Left gastric a.

# **IDLIECH** Interactive Anatomy Education

Splenic a.

SECTRA

ior mesenteric a.

Left proda femoris a.





## **Interactive Anatomy Education** Available Anytime and Anywhere

ToLTech and Sectra's combined interactive anatomy and clinical imaging solutions provide a platform for learners to experience anatomy and faculty to integrate anatomy into all levels of the curriculum. Through virtual interactions with real bodies learners are able to gain a deeper understanding of the structural and functional complexities of the human body. The complete platform goes beyond providing these experiences on a single device or hardware solution so that they can be integrated and utilized throughout a curriculum.

### **VH Dissector**<sup>™</sup>

Built on real anatomy from the National Library of Medicine's Visible Human Project<sup>®</sup>, the VH Dissector provides integrated 3D and cross-sectional anatomy coupled with customizable curriculum content that can be accessed from a variety of devices.

### Sectra Education Portal

The Sectra Education Portal provides a cloud based repository for clinical imaging and case creation. Built on Sectra's clinical PACS platform the Education Portal allows faculty and students to access content from a variety of devices and collaborate with other users around the world.

### Sectra Table and Board

The Sectra Table and Sectra Board provide a highly interactive, multi-touch hardware platform integrated with the VH Dissector and Education Portal. Through an optimized touch interface and high-performance rendering engine they provide for interactive small group experiences only available on these devices.

## State of the Art Technology

Anatomy is the foundation for understanding the complexities of the human body. However, like many basic sciences, it is often relegated to an exercise in memorization and perceived by some learners as a requirement to move on to "more interesting" clinical applications. Anatomy is the focal point of our platform with the goal of increasing access and application so that future healthcare professionals have a better understanding of the subject as it relates to their career goals and objectives.

### **Cross-Sectional Anatomy**

Cross-sectional anatomy is core to many clinical professions and with the growth of pointof-care ultrasound imaging the need to understand the inside of the body through external planar views has never been greater. Many resources are available for presenting both 3D and cross-sectional views of the body, however, the VH Dissector platform provides the unique ability to interact with both 3D and cross-sectional views and

have those interactions directly correlated with one another. This aids in developing spatial reasoning skills and understanding complex three-dimensional anatomy.



One of the strengths of a traditional dissection lab is access to a variety of anatomical presentations and variations, pushing learners to understand anatomy rather than memorize it. This variation can also be a weakness in that it is difficult to know which variants or pathologies will be presented to a particular cohort. The Education portal provides an expansive repository of clinical cases, ensuring exposure to common pathologies and variations. This allows for consistency in augmenting the dissection experience and bringing similar exposure to places where dissection is not readily available.



One of the challenges in teaching anatomy has always been acquiring and maintaining the necessary resources. Dissection requires appropriate laboratory facilities and their associated scheduling constraints; access to high-quality models must be controlled and protected; even new "virtual dissection table" technology has limits on throughput and physical availability. The combined ToLTech and Sectra platform provides a high level of access to anatomical knowledge and learning through a variety of hardware devices so that time with constrained resources can be optimized for the educational strengths each provides.

### Histology

Key processes in the study of tissues are the visualization and exploration of microscopic structures. The traditional presentation of slides, and more recently, access to digital histology libraries is limited in the potential for comparison of tissue types, pathological presentation and integration. The Education Portal provides high-resolution, interactive histological studies, with curriculum integration features. Through this resource, histology



## **Anatomy Education**

is easily combined with gross anatomy instruction, providing the opportunity for deeper understanding of structure and function. Using full-resolution cases is advantageous in an introductory setting for building pattern recognition skills, while also being valuable for advanced pathology training.

Applying clinical context to basic science concepts brings relevancy and increases retention for students at all levels. Additionally, clinically relevant anatomy and pathology can be utilized on an ongoing basis by learners progressing through rotations, residency and throughout their healthcare careers. The VH Dissector has always been focused on clinically relevant anatomy and imaging anatomy. The Sectra Education Portal extends this further, bringing the same FDA and CE approved clinical platform in use by major healthcare providers to the education market.

### **Problem Based Learning**

The Education Portal is an ideal environment for supporting PBL cases that involve one or more imaging modalities (CT, MRI, ultrasound, microscopy, etc.). All imaging can be organized into a single patient presentation that learners can access from any device. This means that they can make use of the Sectra Table when needed and available but can also access imaging for each patient in small group areas or at home where the Sectra hardware might not be available.





### **Simulation Training**

Simulation scenarios often make heavy use of physiology as provided by the various mannequin simulators on the market but rarely incorporate anatomy through imaging. The Sectra Board and Table provide an ideal platform for pre and post-scenario review so that relevant anatomies and pathologies can be discussed and explored. Beyond this, the Education Portal can serve as a centralized repository for related clinical imaging that can be easily pulled in to scenarios by using the full PACS workstation or tablet based lightweight image viewer.



## **Resident Training**

The ability to quickly import and display clinical imaging makes the Sectra Table and Education Portal an ideal platform for resident training and reference. Use the platform to present cases during grand rounds or ensure residents experience complex or rare pathologies and complications that they are unlikely to see in the clinic. Through multiple device access residents can also access content and references on the go as time and logistics permit.

