Netter’s 3D Interactive Anatomy
Learning Anatomy in a Whole New Dimension

Powered by Cyber-Anatomy

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● Product overview & value proposition

● Situation Analysis

● Market needs

● Tutorial
Product Overview

Content:
✓ Over 7000 labels (structures and anatomical landmarks).
✓ Over 120 CT/MR scans taken at various planes throughout the body that can be correlated to the 3D model.
✓ Over 100 additional Netter plates conveying specific cross-sections, schema, and complex layered views of anatomy that can be studied, searched, and correlated to the 3D models.
✓ Over 30 Explore Exercises to guiding on key structures and their anatomical and clinical significance.
✓ Quiz feature to test knowledge of structures and landmarks on the anatomy

Functionalities:
✓ True 3D modeling
✓ Free rotate, zoom, pan, and other manipulations. Dissect through peel, stick, explode, hide, and transparent tools.
✓ Dissect through peel, stick, explode, hide, and transparent tools.
✓ Pin & mark
✓ A Mentor window shows quick video and concise text describing every function button
✓ Robust terminology database and search engine allowing quick and easy search
Key Value propositions

Rich & Best-in-class content
- Netter Anatomy
- Gray’s Anatomy

Completely 3D-interactive

Intuitive, intelligent, and flexible user interface
Anatomy, as a must-have course for every medical students is not easy to teach because of requirement of spatial imagination and diversity of terms.

**Teaching methods**

- Fundamental: Text book / Atlas / Multimedia (i.e. CAI)
- Practical operation on dead body (completing multimedia training if available)
Addressing marketing needs

- Serve as a replacement for dead body dissection
  - Cost saving
  - Practical teaching
- Continuous Education
  - Providing clinical professionals, including general surgeon, orthopedics surgeon, radiologist, neurosurgeon, obstetrician-gynecologist, etc, on-job review and reference
- Truly interactive – Enhance teaching and learning experience
  - Turn anyone to a pro using mentor tool
  - True 3D modeling with vivid color scheme
  - Freely maneuver with quick navigator
  - Mimic real-life dissection experience with dissect tool
  - Self-explore exercise and quizzes
- Flexibility
  - Learning anytime and anywhere
  - Subscription based on number of users.
A 3D viewer application must be installed before 3D Anatomy can be ran in a PC

1) In order to allow for the 3D Via player, use the Right Mouse Click on the message and allow the installation of the ActiveX Control module.

2) The following message will prompt you to install the Player, click on “install” to download the application.

1) Upon completing the 3D Via player installation, the system will continue to download the Interact Elsevier file and the following screen will be visible.
User interface Overview
Anatomy Builder

This window provides the user with the ability to load anatomical structures and build a virtual body in the simulation window.

- **Male-Female Selector**
  - Green: selected and loaded in the simulation window
  - Gray: not selected and not in memory
  - Orange: not loaded but has been downloaded and is available in memory

- **Region-Group Selector**

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**Right Upper Limb**
- Skeletal
- Muscular
- Circulatory
- Nervous
- Lymphatic
- Skin

**Region**
- Pelvis
  - Skeletal
  - Muscular
  - Circulatory
  - Nervous
  - Digestive
  - Urinary
**Quick Selection:** The Anatomy Builder window can also directly expand itself to the appropriate region. For example, clicking on the Back and Spine (purple circle) will immediately expand to the system selection for that region.
Manipulating the Anatomy Builder Window: Allowing you to resize, dock, move, and pan the menu window whichever way best suits your view habit.
Navigate Tool Palette

This window provides a number of methods to rotate, pan, zoom and examine the model.

- **Orbit**: Use this tool to rotate the model.
- **Zoom**: Use this tool to change the magnification of the model.
- **Pan**: Use this tool to move the model to a different part of the screen.
- **Reset View (Home)**: Use this tool to reset the position of the model on the screen in its “home” position, and to clear the screen completely.
- **Walk**: Use this tool to move your camera through the scene.
Dissect Tool Palette

This window allows the user to explore the anatomy at various levels, by system or region, to peel, hide, and make structures transparent, to stick in position and unhide hidden objects and to explode regions.

