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Anatomy.TV [e-product review]

Kevin McDonough
Northern Michigan University, kmcdonou@nmu.edu

CCA Review Template

The average review will be 1,500-3,000 words in length.

Title of Product or Resource: Anatomy.TV
Product URL: http://www.anatomy.tv/ or http://www.primalpictures.com/products.aspx

(If more than one, indicate each separately)
Author: Author Affiliation:
Email:
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	Language and Literature
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	Sociology, Education, Anthropology, Psychology
	Other

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Type of product being reviewed (put an X in as many boxes as apply):

	Abstracting & Indexing
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	App for mobile devices
	Bibliographic tool
	Biography
	Blog or social media
	Data sets
	Discovery tool
X	Image database
	Ebook collection
	Ejournal collection
	Encyclopedia/Handbook/Directory
	Library tool
	Newspaper or news source
X	Primary source digital content
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	Reports
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	Streaming video
	Website
	Other

Target Audience (Put an X in as many boxes as apply):

	Secondary
	General public
X	Undergraduate (including community colleges)
X	Graduate/Faculty/Researcher

Access (put an X in one box only)::

	Open Access (OA)
	Hybrid (some OA)
	One-time purchase
X	Subscription

Abstract

Anatomy.TV is web-based collection of digital images and anatomical models of the human body. The produce is feature rich with a powerful interface that allows users to move anatomical models in various directions, add or remove layers of body structures, associate various imaging (MRIs, CT scans, cadaver, etc.) to the anatomical models, view animations of muscle motion, label or highlight body parts, and download or save images for use in presentations. Customized packages of titles are available based on an institution's needs, but many will be served with one or more of the core titles: 3D Atlas, 3D Real-time Human Anatomy, Functional Anatomy, and Anatomy and Physiology. Pricing is reasonable considering available features and access through a hosted web service, unlike key competitors that use apps.

Pricing Options

Pricing is directly from Primal Pictures, or through the 3rd party vendor, TDS Health, which hosts Anatomy.TV on their StatRef site. TDS Health will negotiate at times with Primal Pictures for lower prices based on institutional or consortial needs, or budget constraints.

There are different levels of pricing based on the following categories: college or university with medical/dental school, college or university with health sciences programs at the undergraduate and graduate level, college or university with health sciences programs at undergraduate level only, community college, corporation. Within each educational category are further subdivisions based on relevant FTEs, or the number of students within health sciences programs or educational programs most likely to use Anatomy.TV: less the 5,000 users, 5,000 – 10,000 users, 10,000+ users, consortium or multi-site license. Pricing can be based based on unlimited simultaneous users or concurrent users.

The following prices are based on this reviewer's institution, a Midwest comprehensive university offering graduate and undergraduate programs in the health sciences, with relevant

FTEs of less than 5,000, and unlimited simultaneous users. Titles in specific packages are listed further in this review.

Premiere Package, $22,975
Human Anatomy and Physiology, $15,989
Human Anatomy, $12,688

Product Overview/Description

Anatomy.TV by Primal Pictures is a 3D interactive collection of digital images of the human body. Primal Pictures has been producing this product for over 25 years and they claim as unique their emphasis on peer-review of images by leading subject matter experts and specialists, both during and after production, which ensures the highest level of medical accuracy, detail, and quality. All images are created from real scans of the human body. These scans include magnetic resonance images (MRI), computed (CT) and micro-computed topography (micro-CT) images, images from the National Library of Medicine's Visible Human Project, electromyography, motion capture, and cadaver specimens.

Anatomy.TV has various packages and individual titles, all customizable for the needs of the subscribing organization, institution, or individual. Note a single body region or body system (in the case of the Anatomy and Physiology package) can count as an individual title, allowing for very customized subscriptions.

Typical Packages	Titles
Premier Package (all available titles)	CORE TITLES 3D atlas (includes nine body regions) Includes interactive functions that allow users to rotate or tip models and add or remove layers of anatomy from bone to skin, including over 6000 accurately labelled structures. 3D Real-time Human Anatomy (includes eleven body regions) Includes similar body regions as above, but adds the ability to create custom images and outline scans for course materials and lectures, customized labels and annotations, and is available in five languages. Functional Anatomy Features an extensive library of animated sequences showing muscle flexion, extension, adduction, abduction and more, along with gross motor animations. Anatomy and Physiology (includes twenty body systems) Provides instructors with a library of images, animations, slides for creating lectures and a bank of quiz questions compatible with many Learning Management Systems. SPECIALITY TITLES 3D anatomy focusing on clinical or therapeutic specialties, often including animations, clinical text, slides, animated sequences,

