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[1]Department of Horse Breeding and Use, [2]Department of Sheep and Goat Breeding, [3]Department and Clinic of Animal Surgery, University of Life Sciences in Lublin, Lublin, Poland

ANNA STACHURSKA[1], RYSZARD KOLSTRUNG[1], MIROSŁAW PIĘTA[2], PIOTR SILMANOWICZ[3] and ANNA KLIMOROWSKA[1]

# Differentiation between fore and hind hoof dimensions in the horse (*Equus caballus*)

## Abstract

The aim of the study was to define differences between front and hind hooves in dimensions and proportions of the measurements in horses of various breeds. 77 mares four to thirteen years old of four breeds belonging to different origin types were evaluated: Purebred Arabian horses, halfbred Anglo-Arabian horses, primitive Polish Konik horses and Polish Cold-Blooded horses. The dimensions were measured after trimming. Means in particular groups and differences between fore and hind hooves were estimated with the least square analysis of variance performed separately in each breed.

In the four breeds studied, the fore and hind hoof dimensions from the lateral view of the hoof capsule have come out to be similar. The toe to heel length ratio approximates 2 : 1 in both hooves. Viewed from the solar surface, the hind hoof is wider at the heel buttress relative to the fore hoof. The greatest difference between the fore and rear hooves occurs in the capsule width, hence while recording this parameter, it should be defined which foot it concerns. The hoof width is the most highly correlated with other dimensions, as well as the correlations between the fore and hind hooves in this parameter are the highest. The hoof capsule width is the most characteristic parameter of the hoof.

Keywords: horse, fore hoof, hind hoof, dimensions

## Zusammenfassung

Titel der Arbeit: **Differenzen zwischen den Maßen bei vorderen und hinteren Pferdehufen (*Equus caballus*)**

Das Ziel der Arbeit war die Bestimmung der Differenzen zwischen den Maßen und Proportionen bei vorderen und hinteren Hufen von Pferden verschiedener Rassen. Einbezogen waren 77 drei bis dreizehn Jahre alte Stuten der Rassen Araber, Halbblut Anglo-Araber, Polnische Konik und Polnisches Kaltblut. Die Hufmaße wurden jeweils nach der Hufpflege erfasst. Mittelwerte und Differenzen wurden einzeln für jede Pferderasse mittels Varianzanalyse nach der Methode der kleinsten Quadrate bearbeitet.

Bei seitlicher Betrachtung der Hufkapsel waren die Dimensionen zwischen vorderen und hinteren Hufen ähnlich. Das Verhältnis zwischen Hufzehe und Trachtenteil betrug bei beiden Hufen 2 : 1. Bei der Hufsohle ist diese beim hinteren gegenüber dem vorderen Huf in den Trachten-Eckstrebenwinkeln breiter. Die größten Differenzen zwischen vorn und hinten besteht in der Hufkapselbreite. Die Hufbreite ergab auch die größten Beziehungen sowohl zu den anderen Hufmaßen als auch zwischen Vorder- und Hinterhuf. Die Breite der Hufkapsel erwies sich als das charakteristischste Maß des Pferdehufes.

Schlüsselwörter: Pferd, vorderer Huf, hinterer Huf, Abmessungen

## Introduction

The hooves are one of the most important factors which decide on the horse's value. They play a crucial role in the organism supporting it, absorbing concussion, preventing skids and protecting the sensitive portions of the digit. Different functions and biomechanics of the fore and hindlimbs, bring on the differentiation of the hoof capsule form. The forelimbs are more burdened carrying the horse's head and neck.

