


Goals:

Discuss the why & how of hands-free radiology, and give interested parties a head start

Start with the "why" and move to the "how"




Hands Free Radiology Defined

Taking radiographs without using human hands/bodies to restrain the patient.

Ideal - humans are 6+ ft from the radiology table, helpful – humans hands off & as far away as possible

A patient and team centric approach to the radiographic process



Hands Free Radiology Rationale

The goal: to improve safety for our associates, improve care for our patients, and provide diagnostic images for our DVM team

Ionizing radiation is hazardous and lowering exposure is critical

Human healthcare professionals are not expected to be close to the radiology exposure

Successfully implemented in other parts of the world in veterinary medicine

Low compliance on PPE

Ionizing radiation

Risk of exposure during radiography increases with the:

- physical restraint of animals
- use of older or poorly maintained equipment
- inadequate use of protective garments

[NIOSH Reproductive Health - Ionizing Radiation](#)

[OSHA Ionizing radiation](#)

Workers may be exposed to ionizing radiation in several ways, depending on their job tasks. The health effects of radiation dose depend on the type of radiation emitted, the radiation dose received by a worker, and the parts of the body that are exposed, among other factors. Radiation dose depends on the duration of exposure, the amount of radiation generated from the radiation source, the distance from the radiation source, and the amount and type of shielding in place. In general, radiation dose is received when a worker is:

- In close proximity to an unshielded or partially shielded radiation source.
- Unprotected when near unshielded radiation generating machines (e.g., X-ray machine, accelerator, etc.) in operation.

Common Questions:

Will I have to sedate all my patients?

- No - and it helps!

Am I sacrificing image quality?

- No - and human safety is #1

Is my patient going to get hurt using hands-free techniques?

- No - and use good judgement

Is using hands-free techniques going to take a long time?

- No - practice, be patient, and remember why you're doing it (+ sedation helps)

Are hands-free techniques going to cost my client more?

- No - hands free does not cost extra and sedation is essential when indicated

Radiation Risks & Requirements

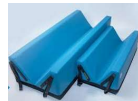
- No known "safe" level of radiation
 - Exposure is accumulative and should be limited
 - Radiologic workers studies
 - 3 ft leakage from x-ray tube (watch your head)
- PPE requirements: lead apron, lead thyroid shield, lead gloves, +/- eyewear (+ dosimeter badge)
 - Gloves are for scatter, not the primary beam
 - Gloves must be enclosed
- ALARA: As low as reasonably achievable
 - Time, shielding, **distance**
 - Property of inverse square law: If you double your distance from the exposure, your absorbed radiation dose is reduced by 75%

Hands Free Radiology Supplies

Sandsocks from Techno-Aide



V-trough



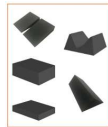
Tape, gauze, Velcro, rope/quick release cleats

Towels

Foam wedges

Partition wall

1/4 inch foam!



Notes on Sedation

Know when to sedate (no patient wrestling): **"Sedation should be expected when indicated"**

Have monitoring devices and documentation available where indicated

Responsive vs. non-responsive

Recovery monitoring

Procedure	Monitoring	Documentation	Recovery
Fluoroscopy	Continuous	Continuous	Continuous
CT	Continuous	Continuous	Continuous
MR	Continuous	Continuous	Continuous
Interventional	Continuous	Continuous	Continuous
Diagnostic	Continuous	Continuous	Continuous
Emergency	Continuous	Continuous	Continuous
Other	Continuous	Continuous	Continuous