## **Clinical Education and Training**





## Lessons and Reference Resources

Interactive anatomy and clinical imaging are excellent resources but without proper guidance they can leave students overwhelmed and provide little educational value. The ToLTech and Sectra platform provides a variety of pre-built curriculum and ready to use content, to ensure students are properly guided through their educational journey. Highlights of some lessons and reference resources include.

## **Cadaver Dissection Guide**

Virtual anatomy does not mean cadaver dissection is a thing of the past. The Cadaver Dissection Guide was specifically designed to integrate the 3D and crosssectional anatomy provided by the virtual world with the dissection experience through in-depth,

step-by-step instructions with corresponding high-resolution photographs. Additionally, a lab practical style self-quizzing component is included so that students can review their anatomy prior to dissection lab.



## **Clinical Skills**

Clinical skills are a core competency for the USMLE and COMLEX examinations and a necessary component of any healthcare curriculum. In the WELLS Center Clinical Skills lessons, the foundational anatomy of the VH Dissector is used to illustrate core clinical skills such as basic cardiac assessment and chest tube insertion.



## **Surface Palpation Guide**



Containing over 200 narrated videos, the Surface Palpation Guide provides an extensive reference and

> self-study resource for this core component of physical therapy education. Each palpation includes information about patient positioning and interaction along with links to the VH Dissector anatomy

presenting the palpable structure in 3D and cross-sectional views.

## **Clinical Imaging Repository**

The Sectra Education Portal includes clinical cases with CT, MRI and other radiologic or pathologic imaging contributed by users around the world. This constantly growing resource provides access to an expansive S028 Kidney Transplantation Female and diverse repository of imaging data. Pull from these cases to complete your curriculum and allow students to explore pathologic and variant anatomy in a clinical Rookmarks context that they might not otherwise see.



## **Radiology Library**

The ability to understand a variety of imaging modalities is necessary for most physicians and an increasing number of allied health professionals. With its comprehensive cross-sectional atlas and a growing library of correlated radiologic images, including ultrasound, CT and MRI, the VH Dissector provides an ideal environment for developing and refining this necessary skill.



1/14/2019 1:29:00 PM

## **Customization and Curriculum Integration**

Reference resources and pre-built curriculum provide a great starting point but every program and course is different; the ability to mold these tools to meet your needs is required for effective long-term use and integration. While anything can be "customized" with external notes and instructions, this is often neither easy for the instructor, nor ideal for the learner. Through a complete set of tools and linking features we provide the opportunity for seamless customization and curriculum integration.

## Import Clinical Imaging

The Education Portal provides a constantly growing collection of clinical cases. However, there may be scenarios in which you would like to use your own. Importing cases is a one-step process for any DICOM dataset. As a cloud based system, this import can be done from any Windows computer and immediately accessed from any device running the Education Portal software including the Sectra Table and Board, tablets and Mac and Windows computers.



## LMS Integration

Hyperlinks can be easily created to present learners with specific anatomical atlas views or direct them to specific clinical cases. This allows instructors to easily build or enrich



## **Case Building and Labeling**

A patient case or imaging study is just the beginning for developing customized learning resources. With the Education Portal platform cases can easily be organized, notes and 2D labels quickly added, 3D visualizations customized, related imaging or documents added from any Windows computer. Additionally, using the intuitive touchscreen interface of the Sectra Table or Sectra Board, 3D labels can be quickly added and used for identification or quizzing. As always, any work done is immediately available to all other devices in your institution without any need to manually synchronize or update content and materials. curricula in their own web-based learning platform, rather than learn a new toolset just for working with anatomy, histology and clinical imaging. Additionally, built-in LMS functionality for quizzing and testing can be leveraged for assignments, group activities and other directed learning and evaluation.

















TOLTECH Brochure 2018\_B.indd 12-13

HOSPITAL 0

#### **Clinical Integration**

Sectra PACS is a clinical system used by over 1,700 health care providers throughout the world. This makes uploading DICOM MRI, CT and other imaging studies to the cloud from clinical systems a one step process. Imported studies can immediately be viewed, measured and annotated from anvwhere.

HOME



#### Study Anywhere

Students can access resources from their own computers and tablets alleviating "throughput" concerns with hardware only solutions. Content is available from the cloud wherever they go and can be a valuable reference tool through their clinical years.



#### **Develop Curriculum Remotely**

Faculty can build new lessons, presets, labels and bookmarks or save screenshots from their home or office computers and devices. Content is immediately synchronized and available to all users on any device.

## **Universal Access and Global Collaboration**



LIBRARY

Ň

**PUBLIC** 

**STUDIES** 

PRIVATE

STUDIES

LMS INTEGRATION

Facilitate independent and interactive small group study. Small groups can utilize the Sectra Table or Board Students and faculty can access a complete anatomical reference and clinical imaging library from anywhere in your institution.

The WELLS Center Clinical Skills lessons are designed specifically for use in exploring relevant anatomy before or after simulation events. Import your own MRIs and CTs to pair with scenarios or search the public cloud for a perfect match.