- **Peel**
  Use this tool to move individual structures (or pieces of structures) away from their current positions.

- **Stick**
  Use this tool to move a structure (or piece of a structure) back into its original position after it has been Peeled or Exploded.

- **Hide**
  Use this tool to remove a structure from view.

- **Unhide**
  Use this tool to bring hidden structures back into view.
Dissect Tool Palette

This window allows the user to explore the anatomy at various levels, by system or region, to peel, hide, and make structures transparent, to stick in position and unhide hidden objects and to explode regions.

- **Explode**
  Use this tool to burst a group of structures away from the midpoint of their location.

- **Implode**
  Use this tool to bring all moved structures (exploded or peeled) back to their original positions.

- **Transparent-Opaque toggle**
  Use this tool to toggle an object’s appearance between see-through and solid.

- **Select**
  Use this tool to select several structures (or pieces of structures) upon which to perform another Dissect action, such as Peel, Explode, or Transparent.
This window provides the user various ways of showing and marking structure and landmark names.

- **Mark**: Use this tool to create a label with a leader line in 3D space that will remain visible until it is either deleted or the parent object is hidden.
- **Delete Mark**: Use this tool to delete existing marks.
- **Label**: Use this tool to turn on scroll-over hover text that appears as you move your mouse over structures and pins.
- **Pin**: Use this tool to show landmarks on a given structure
Using label tool for teaching and self learning

1. Using the pin tool and click on structure, all pins will be auto-loaded and positioned to indicate the landmark.

2. Use the mark tool to click on a pin and drag the mouse to appropriate location where name of the landmark will be shown.
The 3D models have all been texture-mapped with digital scans of the actual Netter paintings. A selection of 100+ of these can be called-up and overlaid in the 3D model to show their relative anatomic location.
Open a plate into the 3D model: Click on a Netter Plate to download the plate and show its anatomic position relative to the 3D model.

Search: Typing a word in the Netter Plates window search box will search for all related words and will yield a list of associated plates than contain the relevant anatomy.

Moving and resizing the window: Click and drag on the Netter Plates window upper bar to move the window. Click and drag the lower right corner to resize.

Viewing plates by Netter Atlas Sections: Default listing of Netter plates is a set of about 150 Plates. Click on the numbered buttons to filter the selection according to the Netter Atlas regional sections.

Transparency: Click the Transparency button to make the anatomy in the Simulation window transparent except for the Netter plate.

Hide occluding objects: Click on Hide occluding objects to show the Netter plates without any anatomy structures that may be in between the plate and the viewer.

Scaling the Netter Plates in the window: Drag the slider to scale the size of the plates.
Selecting a plate will immediately download and position it in the appropriate position corresponding to 3D anatomy in the simulation window. The Netter plate will become part of the object in 3D simulation window*.

A number of views and schema in the Netter Atlas that are more clearly conveyed in their original 2D form.
Transparency and Hiding Occluded Objects

Some plates are to be positioned inside the body and hidden by the loaded 3D model structures. As a result, they will not be seen by the user. In these cases, use transparency and hiding occluded object to allow the Netter plate to become more clearly viewed.
Labeling and Searching

Labeling tools can also be used on Netter plates. This will identify some of the automatically landmarks, muscles, and nerves in the selected plate.
CT/MRI Imaging Scans

Several CT and MR imaging sequences have been included in the software. Scans are positioned in the approximate anatomic location and correlated to the 3D anatomical structures.
Visible Human Interface

This function allows the user to view real human dissecting image in corresponding to particular anatomic location. Click \( \text{VH} \) to launch the visible Human Interface.

