

(CC), maximal thickness (TSB) and porosity (PSB) of subchondral bone and porosity of cancellous bone (PCB). Maximal thickness of non calcified cartilage (NCC) was calculated as well as the ratio between CC and TC. For each variable, the effect of the following factors was studied: member, articular level, site 1 (type Anterior, Middle and Posterior), site 2 (type Internal, Middle and External) and the interaction between site 1 and site 2.

### Results and discussion

Significant differences were observed for the variables listed in the table below.

	Member	Level	Site 1	Site 2	Site 1* Site 2
CC		****	****	****	**
NCC	****	****	****	**	
TC	****	****	****	****	
CC/TC	***	****	****		
TSB	****	****	****		***
PSB		**			
PCB				**	

TC and NCC were thicker for the fore digit, with a smaller ratio CC/TC and smaller TSB. This could be related either to the pathology or to the different distribution of body weight and efforts during locomotion. TC, CC and NCC were thicker for P3P and smaller for P1D. TSB was thicker for P2P and smaller for P2D whereas PSB was higher for P1D. For site 1, CC, NCC, CT and TSB were larger for site M whereas CC/TC was higher for site P. For Site 2, CC, NCC and CT were also larger for site M, as well as TSB, PSB and PCB. The results are related to different strains zones within and between joints. To better understand the results, it's necessary to compare them with aged-matched sound horses.

## MORPHOLOGICAL DIFFERENCES BETWEEN THE KIDNEYS OF SHEEP AND DOG

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### Introduction

The kidneys of horse, ox, pig, sheep and dog belong to the same group of organs and it is not difficult to identify them. However, the kidneys of dog and sheep are very similar to each other. Our aim, therefore, was to find some differentiating between the organs using certain parameters, which would help identification to which animal do the individual kidney belong.

### Material and methods

We collected sheep kidneys during the year 2006 from a few slaughterhouse surrounding sarajevo and sacrificed three sheep for the organs studying in situ. We took kidneys of dogs of different sexes, ages, and breed from the dog-pound in Sarajevo. The number of organs in total was 25 left and 25 right sheep kidneys and 15 left and 15 right dog kidneys. We performed transverse and longitudinal sections for observation of the number and form of lobes and their mutual relationship.

### Results

During the examination of the kidneys, some parameters were used. So we compared the dorsal and ventral surfaces (Facies dorsalis et ventralis), cranial and caudal extremities (Extremitas cranialis et caudalis) as well as the borders of organ (Margo lateralis et medialis). Special attention was paid to medial border (renal hilus). These examinations were done separately on the left and on the right kidneys of both, sheep and dogs. Our observations are presented in the table below which shows the differences in some parameters between the sheep and dog kidneys.

### Discussion

In various references, including different anatomy books, we did not find detailed morphological description of kidneys of dog and sheep as it is done here considering all the relevant parameters (surfaces, poles and borders including renal hilus). Ellenberger-Baum mentions that the kidneys of small ruminants are bean shaped, while the dog's have similar shape as kidneys of pig, but are thicker and rounded, whereas the pig's are flatter. Our observations brought us to another conclusion. On the other side, Niel D.S. May, while examining the kidneys of dogs and sheep, concluded that Dog kidneys are somewhat longer and have darker color in comparison to sheep kidneys, which are more bean-shaped. Our observations correspond with his statements. Sisson mentions the elliptical form of sheep kidneys with convex surfaces and round borders which are bean shaped, while those of dogs are somewhat longer and have more convex ventral surfaces in comparison to the dorsal surface. However, our observations show that both sheep kidneys have heart-like shape, while the surfaces correspond with the statement of Sisson.

### Conclusion

Comparing all the parameters of left and right kidneys separately of both animals, we can say that the similarities are great. That is why it is difficult to differentiate which kidney belongs to which animal.

On the basis of morphological data the most obvious differences of sheep and dog kidneys are connected with the form of the organ. While sheep kidneys are bean shaped, dog kidneys have more the shape of a flat bean. There are also differences in the borders of the kidneys, the Sheep's are more bent, while the Dog's are less bent, especially the medial border which is more straight. Dorsal surface (Facies dorsalis) of Dogs is almost flat, while the sheep's is convex. Kidney poles of sheep and dogs differ in the sense that the cranial extremities more round in comparison to the posterior extremity which is more flat on both kidneys. While the anterior extremity of sheep is somewhat narrower compared to the posterior extremity, dog's extremities have almost equal diameters.

Parameters	Sheep	Dog
Colour	Bright reddish brown	Dark reddish brown
Form	Heart-shaped	Bean-shaped and flat
Facies dorsalis Facies ventralis	Less flat Convex	More flat Convex
Relation Margo lat et med.	More bent	Less bent
Extremitas cranialis Extremitas caudalis	Narrower-rounded Wider-rounded	Wider-rounded Less-rounded and flat
Hilus renalis	Shallow hilus	Deeper hilus