

Målbeskrivning för specialistkompetens inom bilddiagnostik för hund och katt.

Målbeskrivningen är en riktlinje för vad aspiranten ska behärska vid examinationen, och kan inte anses i varje detalj fullständig. Målbeskrivningen visar de huvudsakliga områden som examinationen kommer att baseras på, och är avsett som en hjälp till aspiranten när den individuella studieplanen läggs upp.

Aspiranten ska visa en god klinisk och teoretisk kunskap i ämnet bilddiagnostik med randområden enligt specifikation i dokumentet ”Specificerade kunskapskrav inom bilddiagnostisk”.

Nedanstående lista beskriver vad aspiranten skall kunna utföra och känna till. Då majoriteten av kurslitteraturen är på engelska är även listan engelskspråkig för att underlätta för aspiranten.

A. Physics and general principles

The electromagnetic spectrum - the nature and properties of radiant energy in general and those of X-rays in particular.

The generation of X-rays - basic generator circuits; the X-ray tube; thermionic emission; the principle of the line focus; dual focus tubes, fixed and rotating anodes; the dissipation of heat and the electrical insulation of tube housing. The control of kVp, mA, and time.

The interaction of X-rays with matter - the exponential nature of the attenuation of an X-ray beam; the inverse square law. The physical nature of the photo-electric effect, the Compton effect and classical scatter. The relationship of the physical processes of beam attenuation with the photon energy of the beam and the atomic number and specific gravity of the attenuating substance and its significance in diagnostic radiology. The effective atomic numbers and specific gravities of air, water, soft tissue, fat and bone.

The X-ray beam - processes leading to the production on X-rays; the spectrum of the X-ray beam; the effect of filtration of the beam.

The formation of the radiographic image - the formation of an image as a result of differential absorption; the photographic effect; film types and speeds; photographic density and contrast; physical processes resulting in fluorescence; intensifying screens and cassettes.

Film processing - principles and practice of film processing; darkroom requirements; the recognition of faults due to defects in processing and film handling; film identification.

Digital Radiography - Be familiar with the use of computers and concepts of digital image formation, format, resolution and storage, Pixel, Voxel and Matrix size, Photostimulable

phosphor (PSP) detection systems and image capture. Processing of a PSP imaging plate and image production. Advantages and disadvantages of CR and DR systems. PACS, DICOM

Film quality - density, contrast, and sharpness; the effect of radiation intensity and processing on film density; the control of film contrast; the origin and control of scatter; beam collimation and grids; effect of beam geometry, film and screen speed, and motion on image sharpness; geometric distortion; the recognition of faults due to inadequate radiographic procedure.

Practical radiography - exposure assessment; the factors influencing the choice of kV, mA, time, film type, use of grid, etc; formation of technique charts. Candidates should be familiar with the problems associated with the correct positioning of patients, the limitations that may be imposed in domestic animals, and the need for compliance with regulations (SSI:s strålskyddslag). Candidates should also understand the need for restraint and be prepared to demonstrate suitable methods. They should appreciate the advantages and disadvantages of the use of sedation and anaesthesia.

Radiation protection - the relevant legal requirements including familiarity with the current regulations (SSI:s strålskyddslag), the risks involved in the use of radiographic procedures; the methods which can be used to minimise these risks; hazards arising from poor design of X-ray rooms; the control of hazards arising from secondary radiation; the correct use of protective aprons and gloves; familiarity with current radiation monitoring; the instruction of lay staff in radiation discipline. It is essential that they show not only theoretical knowledge but also evidence of the practical application of the regulation i.e. in their submitted radiographs and written reports.

Principles of the use of contrast media - the nature of the more frequently used media and indications for their use; the procedures for performing basic contrast techniques.

Normal radiographic anatomy - candidates should possess a detailed knowledge of the normal radiographic anatomy of the dog and cat and of their variations with breed and age.

Understanding the principles of radiological interpretation - the recognition of tissue types; formation of shadowgraphs; effects of superimposition and multiple shadows. Changes in opacity, size, shape, position and function of organs. The use of simple positional and contrast aids to elucidate radiographic problems. The applications of these basic principles to the evaluation of radiological signs in relation to clinical problems.

The principles and applications of diagnostic ultrasonography in veterinary practice – physical principles of ultrasound; image production; display modes including basic Doppler functions; artifacts; normal ultrasound appearance of the thorax, heart, abdomen and musculoskeletal systems; recognition of major alterations to the normal architecture of organs and the possible

diagnostic significance of these changes as well as differential diagnoses.

Special techniques Candidates should be familiar with the general principles of contrast examinations and the performance and interpretation of the more commonly used techniques. They should understand the principles and indications of fluoroscopy with image intensification.

CT, MRI and scintigraphy - Understand the basic physics, indications and practical performance. Be aware of the basic interpretation principles.

B. Organ systems and disease processes

Digestive System Common abnormalities affecting the teeth, pharynx, oesophagus and gastrointestinal tract. Obstructive lesions and functions disturbances. The significance of gas shadows. The use of contrast media.

Abdomen Recognition of changes in outline, position and opacity of organs. Abdominal masses and displacements caused by them. The presence of free gas or fluid.

Urogenital System Common abnormalities affecting the kidneys, ureters, bladder, urethra, male and female genital organs. Intravenous urography, retrograde cystography and urethrography (positive and negative).

Cardiovascular System Common abnormalities affecting the heart and blood vessels and evidence of cardiovascular disease.

Respiratory System Common abnormalities affecting the nasal cavity, sinuses, larynx, trachea, thoracic wall, pleural cavity, mediastinum, diaphragm and lungs.

Musculo-skeletal System Common abnormalities affecting bones and joints. Traumatic, degenerative, inflammatory and neoplastic conditions. Congenital and developmental abnormalities, metabolic disorders.

Axial Skeleton & Central axial Nervous System Common abnormalities affecting the skeleton and the central nervous system. Traumatic, degenerative, inflammatory and neoplastic conditions. Congenital and developmental abnormalities, metabolic disorders. The principles and problems associated with the use of contrast media to demonstrate lesions of the spine and spinal cord.

Soft tissue Trauma. Foreign bodies. Sinuses. Calcification.

Specialundersökningar

Aspiranten ska kunna indikationer, kontra-indikationer, komplikationsrisker, genomförande och tolkningsprinciper.

	<i>Ska kunna praktiskt</i>	<i>Ska kunna teoretiskt</i>
<i>Röntgen</i>		
Myelografi	X	
Diskografi		X
Epidurografi		X
Kontrastundersökning av esofagus	X	
GI kontrastpassage	X	
Colografi		X
Iv urografi	X	
Retrograd cystografi	X	
Retrograd uretrografi	X	
Colpografi	X	
Artrografi bogled		X
Peritoneografi		X
<i>Ultraljud</i>		
Cystocentes	X	
Finnålsaspirat	X	
Vävnadsbiopsi	X	

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