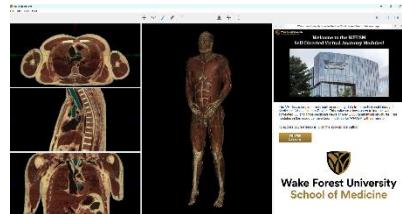


VHD Jumpstart: Introduction to the Thorax

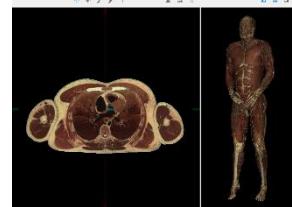
Non-Touch Version

NOTE: If you are using the Toltech Table, return to the previous page and select the Touchscreen Version.



1 Start by setting the screen view

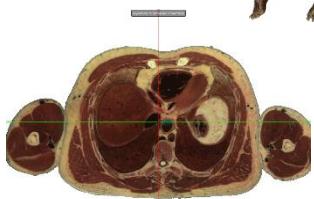
- Hide the Lessons Pane to focus on the cross sections and 3D model.
- De-select the “Lessons” view icon.



2 Set a cross-section of the thorax

- Double-click on the transverse cross-section to enlarge it.
- Add a Transverse cross-section to the 3D model.
- Click the “Cross-Section” tool and select “Visible” and “Color” under the Transverse cross-section. Click the Cross-Section icon or one of the main panels to close the window.
- Place the cursor in the transverse cross-section pane and use the up or down arrow keys to scroll through the cross-sections. Scroll to the middle of the chest.
- Explore the anatomy of the thorax by selecting the “Highlight” tool and moving your mouse over the cross-section. (Note: structures are identified at the top of the cross-section area. To see the cross-section numbers, click on View menu, and select “Show Cross Section Numbers”.)

Scroll cross-sections by holding Ctrl (PC) or Options (Mac) and using the mouse scroll.



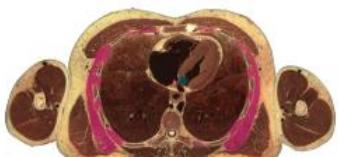
3 Magnify the 3D model pane

- Zoom in to the 3D model by placing the cursor in the 3D model pane and using the scroll wheel on the mouse.
- Select the “Move” tool and drag the 3D model with your mouse to reposition it.



4 Find and highlight the P. major muscle

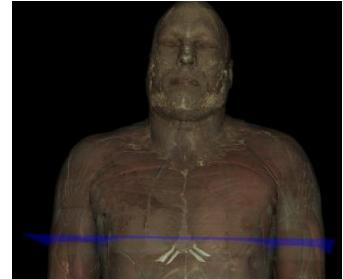
- Open the Anatomy glossary window by selecting the Anatomy icon
- Make sure you are under the “Index” list
- Enter “Pectoralis major” into the search box.
- Select the “Highlight” icon next to “Pectoralis major – Right” to add and highlight this muscle. (The cross-sections are in standard radiologic orientation, so the right p. major is highlighted on the left side.)



What are four other muscles that contribute to the thoracic wall? Explore the models.

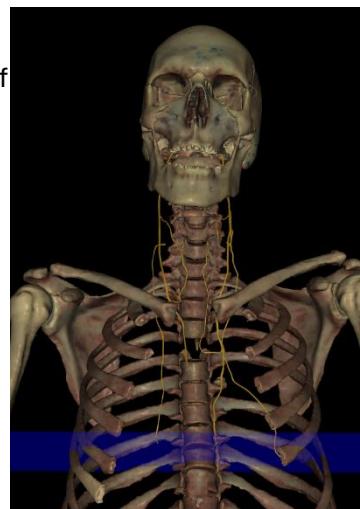
5 Adjust the skin to see surface anatomy

- Tap the “Adjustment” icon  to reveal the skin tool.
- Slide the bar to the right or left to change the opacity of the skin.
- Before proceeding, remove the skin from the 3D model (slide the bar to the left).