In a warm-blooded horse standing squarely, they are loaded with 57.0% (mares) to 58.7% (stallions) body mass (SASIMOWSKI et al., 1984). During movement, the concussion and strain on the horse locomotive system rapidly grows. The hindlimbs are more active in pushing the horse forward, whereas the fronts mainly absorb the shock of landing. The more efficiently the hind limbs act, with the greater impetus the horse lands on its front limbs after each suspension phase. According to BACK et al. (1995), at the beginning of the stance phase, the distal portion of the forelimb studied at trot is subjected to more kinematic stress than that of the hindlimb. The forelimbs land with higher vertical speed and the hindlimbs with higher horizontal speed which means the forelimbs "bounce" and the hindlimbs "slide" (BACK, 2001b). The latter also show a greater tendency to heel first contacting the ground than the forelimbs (BACK et al., 1995). GUSTÅS et al. (2004) found both vertical and horizontal loading rates are greater in the forelimb in trotting horses. According to HEEL et al. (2004), in trot the duration of landing is shorter in forelimbs than in hindlimbs. The strain on the hooves increases with speed when the impact shock is absorbed in shorter time (THOMASON, 1998). The front limbs give the direction to the movement. Thus, the pressure on the front considerably rises when the horse turns and great centrifugal forces appear. According to SUMMERLEY et al. (1998), the hoof strain in the quarter located inside the turn increases by 40%. The largest pressure on the hooves occurs at jump, growing with the height of the jump. In the moment of landing, the front hooves strike the ground with large vertical forces. Studied in a horse jumping a fence 1.3 m high, the initial force of landing in the trailing forelimb amounted twice body weight (SCHAMHARDT et al., 1993).

The different tasks of the fore and hindlimbs are reflected among others in different cannon bone length and shape: the metacarpus is shorter than metatarsus and the cross-section of these bones considerably varies. The front hoof capsules have shorter heel length and different hoof angles than hinds (HERMANS, 1992; HERTSCH et al., 1996; KOLSTRUNG et al., 2004). Viewed from the solar surface, the fore hooves are wider and more round than the rear hooves which are narrower and more triangular or peer-shaped (BACK, 2001a; HINCHCLIFF and KANEPS, 2004). The fronts have less concave sole, shorter and broader frog, as well as more shallow frog commissures (KOLSTRUNG et al., 2004). American studies showed that the horn in front hooves grew 12% slower than in hind hooves in sucklings, 7% lower in weanlings and in older animals the tendency was opposite: it grew 6% faster than in hinds (BUTLER, 1995). Studies on the hardness and elasticity of the fore and hind hoof horn did not show considerable differences (STACHURSKA et al., 2007).

The greater kinematic stress and ground reaction forces that forelimbs are subjected result in a great deal higher incidence of fore hoof injuries and chronic lameness in the forelimbs (STASHAK, 1987). The injuries mainly occur in the navicular bone (VIITANEN et al., 2003) and the deep flexor tendon (DYSON et al., 2003). The lamnitis is also more common in the front hooves than in hinds (STRASSER, 2003).

Various types of horses are considerably differentiated in the body weight and proportions. Hence, the front load differs: it is relatively greater in cold-blooded horses than in warm-bloods (SASIMOWSKI et al., 1984). German studies show that horses with longer trunk (rectangular shape) are more sensitive to injuries in forelimbs than horses with shorter trunk (square shape) (BLENDINGER, 1980). Injuries in the front navicular bone occur more often in early maturing horses, e.g.

Thoroughbreds, as opposed to lately maturing ones, e.g. breeds with an admixture of Arabian horse or ponies.
Training itself considerably alters the kinematics of limbs. Riding and draught use of the horse additionally loads the hooves. It depends on the rider's seat if his mass is located exactly over the horse's centre of gravity and spread proportionally on the forelimbs and hindlimbs (SASIMOWSKI et al., 1984). In a horse examined at trot and jump, the rider affects the kinematics and the ground reaction forces especially in the forelimbs (CLAYTON, 1997; CLAYTON et al., 1999). As it has been mentioned, jumps over obstacles load the fronts the most. Jumping is the greatest challenge which human issues to the horse's forelimbs, especially in tight arenas where the number of sharp bends is incomparably greater than in nature.
When the horse is used under saddle or in harness, usually the necessity of shoeing appears. Regarding the faster wearing and greater risk of injuries in front hooves compared to hinds, often only the fronts are shod. Thorough familiarity with the hoof conformation and details which differentiate its shape and size in fore and hindlimbs, has not solely theoretical value but is particularly important in trimming and shoeing the hoof.
The objective of the study was to define differences between front and hind hooves in dimensions and proportions of the measurements in horses of various breeds. We focused on possible differences between fronts and hinds occurring commonly in horses or in particular types of horses, whereas comparing the breeds was less important in the study. For the limited length of the article, reference of the hoof dimensions to the horse's weight was left out as a subject of another study.

