

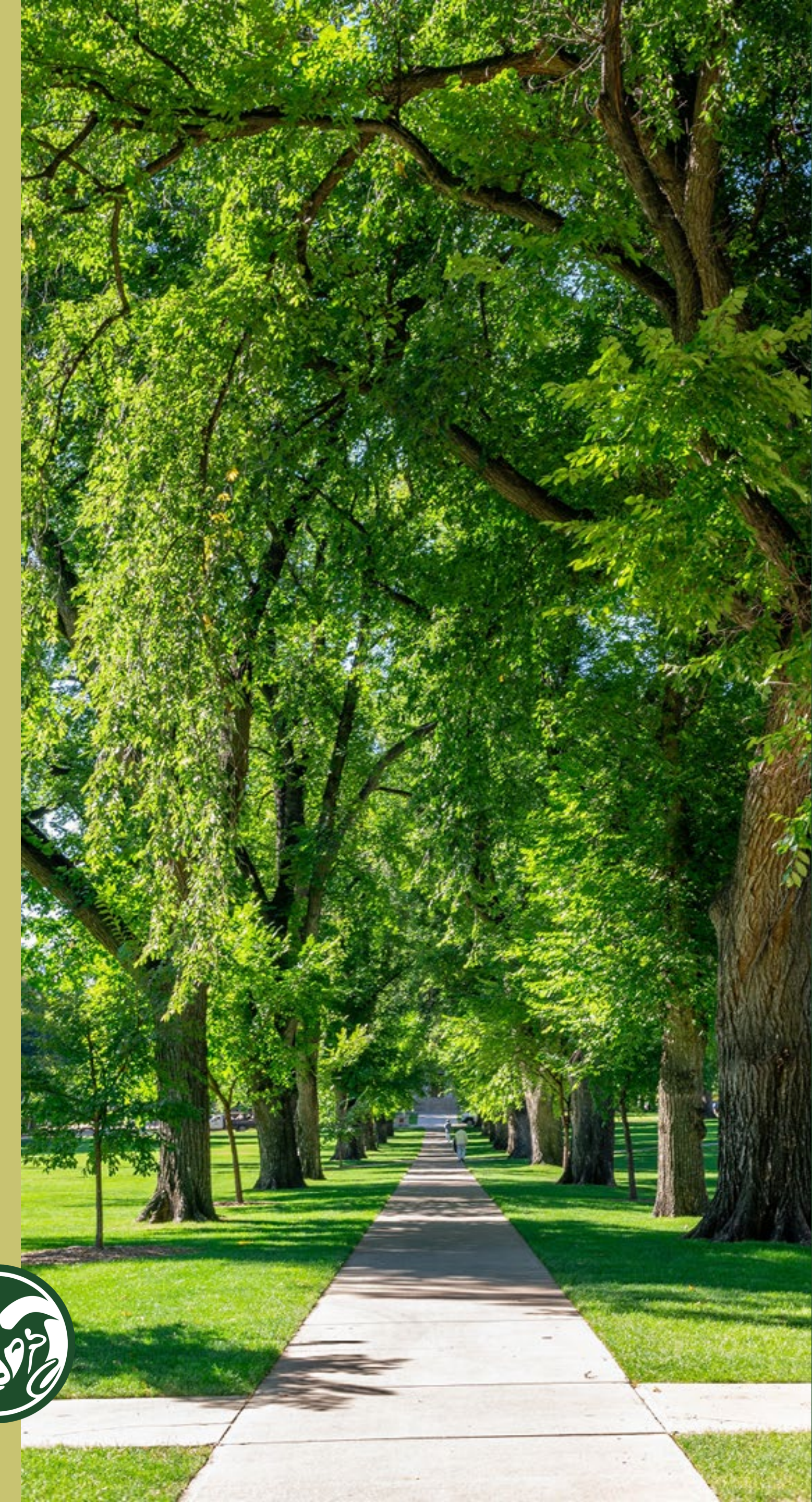
Your Colorado State University speakers

Christianne Magee

Program Lead, Virtual Veterinary Educational Tools (VVET)
Associate Professor, Associate Head, Department of Biomedical Sciences, Colorado State University (CSU)

Andrea Linton

Lead Developer, Virtual Veterinary Educational Tools (VVET)
Instructional Technologist, Department of Biomedical Sciences, Colorado State University (CSU)



Your Perkins Access speakers

Taylor Snook

Senior Digital Accessibility Consultant, Perkins School for the Blind

Jennifer Sagalyn

Director of Strategic Partnerships, Perkins School for the Blind

Perkins
Access



Agenda

- Snapshot of anatomical instruction and software
 - Warning: Cadaveric images
- Partnership origins
- How Virtual Animal Anatomy became more accessible
- Demo VR program
- Universal design in VR discussion

Goals

- Gain an understanding of effective teaching tools
- Learn specific accessibility techniques for websites
- Discuss how accessibility helps all users
- Collaborate on innovative solutions for the future

Virtual Animal Anatomy: History



Virtual Canine Anatomy

- **Version 1** : Head dissection and osteology only
 - **Linton A**, Schoenfeld-Tacher R, Whalen LR. 2005. Developing and implementing an assessment method to evaluate a virtual canine anatomy program. *J Vet Med Education* 32:249–54.
- **Version 3.0**: Full body dissection/osteology, neuroanatomy, radiology, surface anatomy
 - Transition to VAA, Research to Market (R2M) CSU program
 - **Linton A**, Garrett AC, Ivie KR, Jones JD, Martin JF, Delcambre JD, **Magee C**. 2022. Enhancing anatomical instruction: Impact of a virtual canine anatomy program on learning outcomes. *Anatomical Sciences Education*. 15:330–340.