6 Isolate the Phrenic Nerves by simplifying the 3D model

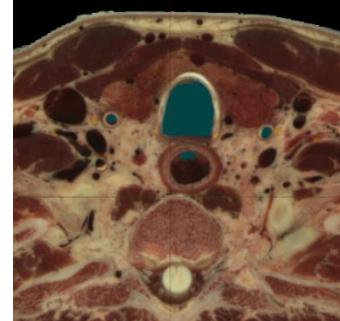
- Clear the 3D model by tapping the “Hide All” icon at the top of the Anatomy glossary. 
- Next, tap the “Systems” icon  on the left side of the Anatomy glossary to open the Systems list.
- Add the full skeletal system to the 3D model by tapping the “Visible” icon  to the left of “Skeletal System”. Tap the Anatomy icon  to close the Anatomy window.
- Dissect the bones of the sternum and costal cartilages using the “Dissect” tool .
- Then, expand “Nervous System” > “Peripheral Nervous System” > “Spinal Nerves”.
- Expand “Cervical Plexus – Left” and “Cervical Plexus – Right”.
- Add and highlight left and right “Phrenic Nerve” using the “Highlight” icon .



Scroll cross-sections by holding Ctrl (PC) or Options (Mac) and using the mouse scroll.

7 Follow the Phrenic and Vagus Nerves

- Scroll through the transverse cross-section to view the first rib.
- Find and highlight  the “Vagus Nerve” (Hint: use the search box in the index list).
- Locate the phrenic and vagus nerves in the cross-section.
- Zoom in and center the cross-section to get a closer look at the nerves.
- Follow the nerves inferiorly by scrolling (arrows or Ctrl(PC)/Options(Mac) keys + mouse scroll) through the cross-section.

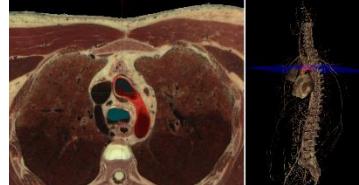


8 Visualize a more complex structure, the Aortic Arch

- Clear the 3D model .
- Confirm you are on the “Systems” list , then click “Collapse”  in the top right corner of the Anatomy glossary.
- Expand “Skeletal System” > “Axial Skeleton” and add  “Vertebral Column”



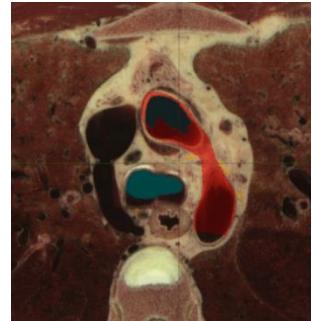
- Next, expand “Cardiovascular System” and add “Heart”.
- Tap the “Rotate” icon , then rotate the 3D model to a posterolateral view.
- Scroll through the cross-section to view the aorta where it exits the heart.
- Manually highlight the “Ascending Aorta”.
- Scroll through the cross-section to follow the ascending aorta superiorly until it begins to arch.
- Manually highlight the “Aortic Arch”.



List the three branches of the aortic arch. Visually trace the aorta superiorly to identify the branches. Remember to use the highlight function and hover over the cross-section!

9 Revisit the Vagus Nerve

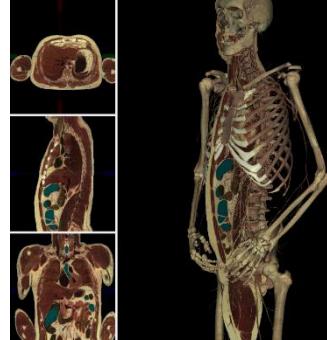
- Open the “Systems” list and expand “Nervous System” > “Peripheral Nervous System” > “Cranial Nerves”.
- Highlight the left and right “Vagus Nerve [X]” .
- Scroll through the cross-section, locate the left vagus nerve and follow it inferiorly as it passes the aortic arch.



What branch of the vagus nerve loops inferior to the aortic arch? Examine the cross-sectional anatomy.

10 Free Exploration

- Practice using these tools (and exploring other options) to examine additional thoracic structures of interest.
- Click the “Cross-Section” tool and select “Visible” and “Anatomy” under the Sagittal cross-section. Click the Cross-Section icon or one of the main panels to close the window.
- When finished, click the home button on the top right corner to return the main VHD window.
- Select “View” > “Restore Factory View” to reset the models.



One of my favorite tools is to use an anatomic cross-section superimposed on a 3D model. Try it!

Original design: Laura Weinkle, MS., Toltech
Modified with permission: Taflin Arbor, Ph.D., WFUSM