry the hoof walls." (Strasser 1994: 41)

c) A further destabilization of the horn capsule on contracted hooves occurs due to the "widening cut", i.e. the complete removal of the heels all the way into the heel bulbs:

"The so-called 'widening cut' or 'opening cut' poses another problem. When this is not correctly done, it will be useless; the situation persists, and the owners will wonder why the contracted hoof won't open up. The widening cut should remove the lever, which pushes forward the inlying heels and thus making the hoof capsule tighter, and replace it with a target for the ground to lever the heels to the side." (Strasser 2002: 409) "A proper widening cut involves the perpendicular application of the hoof knife and the removal of all hard horn, which is found within the newly created heel corner (at the side facing the frog)." (Albrecht 2004: 11)

The meaning of the so-developed hoof mechanism is inflated and increased by the depiction of the hoof as a "blood pump". More about this topic is omitted because it has no meaning for the derived trimming method.

3) Parallelism to the Ground and the Protractor

According to Strasser, the second task of hoof treatment after the facilitation of the hoof mechanism was to bring the coffin bone to a position parallel to the ground. Why is this necessary?

a) "The form of the coffin bone indicates that it was designed to be parallel to the ground." (Strasser 2004: 17) An amazing contention from somebody who knows that the coffin bone hangs and is not set in the horn capsule. The comment to a photograph of a coffin bone lying on a table: "The sideview proves that the coffin bone is nevertheless parallel to the ground." (Strasser 2004: 17)

b) "The observation of the heel bulbs of wild horses contacting the ground, led to its designation as a natural hoof form." (TU 4/97 S. 190) "According to the observations from Pollit (1993), Jackson (1989), Clark (1809), Zierold (1910) as well as to the observations of unhandled, wild horses and untreated breeding herds, the positioning of the coffin bone is parallel to the ground, and the heel bulb region has contact to the ground." (ibid. p.192) In fact, American literature (Jaime Jackson, Pete Ramey et al.) keeps showing showing mustang hooves from the Rocky Mountains with completely worn down heels (it is one specific hoof preparation with really short heels that appears with increased regularity – "the wild model" – and is also depicted by Strasser in her handbook p. 101). These observations are, however, insufficient proof that parallelism to the ground is the natural position of

the coffin bone for **all** horses.

On the contrary: published measurements of wild horse hooves indicate a wide range of hoof angles. For example, Jaime Jackson's measurements of mustang toe angle vary, in the front 48° to 62°, in the back 51° to 65° (Jackson 2002: 47). Petra Schnitker, (2004) in her dissertation on Przewalski horses listed hoof angle measurements between 31° and 60°, which not only varied from horse to horse but by each horse depending on the season. Nature provides hoof practitioners with no uniform information as to the positioning of the coffin bone.

c) The physical “proof” of the model also helps here: “The coffin bone is part of a cone and appears as a triangle when viewed from the side. The coffin bone ‘triangle’ receives pressure on its articular surface through the rolling pivot head of the short pastern on an arched surface. The center of the arch is the imaginary pressure center from which the pressure onto the coffin bone is transferred. When one connects this point with the endpoints of the coffin bone line, one obtains a rectangular, isosceles triangle, and therefore an even pressure distribution onto the ground edge of the coffin bone. (Figure. 2)” (TU 4/97 S. 191) “The distribution of pressure on the above mentioned triangle follows the law of the parallelograms of strength. (Figure. 4). The more steep the coffin bone is – and the more the palmar processes are detached from the ground, the more weight is transferred to the toe area where the laminae of the facies parietalis is overstrained.” (ibid. S.192) The coffin bone is not a triangle – the front part is quite solid, towards the rear end it peaks into the palmar process. This carries the assumption that the toe region bears the greatest burden. This, however, does not automatically mean that the toe region is overloaded. The slim lateral parts are not as able to carry such a load. Does one include the (flexible) lateral cartilage, the shape more likely resembles a rhombus. **The image of a triangle should suggest that at a ground parallel, the load is equally balanced.**