## Materials and methods

The material included 77 mares of four breeds belonging to different origin types: Purebred Arabian horses (AR), halfbred Anglo-Arabian horses (AA), primitive Polish Konik horses (KN) and Polish Cold-Blooded horses (CB). Least Square Means and Standard Errors (LSM±SE) of height at withers in the mares amounted to 149.4±0.9 cm, 161.1±0.7 cm, 134.8±1.1 cm and 159.2±0.9 cm, respectively. The mares were classified to three age groups: 4-6-year-olds, 7-9-year-olds and 10-13-year-olds. In each horse left fore hoof and left hind hoof dimensions after trimming were measured with a caliper, with a 1 mm accuracy (Figure 1). The most proximal extents of the hoof wall at the coronary rim were revealed by palpation.

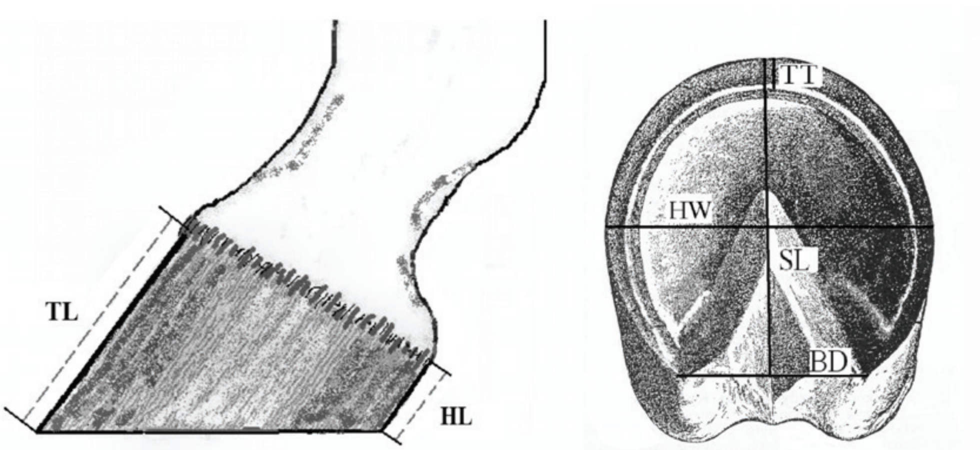


Fig. 1: Dimensions of the hoof capsule (markings as in the text)
Die Messpunkte der Hufkapsel [Bezeichnungen wie im Text]

The measurements were the following:

- (TL) toe length (hoof wall length, sagittal length of the wall at the toe) - from the coronary rim to the centre of the toe.
- (HL) heel length (length of the wall at the heel) – from the coronary rim to the heel wall ground surface at the outer heel buttress
- (SL) hoof solar length (toe-heel distance) – from the centre of the toe to the heel buttress line. The measurement does not include the heel bulb.
- (HW) hoof width – measured at the solar side at the widest part
- (BD) heel buttress distance – distance between heel buttress points (so-called angles of the wall)
- (TT) toe thickness – thickness of the front wall at the centre of the toe.

For the purpose of the study, the toe and heel lengths have been called oblique measurements and the following dimensions have been included into horizontal measurements: the hoof solar length, hoof width, heel buttress distance and toe thickness.

The following percentage relationships have been determined on basis of the measurements:

- (HL : TL) heel to toe length ratio
- (HW : SL) hoof width to hoof solar length ratio
- (BD : HW) heel buttress distance to hoof width ratio.

Statistical analysis was performed with SAS program (2003). With regard to unequal groups, the means and influence of the age factor on the parameters were determined with the least square analysis of variance. The results are presented in Least Square Mean (LSM) and Standard Error (SE). The analysis was conducted separately in each breed. Differences between fore and hind hooves were estimated with Tukey's test. Correlations between certain measurements within the fore hoof and within the hind hoof, as well as correlations within the particular dimensions and ratios between fore and hind hooves were estimated according to Pearson's procedure. Exclusively significant correlations have been presented.