No animals have been or will be harmed in the development of these tools.

Virtual Animal Anatomy: History

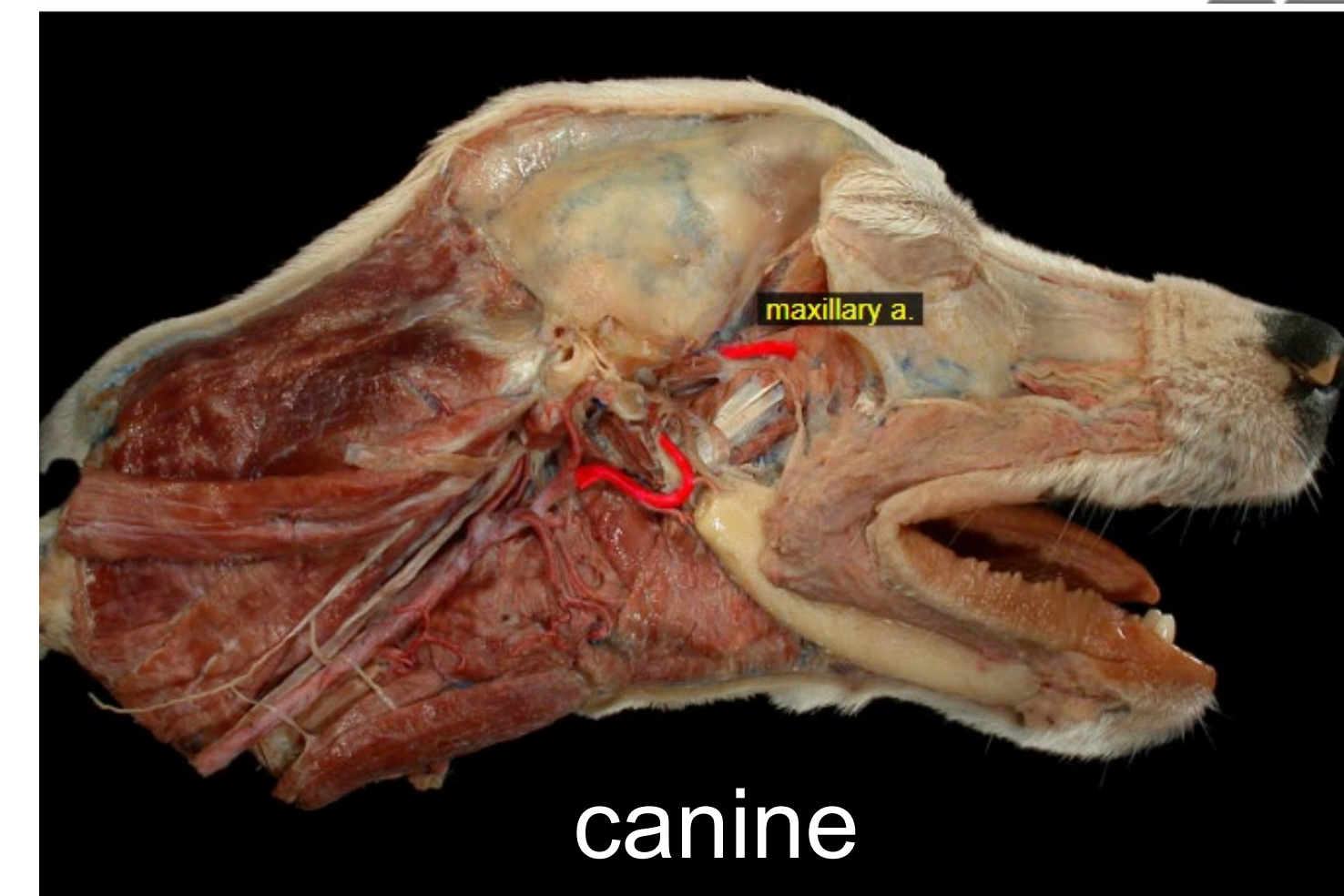
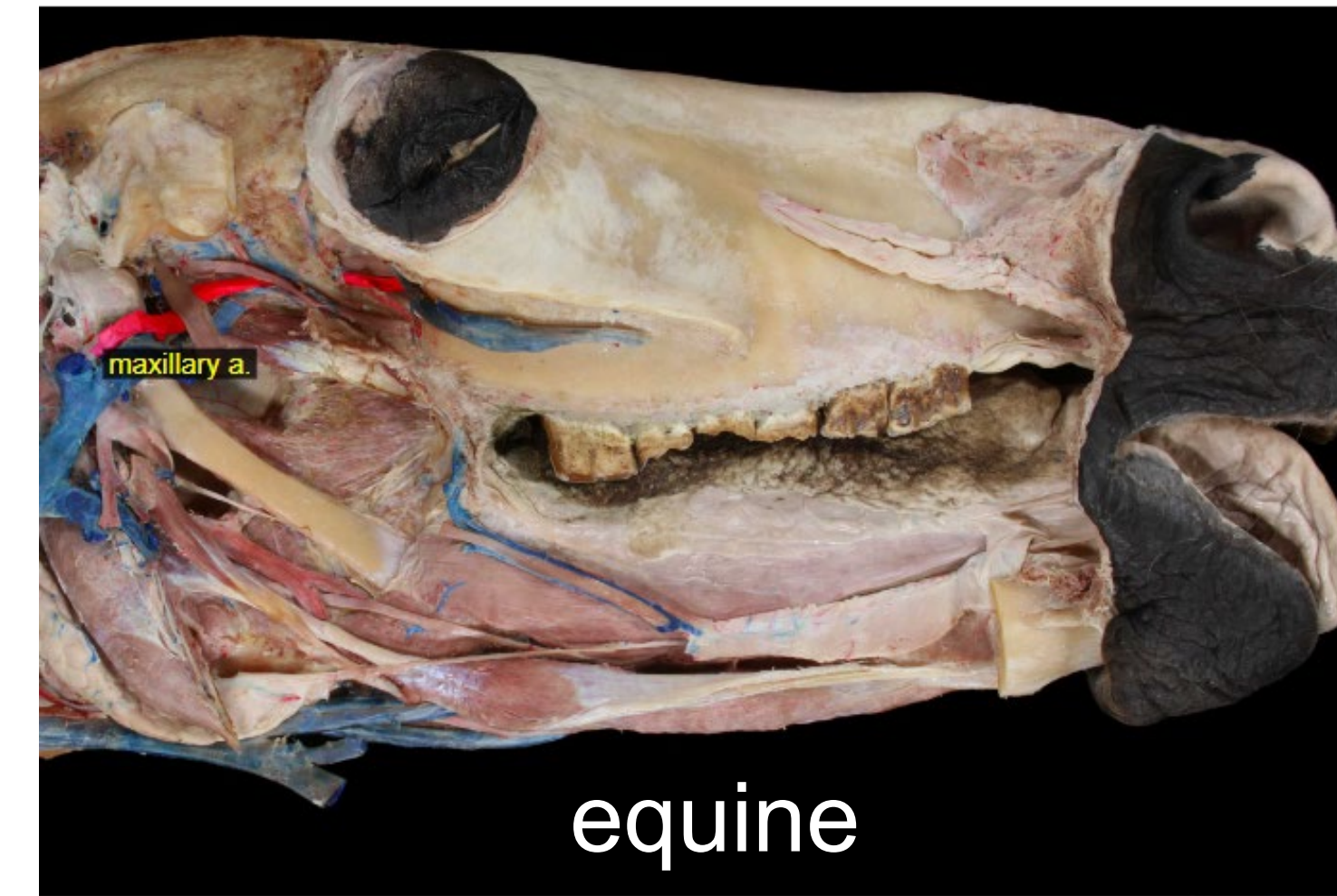
- **Virtual Animal Anatomy (VAA) - software as a service**
 - **Virtual Canine Anatomy 3.0**
 - English, Spanish, Japanese
 - **Virtual Equine Anatomy 2.0**
 - limb and head dissection, osteology
 - English, Spanish
 - **Virtual Feline Anatomy 2.0**
 - limb and head dissection, osteology
 - **Virtual Bovine Anatomy 1.0**
 - limb dissection, osteology