#### **Preview Cadavers**, **Visualize Relationships and Variations**

Explore CT scans of your own cadavers prior to and during dissection to gain further understanding of anatomical relationships. Experience anatomical variations that won't necessarily be encountered by each class. Utilize step-by-step instructions and photographs found in the Cadaver Dissection Guide.



#### **Curriculum Integration**

Utilize included lessons and cases or develop your own using your LMS. Export images and screenshots in lectures or use the software or Sectra Table directly by connecting to a projector. Or flip your classroom and have students utilize the software or Sectra Table as a resource to explore relevant topics.

#### Support Problem Based Learning

Provide a centralized resource for organizing and exploring clinical imaging related to your PBL cases. Students can explore case related imaging in an actual clinical PACS environment and utilize anatomical references as needed while developing clinical reasoning skills.



#### **Enrich Debriefings**

#### Add Clinical Imaging to Scenarios

Organize all your scenario radiographs, CTs, MRIs, ultrasounds and pathology images in one place. Participants can access full studies from a professional PACS workstation or tablet during a scenario. The same studies can then be available for debrief on the Sectra Table or personal review from a variety of devices.

## Sectra Table

### **Key Features**

- Ideal platform for small group collaboration or presentations.
- Real-time 3D visualization of CT and MRI studies including the ability to adjust windowing, take cut planes, add labels and do segmentation with an intuitive multi-touch interface.
- Multi-touch optimized version of the VH Dissector for interactive exploration of crosssectional and 3D anatomy with curriculum integration.
- Capacitive touchscreen technology provides responsive and precise multi-touch interactions.
- 4K resolution ideal for displaying high-resolution cross-sectional and pathologic images.
- Motorized height and tilt controls to easily go from horizontal (table mode) to vertical (presentation mode) or anywhere in between.
- Flexible form factor and industrial casters provide for easy transportation and storage.
- Includes a lifetime software license for use on the Sectra Table including all upgrades.
- Cloud connectivity to the Sectra Education Portal including lifetime access to 50GB of private storage space and unlimited public storage space.

## **Specifications**

- Screen Size (Diagonal): 65"
- Screen Resolution: 3840 x 2160 (4K)
- Protective Glass: 6mm hardened
- Touch Technology: Capacitive with 10 simultaneous touch points
- Dimensions Table Mode (W x H x D): 61" x 31" to 46" x 37"
- Dimensions Presentation Mode (W x H x D): 61" x 55" to 70" x 31"
- Weight: 485 lbs
- Mobility: Heavy-duty casters with locks, fits through standard 32" doorways
- Power Consumption Max: 850W
- Power Consumption Typical: 145W
- Power Consumption Standby: 0.5W



SECTRA

## Sectra Board

### **Key Features**

- Ideal platform for small or large group presentations
- and 3D anatomy with curriculum integration.
- sensitive interactions with any object.
- 4K resolution ideal for displaying high-resolution cross-sectional and pathologic images.
- Includes a lifetime software license for use on the Sectra Table including all upgrades.
- Cloud connectivity to the Sectra Education Portal including lifetime access to 50GB of private storage space and unlimited public storage space.



## **Specifications**

- Screen Size (Diagonal): 84"
- Screen Resolution: 3840 x 2160 (4K)
- Protective Glass: 3mm tempered anti-glare
- Touch Technology: InGlass<sup>™</sup> with 10 simultaneous touch points
- Dimensions (W x H x D): 77" x 47" x 3.75"
- Weight: 260 lbs
- Mount: VESA 600 x 600/600 x 400mm
- Mobility: Optional Wheeled Stand
- Power Consumption Max: 560W
- Power Consumption Standby: 0.5W

## **Interactive Hardware**

• Real-time 3D visualization of CT and MRI studies including the ability to adjust windowing, take cut planes, add labels and do segmentation with an intuitive multi-touch interface.

Multi-touch optimized version of the VH Dissector for interactive exploration of cross-sectional

84" InGlass™ touchscreen technology for exceptional image clarity, zero parallax and pressure

ommon Hepatic a.

# Proper Hepatic a.

Touch of Life Technologies (ToLTech) is focused on improving healthcare through better education and training. Since 1998 ToLTech has been developing and selling solutions for anatomy education and VR-based medical procedure simulators. All of ToLTech's products employ the confidence-inspiring reality of the National Library of Medicine's Visible Human Project® color photographic image data or similar higher-resolution datasets. ToLTech's cutting edge visualizations and haptic interactions bring these datasets to life to increase the diagnostic and procedural competency of healthcare providers and enhance the healthcare knowledge of the general public.

For more information on how ToLTech's anatomically rich products can meet your anatomy-based educational needs, please give us a call or send us an email.

### **Touch of Life Technologies**

12635 East Montview Boulevard, Suite 350 Aurora, CO 80045 800-329-2979 info@toltech.net

### www.toltech.net

Visible Human is a registered trademark of the National Library of Medicine. VH Dissector is a trademark of Touch of Life Technologies, Inc.