## Results

Dimensions of fore hooves compared to hind hooves in horses of various breeds differed in many cases except for the length of the wall at the toe which did not considerably differ in any breed (Table 1). Both heel wall length and hoof solar length were lower in hind hooves than in fore hooves in Polish Koniks. Similar tendency has been observed in Purebred Arabians and halfbred Anglo-Arabians. The difference was pronounced in the case of the hoof width which was considerably lower in the hind hooves of three breeds. The heel buttress distance in turn was shorter in the fore hooves, particularly in Arabians and Cold-Blooded horses. The toe was thicker in the rear hooves in Arabians, however a similar tendency was also observed in other breeds. The age significantly affected the hoof solar length, hoof width and toe thickness in Arabians ($p \leq 0.05$), the toe length in Anglo-Arabians ($p \leq 0.01$), as well as the hoof width in Cold-Bloods ($p \leq 0.05$).

Table 1
Dimensions (mm) in hooves in horses of different breeds
(Die Dimensionen [mm] von Hufen bei verschiedenen Pferderassen)

| Breed | N | Toe length | | Heel length | | Hoof solar length | | Hoof width | | Heel buttress distance | | Toe thickness | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LSM | SE | LSM | SE | LSM | SE | LSM | SE | LSM | SE | LSM | SE |
| *Forehoof* | | | | | | | | | | | | | |
| AR | 18 | 77.0 | 0.8 | 43.7 | 1.0 | 113.6 | 1.0 | 109.7[a] | 1.2 | 63.4[a] | 1.9 | 11.0[a] | 0.2 |
| AA | 25 | 85.8 | 0.9 | 45.3 | 1.1 | 125.6 | 1.5 | 124.5[A] | 1.3 | 74.5 | 1.7 | 11.9 | 0.4 |
| KN | 12 | 77.9 | 2.0 | 42.4[A] | 1.2 | 121.2[a] | 1.7 | 111.0 | 1.8 | 67.7 | 3.0 | 10.8 | 0.7 |
| CB | 22 | 104.8 | 2.2 | 44.9 | 1.9 | 159.9 | 1.7 | 164.5[B] | 1.6 | 113.3[A] | 2.9 | 17.4 | 0.6 |
| *Hindhoof* | | | | | | | | | | | | | |
| AR | 18 | 78.6 | 0.8 | 41.0 | 1.0 | 111.0 | 1.0 | 106.2[a] | 1.2 | 70.6[a] | 1.9 | 11.7[a] | 0.2 |
| AA | 25 | 85.8 | 0.9 | 44.8 | 1.1 | 123.0 | 1.5 | 118.0[A] | 1.3 | 77.1 | 1.7 | 12.9 | 0.4 |
| KN | 12 | 73.7 | 2.0 | 37.4[A] | 1.2 | 115.2[a] | 1.7 | 106.4 | 1.8 | 74.1 | 3.0 | 11.9 | 0.7 |
| CB | 22 | 101.1 | 2.2 | 46.0 | 1.9 | 161.6 | 1.7 | 157.5[B] | 1.6 | 121.7[A] | 2.9 | 17.7 | 0.6 |

N = number of horses; LSMs marked with the same letter in columns differ within a breed between the fore and hind hooves: capitals at $p \le 0.01$ and small letters at $p \le 0.05$

Considering the ratios in hoof dimensions, it can be noticed that the heel length relative to toe length was lower in the hind hooves ($p \le 0.05$ in Arabians) except for the Cold-Bloods (Table 2). The hoof width to hoof solar length proportion in general was also lower in hinds ($p \le 0.05$ in Anglo-Arabians and $p \le 0.01$ in Cold-Bloods), whereas the heel buttress distance relative to hoof width definitely exceeded this ratio in fronts ($p \le 0.01$ in Arabians, Anglo-Arabians and Cold-Bloods, $p \le 0.05$ in Polish Koniks). The age factor did not influence the ratios considerably.