Development Considerations

- Programming language
 - Authorware -> Flash -> HTML5
- Copyright protection
- Distribution strategies
 - CD-ROM -> USB -> (free) -> LMS/LTI
- Program consistency with species variation
- Specimen variation within species

WARNING – CADAVERIC IMAGES

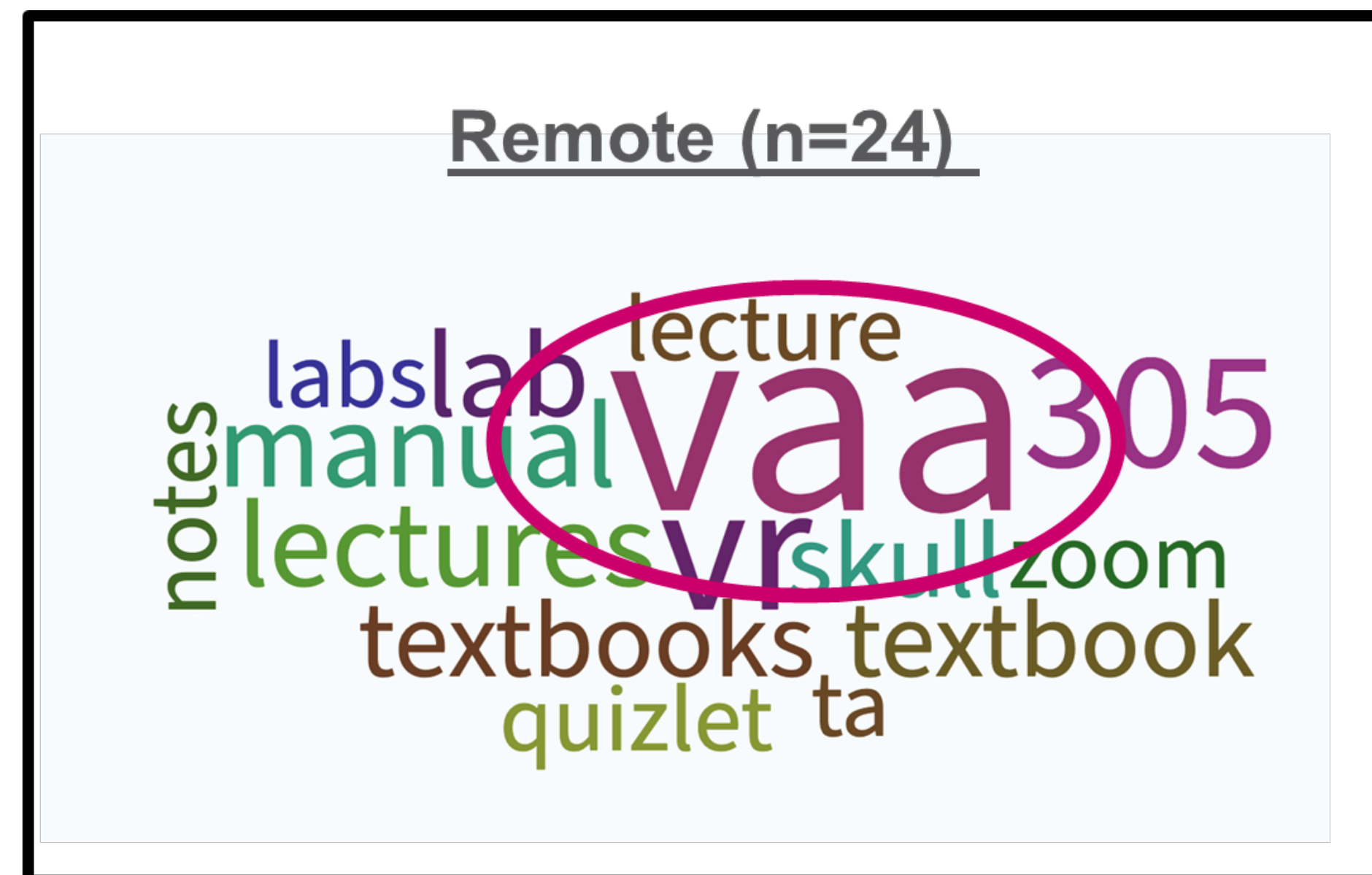
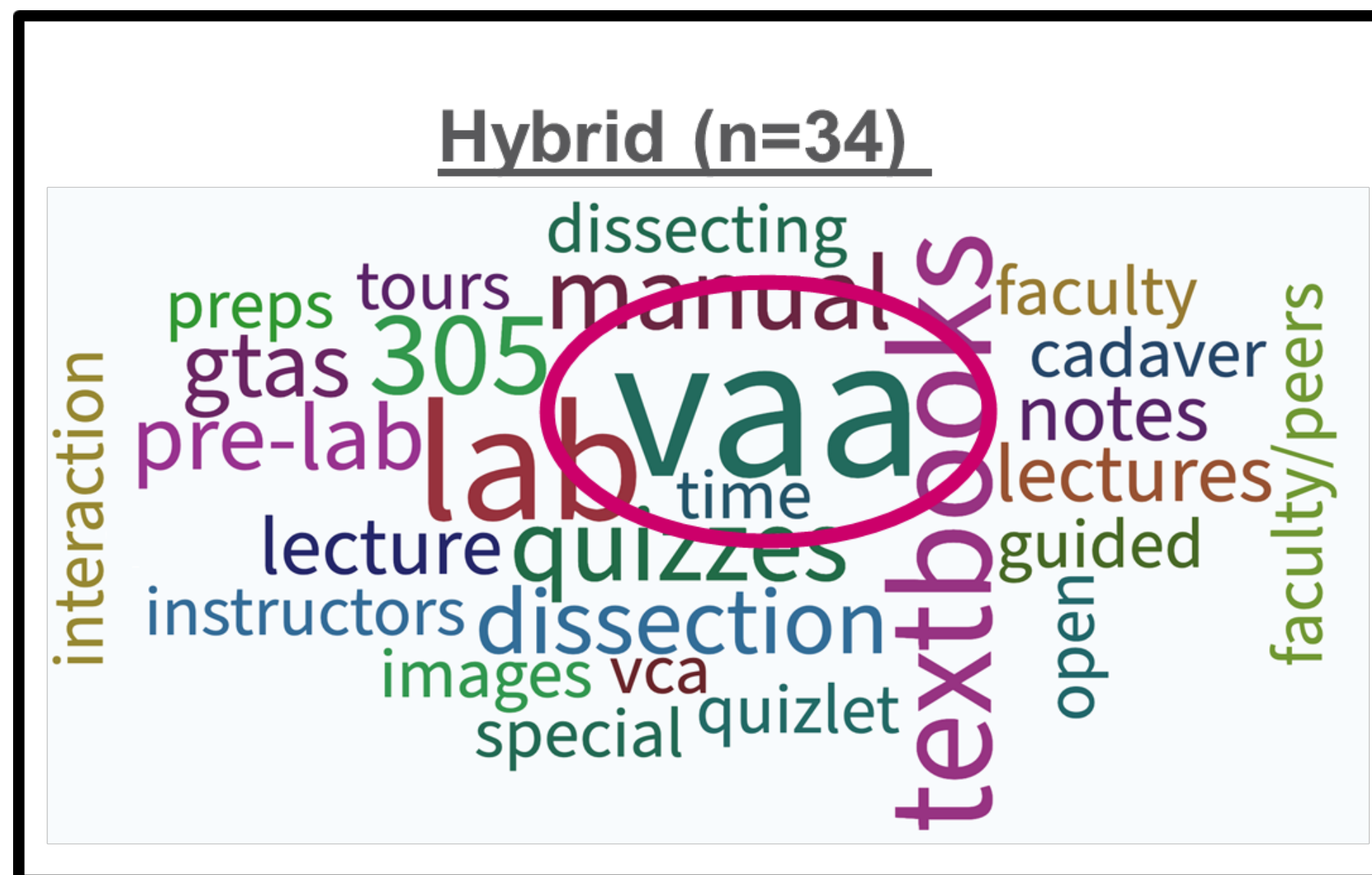