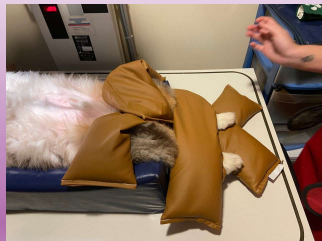
Hands Free Thoracic Radiographs



Hands Free Thoracic Radiographs



Hands Free Abdominal Radiographs



Hands Free Abdominal Radiographs



Hands Free Abdominal Radiographs



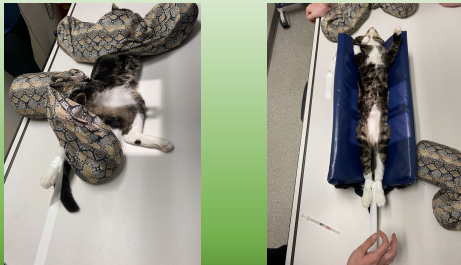
Hands Free Abdominal Radiographs



Hands Free Orthopedic Radiographs



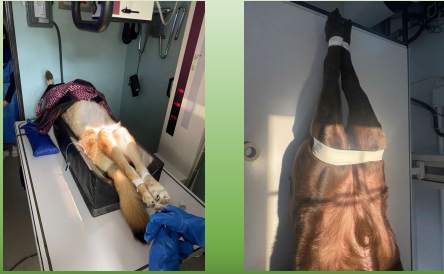
Hands Free Orthopedic Radiographs



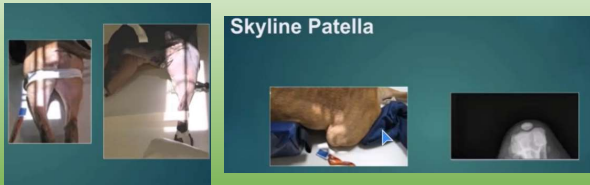
Hands Free Orthopedic Radiographs



Hands Free Orthopedic Radiographs



Hands Free Orthopedic Radiographs



Skyline Patella

Pictures from WoofU OnDemand: Julie White, RT

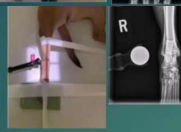
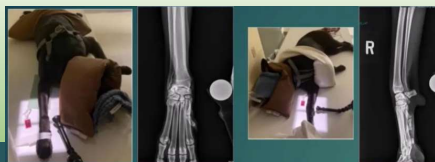
Hands Free Orthopedic Radiographs



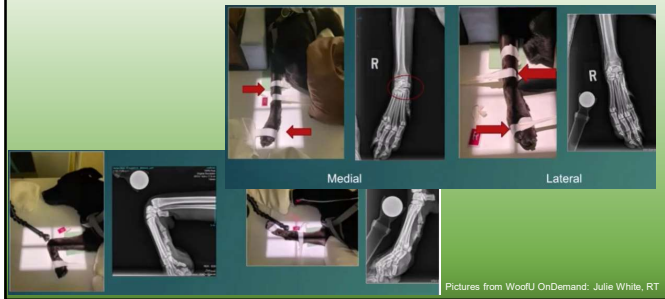
Pictures from WoofU OnDemand: Julie White, RT

Figure 3: (A) Dog positioned for mediolateral radiograph of shoulder joint. (B) Fluoroscopic image from dog in Figure 3A, note the shoulder joint and position of the cervical spine and trachea. The other shoulder joint is pulled caudally to prevent superimposition. Legend: 1 = humerus; 2 = humeral head; 3 = greater tuberosity; 4 = intertuberosity groove; 5 = scapula; 6 = acromion process of the spine of the scapula; 7 = supraglenoid tubercle (cranial aspect of glenoid cavity); 8 = glenoid cavity; 9 = trachea

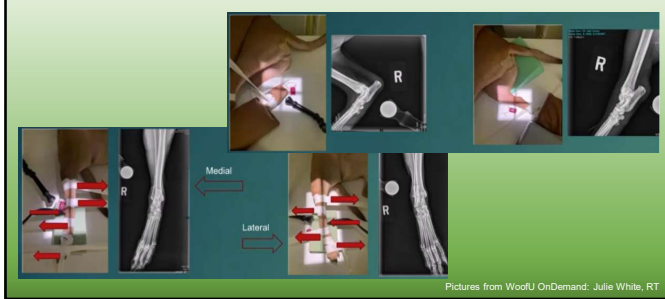
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Hands Free Orthopedic Radiographs



Hands Free Orthopedic Radiographs



Let's Go!

How do we start?

- Supplies
- Staff commitment
- Build skills
- Tips:
 - 4 minute timer?
 - Chest & abdomen films
 - Ortho films are sedated
- Reporting in Woolfware
- Hands-light if needed



Hands Free Radiology Resources

WOOF U Live OnDemand: Hands-Free Radiology: Orthopedic Imaging: Softt, Elbow, Pelvis
Continuation | WOOF U Live | Total Price \$200 | 00:00:00:00

This WOOF U Live OnDemand session, led by Julie Blinn, DVM, MSW, covers basic principles of orthopedic imaging including basic geometry and the importance of proper positioning. There are step-by-step instructions for obtaining diagnostic images of softt, elbow and pelvis and are available as well as links to more for proper positioning and correct for signs.