Table 2
Ratios (%) in hooves in horses of different breeds
(Die Verhältnisse [%] von Hufen bei verschiedenen Pferderassen)

| Breed | N | Heel to toe length | | Hoof width to hoof solar length | | Heel buttress distance to hoof width | |
|---|---|---|---|---|---|---|---|
| | | LSM | SE | LSM | SE | LSM | SE |
| *Forehoof* | | | | | | | |
| AR | 18 | 56.8[a] | 1.4 | 96.7 | 1.2 | 57.7[A] | 1.6 |
| AA | 25 | 52.8 | 1.2 | 99.3[a] | 1.1 | 59.8[B] | 1.3 |
| KN | 12 | 54.8 | 2.0 | 91.7 | 1.3 | 60.4[c] | 1.8 |
| CB | 22 | 42.7 | 1.8 | 102.9[A] | 1.0 | 68.7[C] | 1.3 |
| *Hindhoof* | | | | | | | |
| AR | 18 | 52.3[a] | 1.4 | 95.8 | 1.2 | 66.3[A] | 1.6 |
| AA | 25 | 52.3 | 1.2 | 96.1[a] | 1.1 | 65.3[B] | 1.3 |
| KN | 12 | 51.7 | 2.0 | 92.4 | 1.3 | 69.3[c] | 1.8 |
| CB | 22 | 45.6 | 1.8 | 97.5[A] | 1.0 | 77.1[C] | 1.3 |

N = number of horses; LSM marked with the same letter in columns differ within a breed between the fore and hind hooves: capitals at $p \le 0.01$ and small letters at $p \le 0.05$.

It should be mentioned that defining the size of the front hoof with the toe length according to TURNER (2003), the Cold-Blooded horses had evidently the biggest capsules, Anglo-Arabians' hooves were medium in size, whereas in Polish Koniks and Arabians the hooves were the smallest. In the Cold-Bloods the hooves were simultaneously the widest: only in this breed the fronts were wider than the hoof solar length (102.9 %) and the heel buttress distance to hoof width ratio both in fronts and hinds was 8-12 % greater than in other breeds. Another fact worthy noticing is the short heel length in Cold-Bloods. This resulted in a lower ratio of heel to toe length in both hooves compared to other breeds, as well as its reverse tendency: the ratio was slightly higher in hind hooves than in fore hooves. The mean toe length in the hind hoof compared to the fore hoof was slightly higher in Arabians (102.1%) and Anglo-Arabians (100.0%) and lower in Cold-Bloods (96.5%), as well as Polish Koniks (94.6%). The mean hind hoof width in percent of the fore hoof width was also a little bit higher in Arabians (96.8%) than in other breeds (95.9% Polish Koniks, 95.7% Cold-Bloods, 94.8% Anglo-Arabians). Polish Koniks had a higher Standard Error of most of the dimensions and ratios.

Significant correlations in the fore hoof concerned equally oblique and horizontal dimensions in horses of certain breeds (Table 3). For instance, the toe and heel lengths were correlated with each other, as well as with the horizontal hoof solar length and hoof width. The horizontal measurements in turn were correlated with one another, e.g. the hoof solar length with the hoof width and the toe thickness. In the hind hoof the correlations occurred solely between horizontal dimensions, except for the toe length correlated with the toe thickness in Cold-Blooded horses. It should be pointed out, however, that relevant correlations of certain measurements hardly repeated in various breeds. Only the hoof width – heel buttress distance correlation was high and significant in most breeds in both hooves. Moreover, in the rear limb correlations of hoof solar length with hoof width and with heel buttress distance, as well as of heel buttress distance with toe thickness, occurred in three breeds.