VAA and COVID-19

Transition to online learning

- CSU Animal Anatomy
 - >200 students utilized VAA remotely for learning and assessments
- Free VAA COVID access March–July 2020: 148 schools, >12,000 students worldwide

Martin JF, Arnold OR, Linton A, Jones JD, Garrett AC, Mango DW, Juarez KA, Gloeckner G, Magee C. 2023. How Virtual Animal Anatomy Facilitated a Successful Transition to Online Instruction and Supported Student Learning During the Coronavirus Pandemic. *Anatomia, Histologia, Embryologia*. 52: 36-49.



What's a VPAT?

- **VPAT** = Voluntary Product Accessibility Template; Originally used to help federal agencies, now being used in many settings other than federal, including higher ed

Glossary

- **VPAT** = Voluntary Product Accessibility Template; Originally used to help federal agencies, now being used in many settings other than federal, including higher ed
- **ACR** = Accessibility Conformance Report; “VPAT” and “ACR” are often used interchangeably
- **WCAG** = Web Content Accessibility Guidelines; Internationally recognized accessibility standards; Can be applied to all digital content
- **VAA** = Virtual Animal Anatomy

Unique challenges & solutions



The following slides contain images of animal dissection, which may be disturbing to some viewers.

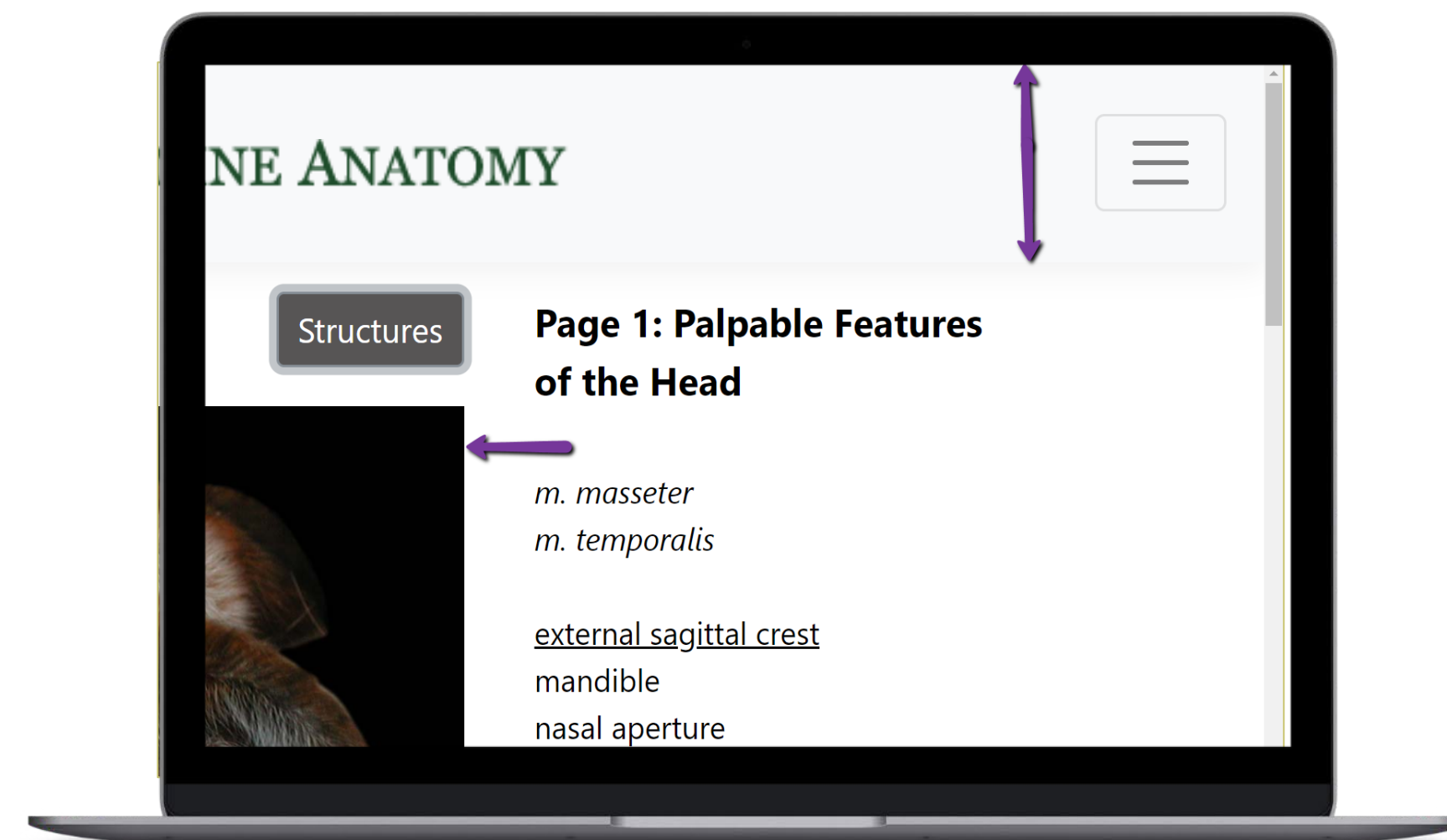
Challenge: Screen real estate

Barrier: Sticky headers, which remain fixed at the top of a webpage as users scroll; content that doesn't reflow to fit the screen size or orientation.

