New tool for self-study of osteology: 3D labelled models of the thoracic and pelvic limb skeleton of the horse

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**Introduction:** Anatomical courses on the limb osteology provide basic facts and anatomical terms necessary for the veterinarian profession. Within the course most students encounter an extensive anatomical terminology for the first time that has to be addressed during a period limited by the course duration. Additional self-learning hours can be difficult if the access to bones is restricted and term explanations are limited to textbooks and figures.

**Materials and Methods:** 3D models of thoracic and pelvic limb bones of the horse were created in 3DSOM pro ver3, 2011 Creative Dimension Software Ltd. using on average 30 to 45 shots from different angles of every limb bone. 3D models were improved in Meshmixer, 2014 Autodesk Inc. and Blender 2.7, Blender Foundation. Latin terms from Nomina Anatomica Veterinaria 2012 were used to label the models with the help of FinalMesh 1.0, Pelikan Software Kft.

**Results:** 3D models of thoracic and pelvic limb bones of the horse were developed and labelled with 354 anatomical terms in total. Each bone can be rotated and inspected from different angles. The corresponding area appears labelled on the bone model after a click on an anatomical term from the list. The bone models were exported into WebGL format that enables them to be processed in most commonly used internet browsers (Internet Explorer, Mozilla Firefox, Google Chrome etc.) with no additional programs. 3D models are intended for the use on PCs, tablets, and smartphones and will be available on the web site of the Faculty of Veterinary Medicine University of Zagreb (www.vef.unizg.hr/3datlas) after termination of the standard publication procedure.

**Conclusion:** 3D labelled bone models should prove valuable asset during self-study of the thoracic and pelvic limb osteology. Their small size enables easy and quick processing while the Latin labelling and free access ensure the worldwide usage.
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