	movies, and more. Audiology Speech Language Pathology Dentistry Dental Hygiene Otolaryngology Urology Pelvic Floor Disorders Radiological Cross Sectional Anatomy (CT and MRI scans) Chiropractic Anatomy Trains Head and Neck: Basic Neuroanatomy Head and Neck: Pediatric Acupuncture Hand Therapy Primary Hip Arthroplasty Primary Knee Arthroplasty Interactive Clinical Anatomy: Axilla Surgery Surgery Titles Podiatric Medicine and Surgery Massage and Manual Therapies Sports Injury Series (separate ones on shoulder, knee, and foot) Exercise Pilates Yoga Resistance Training
Human Anatomy	3D atlas 3D Real-time Human Anatomy Functional Anatomy
Human Anatomy and Physiology	3D atlas 3D Real-time Human Anatomy Functional Anatomy Human Anatomy and Physiology
Communication Disorders	Speech Language Pathology Human Anatomy & Physiology for Audiology Head and Neck: Basic Neuroanatomy
Women's Health	3D Atlas: Pelvis 3D Real-time Human Anatomy: Pelvis Pelvic Floor Disorders
Dentistry	3D Real-time Human Anatomy: Dentistry Anatomy for Dentistry Anatomy for Dental Hygiene
Sports, Therapy, and Rehabilitation	Functional Anatomy Sports Injuries Exercise

	Resistance Training Pilates Hand Therapy Acupuncture Anatomy Trains

With such diversity of titles and customized packages available, Anatomy.TV is relevant for undergraduates taking anatomy courses in support biology, nursing, exercise science, speech language, hearing sciences, or athletic training curriculums. Also, specialized titles make this product relevant for graduate programs in the same areas or medical schools.

Anatomy.TV works on all major internet browsers, and all four core titles function on Ipad or Android tablets, along with two specialized titles, Human Anatomy for Dentistry and Human Anatomy for Speech Language Pathology. According to Anatomy.TV no apps are available for mobile phones as screen sizes are two small to display the rich graphics.

User Interface/Navigation/Searching

Anatomy.TV is a very feature rich source with many different content titles. For this review I will primarily focus on key features and navigation within two of the core titles, 3D Atlas and 3D Real-time Human Anatomy.

3D Atlas focuses on anatomical models divided into different regions of the body. After picking Thorax and Arm, a central viewing window appears with left and right side panes. In addition to the far left is a navigation panel. The first option on the navigational panel, called 3D Views, gives users options for viewing specific features the selected body region, but can be turned off by clicking on its symbol **<insert Figure 1 here>**. This allows greater focus on the anatomical model. The center window contains the main anatomical model of the body region, and clicking on an anatomical feature, e.g. biceps brachii, makes this feature turn green (see Figure 2). The third pane will display text and description related to the selected anatomical feature, and as with the first pane can be hidden by clicking on the blue bar at the top of the panel.

The main navigation features for the anatomical model are at the bottom of the central viewing window. One option includes adding or removing layers of anatomical features. Other options include rotating the image 10 degrees or 90 degrees at a time by clicking an arrow or box. You can also click and hold your mouse button on the image and then move your mouse right or left to rotate the model accordingly. In figure 3, I removed six layers from the original model, including arteries and veins, leaving muscle and bone **<insert Figure 2 here>**.

Other key features available are on the left hand side navigation bar. The second option, Imaging, provides MRI views of the selected region. Clicking on a body feature in the anatomic model will turn the feature green and mirror it to the MRI image **<insert Figure 3 here>**. By clicking the download option you can save images or textual descriptions. Another option allows you to view slides relating to the selected anatomical feature. As with MRI images, slides and the corresponding descriptions of anatomical features can be downloaded and used in PowerPoint presentations. Finally, there are short movies showing biomechanical motion, some

using MRI images, others using digitally created models, and some with human models **<insert Figure 4 here>**. Other options include saving images as favorites or to a specific folder, sharing links, or changing some of the settings including swipe speed for rotating anatomical models or images, and modifying background or highlight colors.

3D Real-time Human Anatomy has similar features to the 3D Atlas, but the latter is more suited to instructors while the former to students in anatomy classes. The Real-time Anatomy screen still has three panels, but the first and third are somewhat reversed. The first panel displays information on the anatomical feature selected in the central viewing window, e.g. in this example the 2nd rib, and can be turned off by clicking the T icon to the left of the panel **<insert Figure 5 here>**. The third panel allows you to display specific anatomical features for the model in the central viewing window. This ability is similar to adding or removing layers in the 3D Atlas, but grouped by similar body features. For example, to display arteries in the shoulder region, simply click the arteries label **<insert Figure 6 here>**. If you want to display specific arteries, click the arrow next to the label and the window will expand, showing groupings of arteries. The top has images representing layers of arteries. Underneath these images are groupings of specific arteries. Further subdivisions are available if a label box is colored with a darker shade of grade. Clicking on the label will allow someone to select a specific artery (see Figure 7).