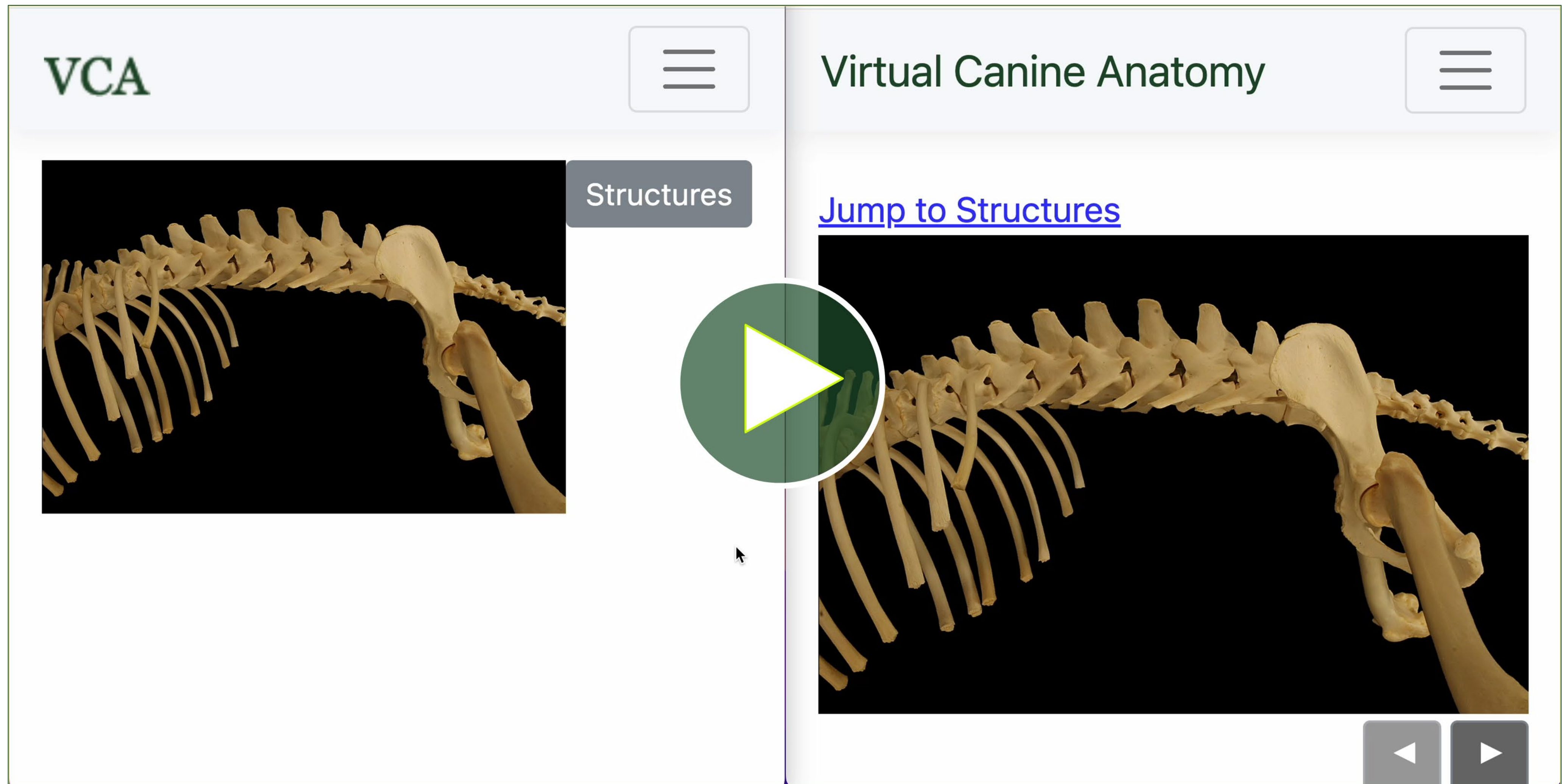
Why it's a problem: Particularly if large, may take up a substantial part of the visible area, forcing users to scroll more frequently to access the content.

Who it affects:

- People who are visually impaired
- People with low vision who use screen magnification or high zoom levels
- Non-mouse users
- People accessing content on phones and tablets; in portrait vs. landscape modes



Demo of remediation



[VAA Sticky Header and Structures Button Demo on YouTube \[no audio\]](#)

Videos will be described as part of the live presentation

Challenge: Anatomy shading

Barrier: Contrast between highlighted region and surrounding shading was not sufficient

Why it's a problem: Some users will have difficulty identifying the boundaries of the structure.