Table 3
Significant correlations ($p \leq 0.05$) between particular dimensions within the fore hoof and within the hind hoof (Signifikante Korrelationen [p≤0,05] zwischen den einzelnen Dimensionen im Bereich der vorderen bzw. hinteren Pferdehufe)

| Correlations | | Forehoof | | | | Hindhoof | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | AR | AA | KN | CB | AR | AA | KN | CB |
| toe length | heel length | | | 0.70 | 0.47 | | | | |
| | hoof solar length | | | 0.86 | | | | | |
| | hoof width | | 0.40 | | | | | | |
| | toe thickness | | | | | | | | 0.52 |
| heel length | hoof solar length | 0.55 | | 0.59 | | | | | |
| | hoof width | | 0.47 | | | | | | |
| | heel buttress distance | | 0.49 | | | | | | |
| hoof solar length | hoof width | | 0.54 | | | 0.58 | 0.58 | | 0.69 |
| | heel buttress distance | | | | | 0.58 | 0.48 | | 0.55 |
| | toe thickness | | | | 0.68 | | | | |
| hoof width | heel buttress distance | | 0.59 | 0.90 | 0.67 | 0.81 | 0.51 | 0.96 | 0.80 |
| | toe thickness | | 0.58 | 0.87 | | | | 0.78 | |
| heel buttress distance | toe thickness | | | 0.82 | | 0.49 | 0.46 | 0.73 | |

Table 4
Significant correlations ($p \leq 0.05$) in dimensions and ratios between the fore and hind hooves (Signifikante Korrelationen [p≤0,05] der Dimensionen bzw. Proportionen zwischen dem vorderen und hinteren Pferdehuf)

| Correlations | AR | AA | KN | CB |
|---|---|---|---|---|
| *Dimensions* | | | | |
| Toe length | | | 0.66 | 0.64 |
| Heel length | 0.51 | 0.47 | | 0.51 |
| Hoof solar length | 0.54 | 0.77 | 0.60 | |
| Hoof width | 0.83 | 0.71 | 0.85 | 0.67 |
| Heel buttress distance | | 0.45 | 0.89 | |
| Toe thickness | | 0.44 | 0.89 | 0.52 |
| *Ratios* | | | | |
| Heel to toe length ratio | | | | 0.43 |
| Hoof width to hoof solar length ratio | 0.61 | 0.72 | 0.93 | |
| Heel buttress distance to hoof width ratio | | | 0.86 | |

Significant and high correlations between the fore and hind hooves have been found in all breeds in the case of hoof width (0.67-0.85, Table 4). The hoof solar length and toe thickness highly correlated between fronts and hinds in three breeds (0.54-0.77 and 0.44-0.89, respectively). The length of the toe was highly correlated in two breeds (0.64 and 0.66), whereas the correlation of the heel length in the front and rear hooves was medium (0.47-0.51). Considering the ratios, it has come out that the highest and most frequent correlations concerned the proportion of hoof width to hoof solar length (0.61-0.93). Two other ratios significantly correlated only in single breeds.

## Discussion

The results show the fore hoof capsules differ from the hinds mainly in the width and they confirm the known fact the latter are generally narrower. The narrower hinds have simultaneously greater buttress distance both in absolute dimension and relative to the hoof width, compared to fronts. That means the hind hoof is slightly wider at the posterior portion relative to the fore hoof. The more peer-shaped hind hoof solar side of the capsule may be important in the kinematics of the hindlimb that, according to BACK (2001a), acts as an engine showing more power than the forelimb. The broader hind hoof at the rear seems to be a more stabile base for pushing off to the suspension phase. The front hoof more round i. e. relatively wider at the middle portion is a better support at landing. The lower hind hoof width and tendency of shorter hind hoof solar length show the solar surface in the hinds is smaller than that in the fronts. This corresponds to the lower body mass percentage carried by the hinds (SASIMOWSKI et al., 1984).

Despite the high variability in the breeds, it can be noticed that the oblique and horizontal measurements of the hind hoof are not considerably correlated with one another. Hence, it seems the toe and heel lengths in the rear hoof are more affected by the hoof axis and environmental factors (ground, trimming manner) than in the front. The horizontal dimensions in turn seem to be more characteristic and less influenced by various circumstances. Within the horizontal measures, the hoof width stands out with its relevant correlations with all the dimensions studied, particularly with the heel buttress distance. Moreover, the most differentiated hoof width in the fore and hindlimbs is simultaneously the most highly correlated. It can be concluded that this dimension of the hoof capsule is the most characteristic and affected the least by environmental circumstances. Hence it may be suggested as a proper and useful measure of the hoof size. As known, the toe length up to now assumed as the hoof size measure being described in guidelines, greatly depends on the horse‘s use and to some extent on the manner of trimming (TURNER, 2003). The hoof circumference below the coronary band seems in turn to be more difficult to measure exactly. Regarding the front hoof width, the breeds evaluated rank in the same way as dependent on the front toe length (Table 1).