Navigation within Real-time Anatomy is more complex and less intuitive than the Atlas, but more powerful. A few features not located at the bottom of the central viewing window are the ability to rotate the anatomical model both vertically and horizontally by clicking, holding, and moving the mouse accordingly. The scroll button of your mouse allows you to zoom in and out. To demonstrate tools available in the central viewing area, I selected the clavicle, which is part of the shoulder and arm region of Real-time Anatomy. Clicking on the Context icon zooms in on the clavicle and shows associated anatomical structures **<insert Figure 7 here>**. Clicking the icon again reverts to the original view. The Inspect icon removes all structures except the clavicle, allowing a closer examination and the ability to rotate and zoom the inspected object. The Examine icon ghosts out all structures in the selected body region, leaving only the clavicle in full color **<insert Figure 8 here>**. The Ghost option does the reverse of the Examine icon, by ghosting out the clavicle, and leaving the rest of the body region in full color. The Hide icon goes a step further and removes the clavicle completely, allowing you to see structures residing behind this selected object. The Home button zooms in or out, providing functionality if you are using a laptop, Ipad, or other device without an external mouse and a scroll wheel. Images of the Navigation features not shown in this review are available in this modified user guide from Primal Pictures, https://library.nmu.edu/test/Extract_UserGuide-RT-ATV.pdf **[temporary URL; will change after final edits]**, with the full guide appearing at http://www.anatomy.tv/realTimeHelp/pdfs/UserGuide-RT-ATV.pdf.

One of the strengths of the Real-time Anatomy is the dissection images, directly connected to the anatomical models. Clicking on the Gallery tab, part of the left hand navigation, highlights the Scenes sub-tab by default, with Dissections listed as the first scene. After viewing a specific dissection, you can click on an anatomical feature, which will highlight this feature on the model in the central viewing window (in image the deltoid is highlighted) **<insert Figure 9 here>**. Other gallery options include preselected groupings of anatomical features for the selected body

region and predefined viewing positions of the anatomic model (see all these features in more detail on this modified user guide https://library.nmu.edu/test/Real-time%20dissections,%20galleries,%20cameras.pdf) **[temporary URL; will change after final edits]**. Another notable distinction with Real-time Anatomy is the labeling capabilities. This allows instructors or students to label, pin, draw shapes or lines, and highlight specific anatomical features **<insert Figure 10 here>**. Just as with the 3D atlas, all images--standard, enhanced, or altered by the user--can be saved or downloaded for use in presentations.

Currently, Anatomy.TV is not ADA compliant. The product has some VPAT compliance under section 1194.22, Web-based Internet Information and Applications.

Full support

- Subsection j: Pages should be designed to avoid causing the screen from flickering

Partial Support

- *Subsection d: Documents are organized so they are readable without an associated style sheet.* Compliance: All content is visible without a style sheet, but might not be aligned properly
- *Subsection n: Online forms should allow people using Assistive Technology to access information needed for the completion of the form*. Compliance: only one search form which has access via a keyboard.

Critical Evaluation

Anatomy.TV is a very powerful and feature rich product, particularly if you subscribe to the Premiere package, which includes most of the available titles. However, that depth and richness comes at a cost of intuitiveness when using the program. If you are familiar with similar products, navigating Anatomy.TV might not be that difficult. However, for someone new to 3D anatomy programs, Anatomy.TV has a high learning curve. Simply trying to figure out why someone might use the 3D Atlas versus the Real-time Atlas was confusing. I've come to recognize the main advantage is the Real-time Atlas offers labeling options for highlighting anatomical features and dissection images. The latter are displayed in a window adjacent to the anatomical model, which is always located in the central viewing window. Clicking on an anatomical feature in the cadaver, highlights the same feature in the model. Although the 3D Atlas has dissection and other images, they are mostly provided as slides and are not connected to the anatomic model. There are some MRI images associated with the anatomic model, but with more limited views than the MRI imaging available as slides. Besides the overwhelming amount of features, the navigation symbols are not very intuitive, requiring you to spend time exploring or consulting Primal Fear's user guides or help screens. That's not to say you cannot jump right in and retrieve useful images, but many of the features or capabilities of Anatomy.TV are not immediately clear. In addition, it can be difficult for collection librarians to decide what titles or combination of titles will best serve their institutions. Some features overlap and the specialty titles can be tempting for specific programs, although are not necessarily needed because of the power and richness of the 3D and Real-time atlases.