Who it affects:

- People who are visually impaired
- People with low vision
- People in environments with light glare
- People using outdated monitors or projectors
- Older audiences with diminished vision



Demo of structure overlays



Demo of remediation

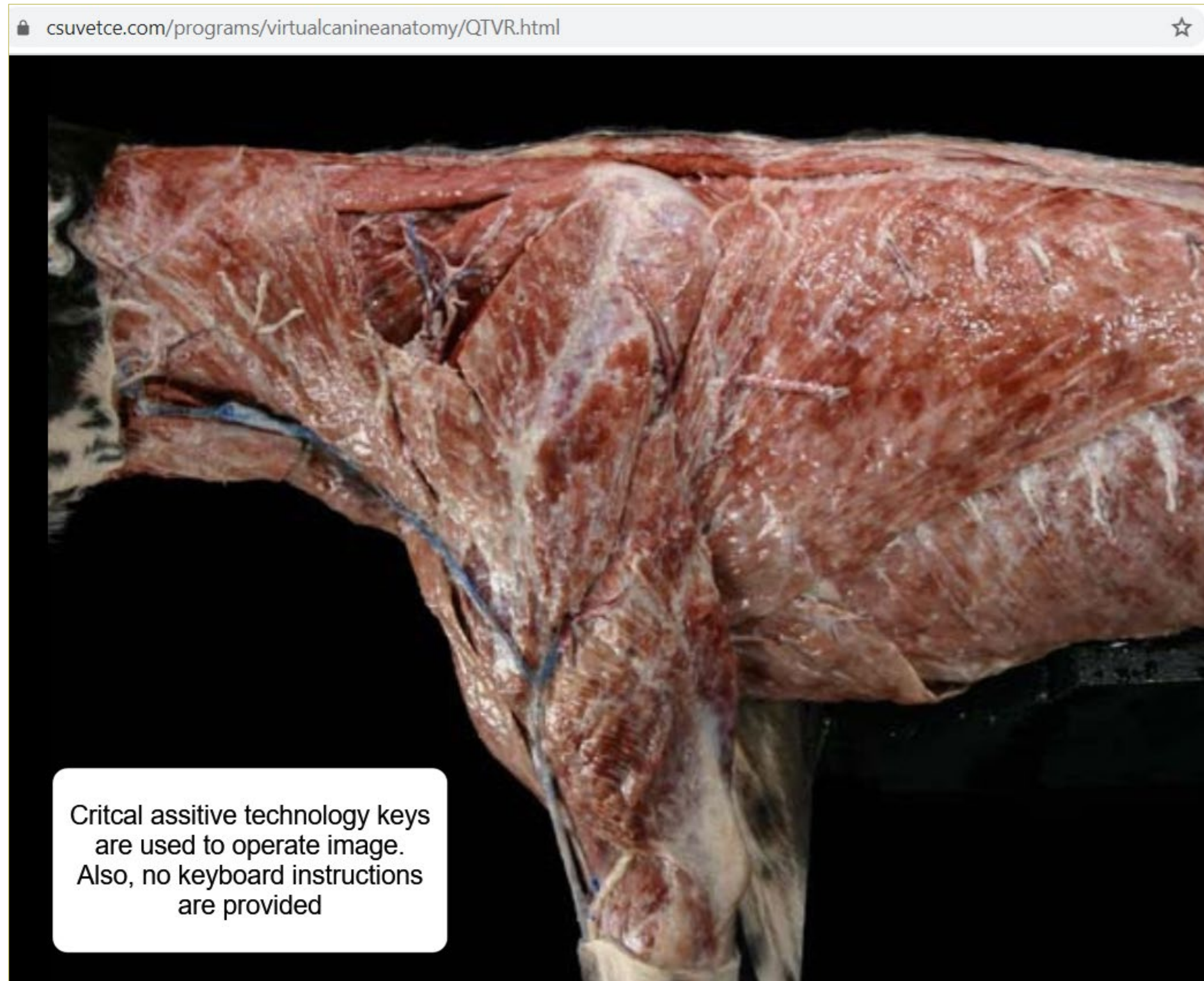
The screenshot displays the 'Virtual Bovine Anatomy' website. The main content area shows a 'Lateral View' of a bovine humerus. A video player is overlaid on the image, with a large play button. The text 'body of the humerus' is highlighted in yellow on the bone image. To the right of the image is a list of anatomical features with blue hyperlinks: [body of the humerus](#), [brachial groove](#), [crest of the humerus](#), [deltoid tuberosity](#), [lateral supracondylar crest](#), [greater tubercle](#), [greater tubercle, caudal part](#), [greater tubercle, cranial part](#), [head of the humerus](#), [humeral condyle](#), [olecranon fossa](#), [trochlea of the humerus](#), [infraspinatus surface](#), [lateral epicondyle of the humerus](#), [lesser tubercle](#), [neck of the humerus](#), [nutrient foramen](#), [teres minor tuberosity](#), and [tricipital line](#). Below the main image is a smaller thumbnail of the same bone. A text box at the bottom left provides a description of the 'body of the humerus': 'The diaphysis, or **body**, of the bovine humerus is generally smooth, and bears the characteristic sigmoid appearance common to the humeri of other species. Its abbreviated length and significant thickness add strength to this load-bearing bone. The medial diaphysis bears the roughened **teres major tuberosity**, to which *m. teres major* attaches; the lateral body contains the **deltoid tuberosity**, a large lateral projection that forms the point of insertion for both heads of *m. deltoideus*. The **nutrient foramen** of the humerus can be found approximately midway down the

The browser's developer tools are open on the right side of the screen. The 'Rendering' tab is active, showing various emulation options: 'No emulation', 'Emulate CSS media feature prefers-reduced-motion', 'Emulate CSS media feature prefers-reduced-transparency', 'Emulate CSS media feature color-gamut', 'Emulate vision deficiencies' (set to 'Protanopia (no red)'), 'Disable AVIF image format', and 'Disable WebP image format'. The 'Protanopia (no red)' option is currently selected.