Scroll the mouse to browse through images

Drag the bar to zoom in/out the image
Using on the international standard, *Anatomica Terminologia (TA)*, search provides an effective and powerful method for learning and for building anatomy in the Simulation Window. It will render a list of both anatomy structures and pinned landmarks (also for Netter plates).
A typical search result will yield 4 types of entries:

1) A structure
2) A pin
3) A Netter plate
4) A pin on a plate
While in many cases a landmark that is found may be invisible to the user, the Search window provides a method for turning all anatomy objects to transparent except for the object that was found.
Once search results are displayed, a user can click on any object or pin to automatically make visible the corresponding object in the Simulation window.
Over 30 concise guides have been written to provide objectives and key points lists as you explore various regions. Click to launch the Explore Exercises.

## Back and Spinal Cord: Muscles and Nerves

The muscles of the back are divided into the extrinsic muscles that connect the upper limb to the trunk and the intrinsic (deep or true) muscles that specifically act on the vertebral column to produce movements and maintain posture.

### VIDEO TIP

To better view individual muscles and muscle groups in isolation and see their relative positions to the skeleton and nervous system, try the following: With all back muscles loaded on the skeleton and nerves, use Shift Select to select Muscles and Hide them all. Now use Shift Unhide to see the full list of muscles and unhide each as needed.

### Extrinsic muscles of the back

- **Superficial:** Trapezius, latissimus dorsi, levator scapulae, rhomboid minor and major
- **Intermediate:** Serratus posterior superior and posterior inferior (muscles of respiration)

<table>
<thead>
<tr>
<th>Muscle</th>
<th>Proximal Attachment (Origin)</th>
<th>Distal Attachment (Insertion)</th>
<th>Innervation</th>
<th>Main Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trapezius</td>
<td>Superior nuchal line, external occipital protuberance, nuchal ligament and spinous processes of C7-T12</td>
<td>Lateral third of clavicle, acromion, and spine of scapula</td>
<td>Accessory nerve (spinal nerve XI) and C5-C6 (proprioception)</td>
<td>Elevates, rotates, and inverts scapula, lower fibers depress scapula</td>
</tr>
<tr>
<td>Latissimus dorsi</td>
<td>Spinous processes of T1-T12, thoracolumbar fascia, iliac crest and last 3-4 ribs</td>
<td>Humeral (intertubercular sulcus)</td>
<td>Thoracic-dorsal nerve (C1-C8)</td>
<td>Elevates, adducts, and medially rotates humerus</td>
</tr>
<tr>
<td>Levator scapulae</td>
<td>Transverse processes of C1-C4</td>
<td>Medial border of scapula</td>
<td>C5-C6 and dorsal scapular(C5) nerve</td>
<td>Elevates scapula and tilts glenoid cavity inferriorly</td>
</tr>
<tr>
<td>Rhomboid minor and major</td>
<td>Spinal nuchal ligament and spinous processes of C7-T1</td>
<td>Medial border of scapula</td>
<td>Dorsal scapular nerve (C4-C5)</td>
<td>Extrinsic scapula, assists depression glenoid cavity, and fix scapula to thoracic wall</td>
</tr>
</tbody>
</table>
A quizzing module is available as a means to self-test. Anatomy must first be loaded in the Simulation window. Click ❌ to launch the Explore Exercises.
The interface will prompt the user for an object to be selected. This object launches options for quizzes of related anatomy. Once a user selects an item from the quiz list, the simulation will first gather all concepts related to this object and related region, then will load detailed models associated with this region.

If the correct answer is selected from the multiple choice list, the program continues to a second question by loading another object and making the rest of the surrounding objects transparent.

If the incorrect answer is selected, the list item will turn red and will await an answer. Clicking on the arrow at the bottom of the interface will skip the question.
The Mentor consists of a window that appears inside the application that provides an image or short video, instructions, and definitions of each tool in the system. The mentor can be used anytime to obtain help in better understanding tool functionalities.
Thank you

FAQ

Please click here for more supports!