All this said, Anatomy.TV is particularly a great product for faculty teaching courses on anatomy, kinesiology, or physiology. They can save and download slides, diagrams, and MRI images for use in presentations, along with creating customized labels or highlights of specific body features. Students can get a better understanding of how muscles work through animations,

and the location of anatomical features in the body relative to other body parts. Anatomy.TV is a very powerful learning tool that is worth the effort in getting to know it better. Another great advantage over its competitors is Anatomy.TV is available as a web service like most online products.

Competitive Products

Two main competitors are Visible Body and 3D4Medical. In reviewing both of these products on a trial, they all have similar capabilities as Anatomy.TV: viewing anatomical models of different body regions; layering various anatomical features; labeling, rotating/flipping the models; imagery; animations; ability to save images, etc. The big difference is Visible Body and 3D4Medical are apps and not a web-hosted service like Anatomy.TV. Pricing for Visible Body is based on the number of users downloading the app (1-250, 250-500, etc.), which remains active for 6 months and requires users to reconfirm they are still associated with subscribing institution. Such a pricing model requires an estimate of student numbers who will use the product, which can be difficult if potential users spans different departments and courses.

Purchase & Contract Provisions

Non-commercial/non-profit use of images, slides and animations is allowed and does not require any additional permission or license. However, Primal Pictures Ltd must be credited as the source of the images. More specifically, images, text and animations can be downloaded for use in PowerPoint presentations. Users may add their own labels or annotations to images. Faculty may print patient education sheets and handouts for students as long as these are not part of a commercial course or included in a manual for sale. Researchers may use images in journal articles as long as copyright is associated with Primal Pictures. Primal Pictures requests the authors send the company a copy of the article or at least the name of the journal in which the article will appear. Content cannot be shared or redistributed to other libraries or users without permission from Primal Pictures Ltd.

A subscription also allows users to load images and animations into Course Management Systems for access by other students and staff of the subscribing institution under the following conditions: 1.The images and animations can be accessed only by students and staff of the institution 2. No attempt is made to reproduce any part of the program 3. Copyright of images and animations is acknowledged to Primal Pictures, and 4. Any images and animations used are removed upon the cessation of the institution's subscription. This last point is unenforceable, and relies on the willingness of faculty to remove relevant content, making full compliance unlikely.

Authentication

Authentication options include IP addresses, Shibboleth, Athens, or username and password

References

Include citations to other reviews of this product as well as any source material used for the review. Please provide references or works consulted in the *The Chicago Manual of Style.*

About the Author

Kevin McDonough works as a reference and electronic services librarian at Northern Michigan University since 1997.

Scoring

Please provide a numeric score between 1-5 (one being the lowest and 5 the highest). The score can be as granular as one-half point intervals (e.g. 3.5). Please avoid a perfect score of 5 in any category unless the product is virtually perfect with no room for improvement. If a product is open access please score the Pricing and Contract options as N/A (not applicable).

The composite score should be an arithmetic average of the four scoring categories.

Composite Score:	4	

Content:	5	Feature and content rich. Very powerful displays of anatomical features, biomechanical movements, imaging, animations, and textual information.
User Interface/Searchability	*3*	Many capabilities, but difficult to understand quickly. Not very intuitive navigation symbols and lots of layered features. Definite learning curve required to release the full power of the product.
Pricing	*4*	Although the Premiere package is somewhat expensive, you get a lot value for the price compare to lesser packages.
Purchase/Contract Options	*4*	Very accommodating for educational uses, except for the stipulation faculty need to remove Primal Picture's content from their institution's CMS after the subscription ends. Highly unenforceable and unlikely to get full compliance from faculty.

Special Instructions for Screenshots and Tables

Screenshots or other images may be included in a review if desired. Care should be taken not to include too many as they are more likely to be cut if space is needed in the final layout. The online version of the journal will show images in color but images in the printed version will be converted to grayscale.

- Please submit all screenshots in color
- Screenshots must be delivered as separate numbered image files in .jpg format
- Screenshots should be captured at the highest resolution available
- Place a numbered call out in the Word document where the image is to be inserted such as **<Insert Figure 3 here>.**
- Make sure that the separate .jpg images are given file names that correspond to the call-outs in the text

Tables (created by the author, not screen captures) may also be included in reviews.

- Use tabs to separate columns (NOT multiple spaces)
- Use paragraph returns to separate rows