[VAA Structure Outline Demo on YouTube \[no audio\]](#)

Videos will be described as part of the live presentation

Challenge: Mouse dependencies / keyboard shortcuts



Barrier: Interface caters to mouse interaction; keyboard shortcuts are available but not defined.

Why it's a problem: Shortcut keys can interfere with assistive technology users by conflicting with the keyboard commands needed for navigation and control.

Who it affects:

- All non-mouse users
- Users with physical or motor disabilities.

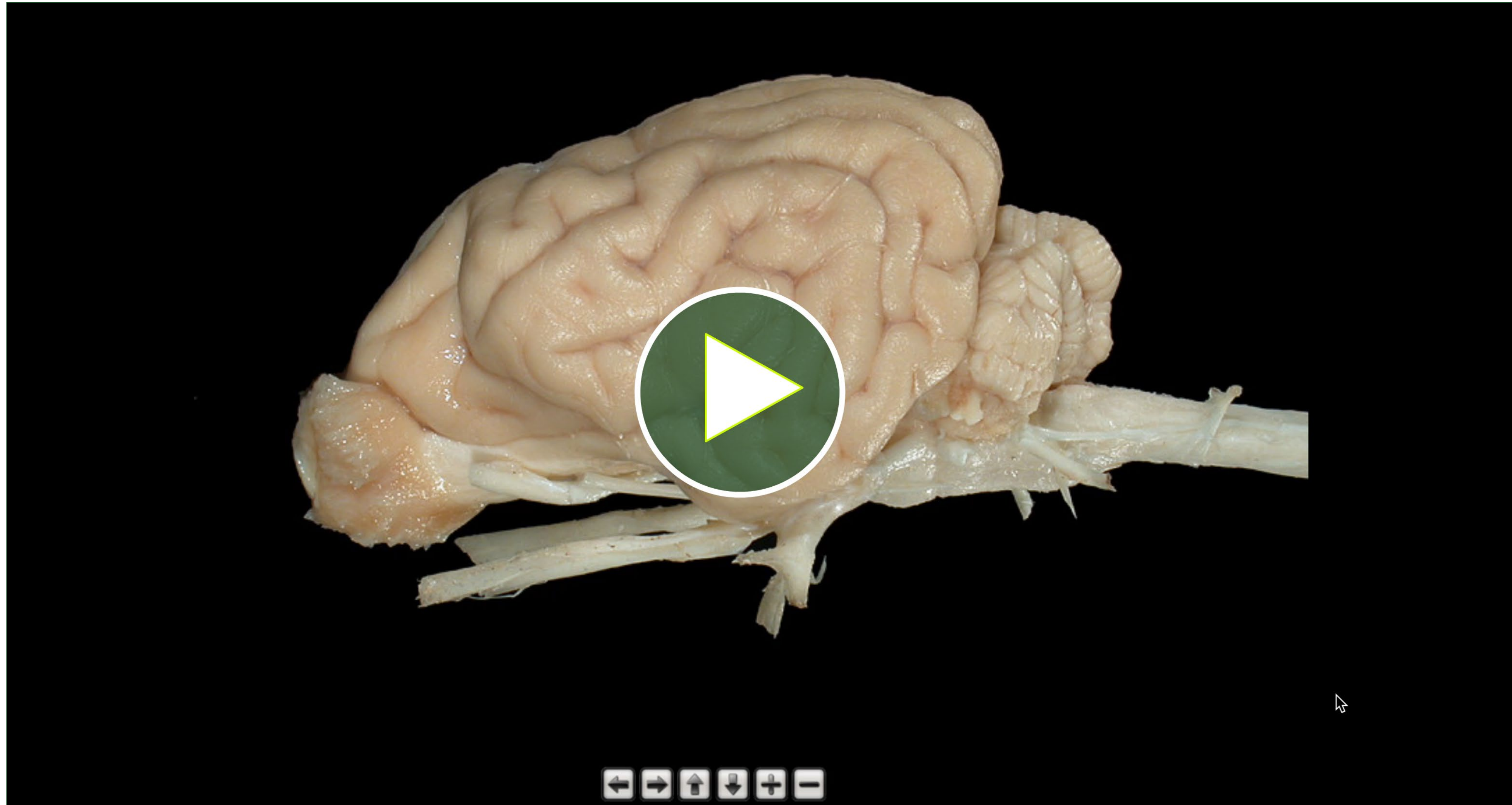
Demo of previous version



[VAA Previous Rotatable Object Demo on YouTube \[no audio\]](#)

Videos will be described as part of the live presentation

Demo of remediation



[VAA New Rotatable Object Demo on YouTube \[no audio\]](#)

Videos will be described as part of the live presentation

Discussion: Accessibility in VR

- Visual
- Hearing
- Physical
- Cognitive
- Social
- Environmental

Please share your thoughts with us!



tinyurl.com/AHGCSU

If you have trouble with this form, or prefer to respond via email, please contact Christianne.Magee@colostate.edu

VAA on Quest



Colorado State University



[VAA VR Demo on YouTube \[no audio\]](#)

Videos will be described as part of the live presentation

Discussion and demo time (~15 min.)

Please share your thoughts with us!



tinyurl.com/AHGCSU

If you have trouble with this form, or prefer to respond via email, please contact Christianne.Magee@colostate.edu



Thank you



We welcome
your thoughts
and appreciate
you sharing

tinyurl.com/AHGCSU



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