d) The last thing Dr. Strasser must do is measure coffin bones: “Over a period of 12 years, the coffin bones of slaughtered horses (over 200) - ponies, Haflinger, thoroughbreds, warm-and cold-blooded, etc. – were investigated ...” (TU 4 / 97 p. 191) Her results reflected other extensive measurements on coffin bones, i.e. front legs usually exhibit an angle of 45° toe slope, while back hooves show 55°.” (Strasser 2002: 100) “The hoof capsule can be seen as a ‘cast-on section’ on the bones, which have the same shape.” (Strasser 2002: 100) “The **optimal hoof shape and angle** can be achieved. The angles that can be seen from the side are generally the same for all hoofed animals (including the difference between front and hind hooves).” (Strasser 2004: 39)

4) Basic Rules of Hoof Trimming

The standards of “physically correct hoof treatment” are calculated with the developed “regularities” above. If the angle of the coffin bones for all equine are equal, the hoof capsule basically serves as a “cast-on section” and the coffin bone is parallel to the ground, these iron laws can be translated into clear and specific instructions for trimming: “The **optimal hoof shape and angle** can be achieved. The angles that can be seen from the side are generally the same for all hoofed animals (including the difference between front and hind hooves).” (Strasser 2004: 39)

“They [front and hind hooves, G.J.] have the same toe angles as the bones (45° and 55° respectively). The coronary band was measured countless times to be 30° on coffin bones that were parallel to the ground. The ideal heel bulb height is 3.5 cm for almost all equine, perpendicularly measured from the end of the lateral cartilage.” (Strasser 2002: 100)

“Now the heel height will be measured (3.5 cm from the end of the lateral cartilage or 3 cm from the hairline perpendicular to the heel. From the height of the heel one draws a line at 30° to the coronary band separately on each side of the hoof. This line often ends in the middle of the hoof wall because the toes are too short. In such a case, the wall can only be shortened to the marked line! The hoof wall is then shortened along the line. The sole is smoothed out into a flat surface, neither convex nor

concave, between the white line of the wall and the white line of the bars and the apex of the frog. The angle of the coronary band is then carefully measured and corrected on both sides of the hoof." (Strasser 2004: 41)

These are all "basic rules" that are ultimately applicable in all hoof situations (refer to treatment instructions in *Handbuch der Huforthopädie* according to ailment). Depending on the extremity of the horse, these rules generally require a great manipulation of the hoof situation. Throughout many of her books and articles, Dr. Strasser emphasizes that the conversion of a hoof to an "ideal hoof" is a thorny way with a potentially lethal end: "It takes years for an adult horse for its taut connective tissue (like tendons and ligaments) to adjust to a new situation. It is for this reason that it is so difficult to correct the changed joint angles of an animal that is older than one year." (Strasser 2002: 110) "If a deviant position is recognized at the beginning of treatment, one must assume that the complicated ligament apparatus will constantly pull the foot into the old position. Frequent hoof trimming (twice weekly) is necessary for the stimulation of change of the ligaments. Under optimal conditions, twice a week hoof care and proper correction, this may take up to two years!" (Strasser 2004: 42) "Usually, in case of a contracted hoof one must assume (because it is unpreventable) that after the expansion of the hoof capsule with the sinking of the sole arch, the coffin bone also slides down, but more commonly it rotates.