The length of the toe considerably affects the strain at this hoof portion (THOMASON, 1998). ELIASHAR et al. (2004) found the forces applied on the foot were among others correlated to the changes in the ratio of heel to toe heights. An experiment indicated that lowered heels led to higher stress in the hoof capsule whereas raising the heels resulted in lower stress (HINTERHOFER et al., 2000).

According to TURNER (2003), the heel length should generally be about one-third of the toe length. Farriery handbooks usually state that the ratio in length between toe and heel is 3 : 1 in the forelimb and 2 : 1 in the hindlimb (e.g. HERTSCH et al., 1996). In the present study, the absolute heel length and heel to toe length ratio have came out to be lower in the hind hoof or similar to that in the front hoof in three breeds studied. After converting the results, the toe length is on average 2.00±0.37 of the heel length in the fore hoof and 2.03±0.28 in the rear hoof in the four breeds. The ratios have been close to the commonly assumed 3 : 1 and 2 : 1 solely in two Cold-Blooded individuals. In Arabians the ratio is 1.8 : 1 in the fore foot and 1.9 : 1 in the hind foot, in Anglo-Arabians 1.9 : 1 in both hooves and in Polish Koniks 1.9 : 1 and 2.0 : 1, respectively. In Cold-Bloods, because of the short heel, it equals 2.3 : 1 and 2.2 : 1. Hence, it can be concluded the shape of the fore and rear hooves viewed from the side is alike. It seems that even if the trimming accuracy in the horses studied might have been not entirely the same, it could have not affected the result so much. A similar discrepancy between actual relations and theory on the hoof conformation has concerned the hoof angle. For centuries 45 degrees of front hoof angle have been accepted as proper, whereas in fact the mean equals 54 degrees (CLAYTON, 1990).
According to BUTLER (1995), the hoof continues to increase in size until the age of six years. Interestingly, the ratios in the hoof dimensions in the study have not undergone any considerable changes which indicates the hoof capsule shape remains constant since the age of four years.
Considering the various breeds, the short heel length in Cold-Bloods should be pointed out. The low heel to toe length percentage arising from it, as well as great hoof width indicate the hoof capsule shape in this breed fundamentally differs from that in other types. Studies on hoof angles would perhaps lead to more detailed foundings on this subject. It can be suggested that the higher standard error in many dimensions and ratios in Polish Koniks has been connected with the lower number of these horses examined. However, the significant correlations in the hoof measurements and ratios in this breed were frequent and the highest.
Summing up, the fore and hind hoof dimensions considering the lateral view of the hoof capsule have come out to be similar. The toe to heel length ratio approximates 2:1 in both hooves. Viewed from the solar surface, the hind hoof is wider at the heel buttress relative to the fore hoof. The greatest difference between the fore and rear hooves occurs in the capsule width, hence while recording this parameter, it should be defined which foot it concerns. The hoof width is the most highly correlated with other dimensions, as well as the correlations between the fore and hind hooves in this parameter are the highest. The hoof capsule width is the most characteristic dimension of the hoof.

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Authors:
Prof. ANNA STACHURSKA PhD*
RYSZARD KOLSTRUNG PhD
ANNA KLIMOROWSKA MSc
Department of Horse Breeding and Use

Prof. MIROSŁAW PIĘTA PhD
Department of Sheep and Goat Breeding

University of Life Sciences in Lublin
13 Akademicka str.
20-950 Lublin
Poland

Prof. PIOTR SILMANOWICZ PhD
Department and Clinic of Animal Surgery
University of Life Sciences in Lublin
30 Głęboka str.
20-612 Lublin
Poland

*Corresponding author
email: anna.stachurska@up.lublin.pl