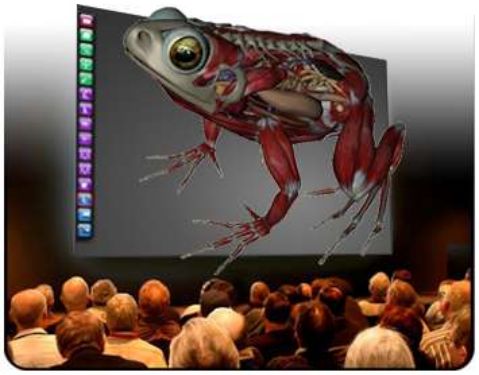
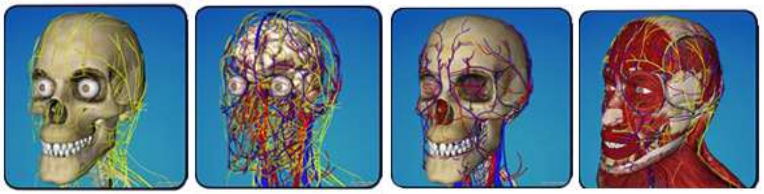




Products
Interactive 3D simulations for Education

1 Jan 2011
Interactive Education in a New Dimension
Iowa City, Iowa, USA

CYBER-ANATOMY CYBER–SCIENCE 3D Cyber Physiology

Products

Medical level Anatomy

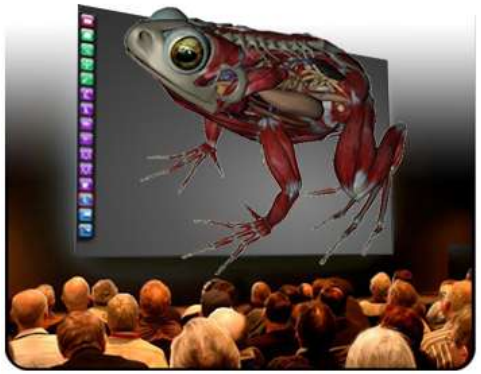
For colleges/Universities

Courses in anatomy

Medical level Physiology

For colleges/Universities

Courses in physiology

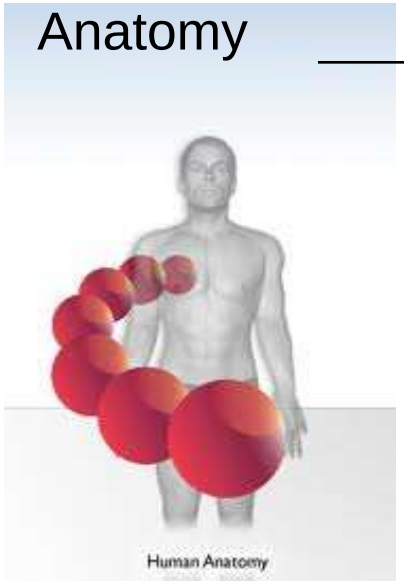


Science in the virtual form

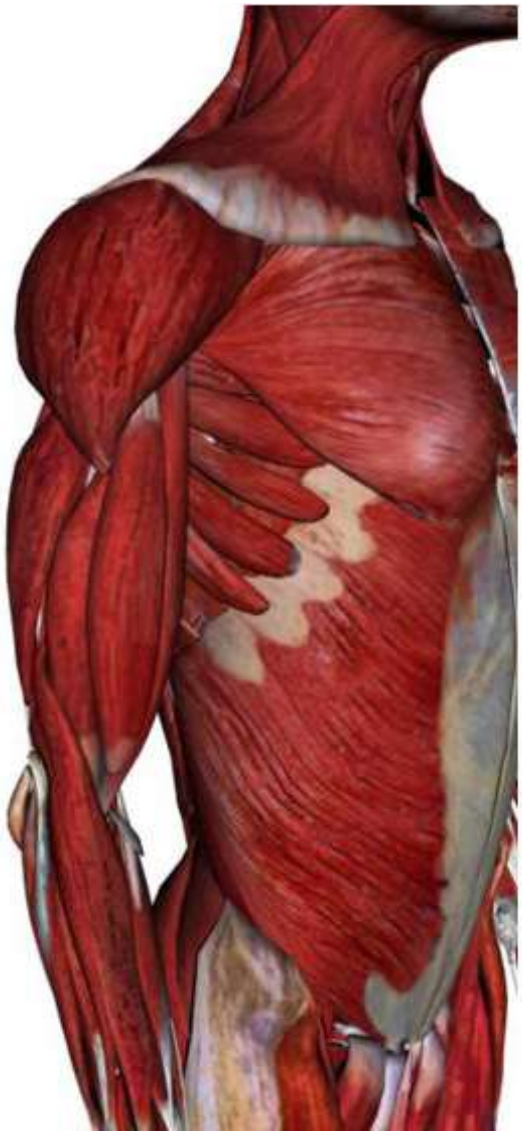
For K-12 schools

All science curricula

CYBER-ANATOMY



- Cyber-Anatomy 3D™ server
- Cyber-Anatomy 3D VR™
- Cyber-Anatomy 3D VR™ system
- Cyber-Anatomy Repro™

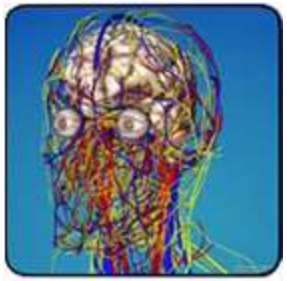


Target market: Medical schools, medical students, Biology curriculum, Health practitioners, Nursing Colleges

Cyber-Anatomy 3D VR™ system

Cyber-Anatomy 3D VR™ system is an innovative system (hardware and software) for interacting with and visualizing 3D anatomy using the most advanced virtual reality technology and contains medical level of accuracy anatomy models.