The connection of the white line could not have been so good in the contracted hoof (poor horn quality) that the weight could be held, even when the arch no longer pressures the coffin bone from the bottom against the hoof bone. It is possible that the epidermal laminae is no longer completely connect with the dermal laminae. The few that remain sturdy are overly burdened, expanded, and become inflamed. A so-called "laminitis" is the result." (Strasser 2002: 256) "It is sometimes necessary to correct the hoof sole daily over the course of weeks in order to ensure the retention of its ideal form (key arch with a flat edge) and angle... One must reckon with sole and heel bulb sores during the adjustment of contracted hooves... This will predominantly be the case with the seat of corn." (Strasser 1994: 30)

Dr. Strasser views serious problems that occur due to her hoof treatment as part of the healing process. Since this healing process is admittedly so time-intensive and painful without the guarantee of success, the labeling of the Strasser treatment before treatment has to be as dramatic as in her writings. Only when a horse owner is convinced that the only hope from the foreseeable demise of his beloved animal rests in the trimming of the heel, will he be willing to engage in a potentially year-long struggle. Because often the dread of the often weekly trimming replaces the owner's memory of the original state of the horse, with time, many Strasser clients give up and attribute the failure to the hoof practitioner. But also licensed Strasser hoof care practitioners often work up a sweat about the consequences of their work. Maja Mudra in May 2006 took over the treatment of neglected horse hooves with chips, cracks, and a swollen coronary band, which she trimmed according to the guidelines:

"It was the start of a tough time for the 19 year old Latvian and its owner. Because the internal damage was more extensive than previously believed, the owner and I were shocked by the intensity of the reaction, which nobody expected. Due to the contracted hoof and the steep positioning, the suspension of the coffin bone in the horn capsule was enormously damaged and held only by the contracted hoof. [???, G.J.] Already after the first two trimming appointments, the surge of movement and circulation that was reached, revealed serious damage. Thanks to the returning circulation, the organism began to recognize and repair the damaged spots. The ensuing widening meant that the coffin bone was no longer held in place. As a result, it rotated... This situation was extremely painful for Bagijs, so much so that he could partially only stand with great difficulty." (Mudra 2007: 9f.)

"One must be extremely confident of one's own actions to be able to not put them in question. Ultimately one probably intensified the situation of the weak coffin bone by cutting down the heels and therefore flattening the toe which in turn increases the leverage on the toe wall. By cutting the bar and heel area down to the blood one provokes hoof sores and by applying the "widening cut" one

destabilizes the heel area so that Bagijs could probably not stand on the painful heel but in turn could not put weight on the levering toe either. Is that necessary for success that is formulated so? "Bagijs walks willingly again [sic!] without showing big [sic!] problems." (ibid.)

The "success photographs" from the provisional final state show a hoof from the side that is much shorter but optically pleasing, this all despite the rasp traces in the toe area, which suggests the hoofs unwillingness to maintain the ideal shape. The heel bulb photographs display a shorter hoof whose enormous improvement can only be found on paper. Whether or not Bagijs feels better in his hooves after the treatment cannot be ascertained from the documentary. Further case documentation akin to the cited pattern: "Gamaro" (Christoph Gehrman in Natürlich Barhuf-Zeitung 1/2005 p. 8f on the website www.vdhp.de with picture evidence) or "Nuraja" (Inga Oehmke in Hufrolle 2/2003).

Due to the numerous problem cases that horse owners and hoof practitioner have had with the Strasser method, it should be no surprise that the first Hoof Care World Conference in Tübingen in 2003 contained the following inventory: "Germany: 17 in training, over 100 trained hoof care professionals, of which few work according to the methods of Dr. Strasser." (Albrecht 2003: 4)

What does Dr. Hiltrud ("the battle proven") Strasser wishes of her students: "that my students do exactly that which they have been taught! They are often afraid of removing too much; thus, the same mistakes are repeated: the 30-degree-coronary band angle is not always followed; too little is removed from the heels and bars out of fear; and the sole arch is not handled as it is properly taught by me." Interview conducted by Melanie Clahsen in Natürlich Barhuf-Zeitung 1/2005 p. 21ff.

Single failures are not enough to discredit a hoof trimming method. But a trimming method that accepts a longstanding, painful treatment in small intervals, that actually creates the damage in order to treat it, is fundamentally unacceptable.

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