WOOF U Live OnDemand: Hands-Free Radiology: Orthopedic Imaging & Special Studies: Spine, Shoulder, Carpus/Tarsus & Stressed Views
Continuation | WOOF U Live | Total Price \$200 | 00:00:00:00

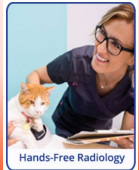
This WOOF U Live OnDemand session, led by Julie Blinn, DVM, MSW, covers some of the more complex orthopedic studies including shoulder, carpus/tarsus and medial/lateral views. Step by step positioning instructions along with explanations of these radiographs in different are included for in these studies are covered. All topics.

WOOF U Live OnDemand: Hands-Free Techniques in Critical Patient Case Study
Continuation | WOOF U Live | Total Price \$200 | 00:00:00:00

This WOOF U Live OnDemand session, led by Julie Blinn, DVM, MSW, and Ashley Renner, MSW, VTS (Diagnostic Imaging), is tailored to address the issues of the critical patient situation. Whether the animal is trauma case, a compromised long term disease process or even in the hospital, having hands free can **help** the approach and make it do it.

WOOF U Live OnDemand: Facing the Challenges of Change (Hands-Free Radiography)
Continuation | WOOF U Live | Total Price \$200 | 00:00:00:00

This WOOF U Live OnDemand session, led by Julie Blinn, DVM, MSW, and Ashley Renner, MSW, VTS (Diagnostic Imaging), brings an open conversation to some of the most common issues that **hands free** technicians, students and patient resistant, could be considered together in the hospital environment. This session will address communication skills for.



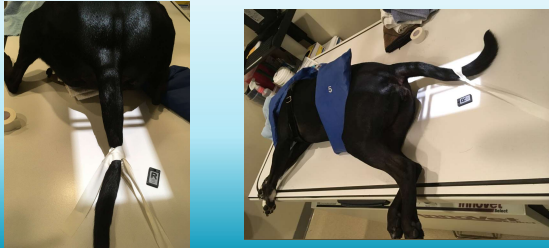
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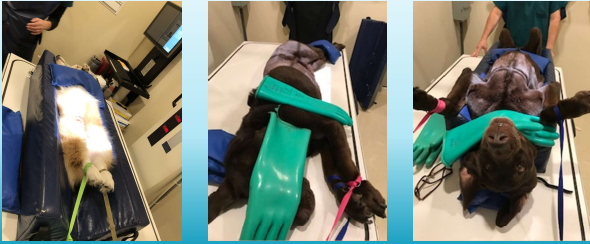
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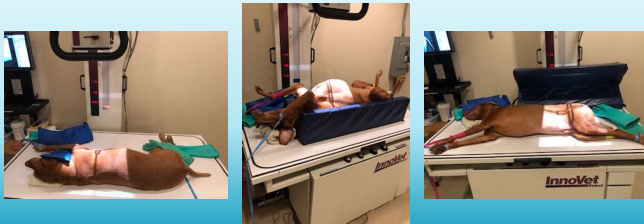
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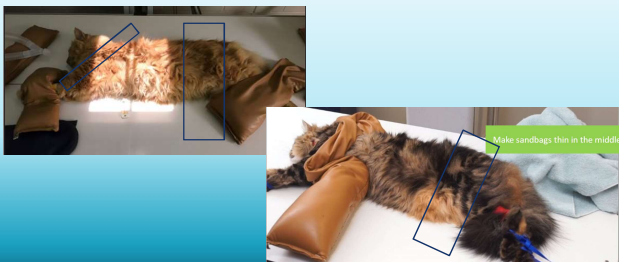
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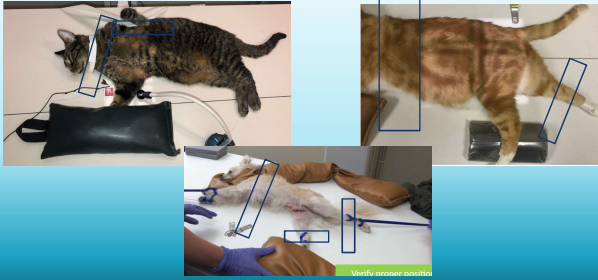
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