Cyber-Anatomy 3D VR™



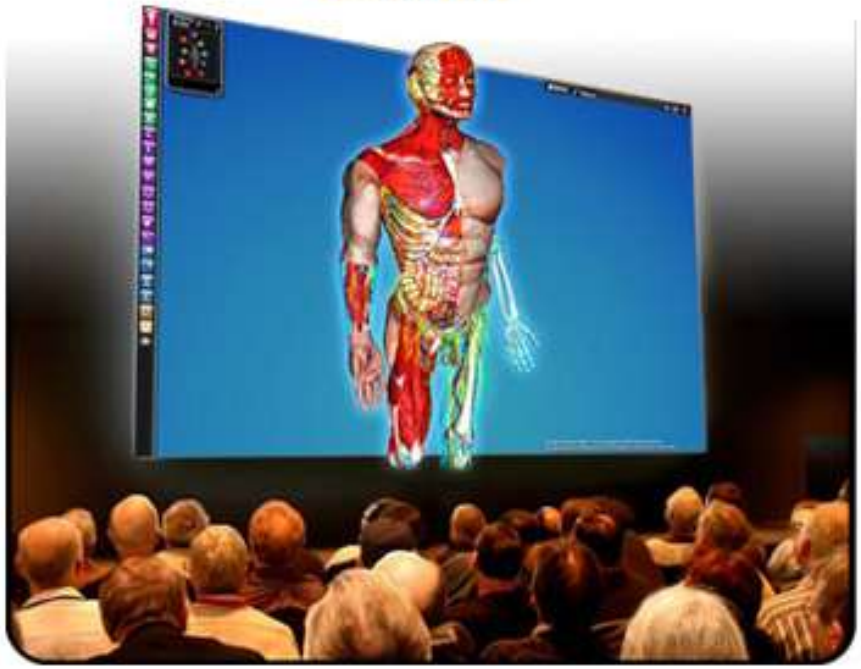
- ✓ Cyber-Anatomy Med VR™ is an advanced 3D virtual reality turnkey system for learning anatomy.
- ✓ It offers 3D immersive stereographics technology that allows a user to visualize and to interact with complex anatomy through an intuitive and easy approach while in 3D.
- ✓ Med VR™ is a turnkey solution.
- ✓ The revolutionary system is comprised of an all-in-one box system and active 3D glasses that allow the user to set up in a matter of seconds.
- ✓ Educators and students are then able to dissect and manipulate anatomical structures while fully immersed in virtual reality.

CYBER-ANATOMY

F. Netter M.D.

ELSEVIER

GRAY'S



- Both male and female detailed anatomy
- 3D interactive models contain the minutest of details
- Interact directly with the anatomy (put your cursor on a structure and remove to reveal other structures)
- Over 4,300 structures modeled in 3D
- Over 13,000 anatomical landmarks, labeled
- Over 2,000 cryogenic cross-sectional images
- Over 10 sets of CT/MR sections throughout the body
- Ability to dissect, explode, hide, transparent and many other interactive tools
- Search and hieracrchial structures linked to a database of *Anatomica Terminologia*

CYBER-ANATOMY

Cyber-Anatomy 3D™ Server

- Institutional Licensing
- Access from computer lab
- Access from home
- Students interact
- Server installed locally or access provided through web

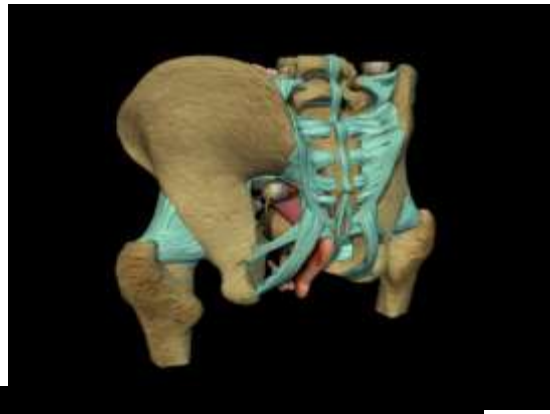
- An easy-to-use, intuitive interface
- Real-time interactivity, allowing instant access to the anatomy
- Search techniques using the Terminologia Anatomica standard
- Ability to dissect anatomy through a regional or systemic approach
- Transparency mode - to look inside the body and various layers
- Hide / Unhide tool - to examine various layers simultaneously

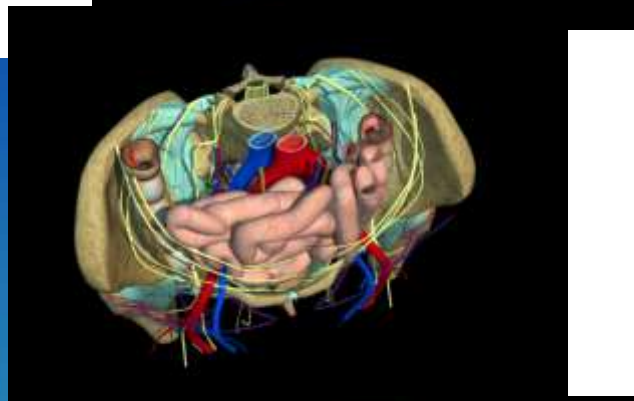
- Both male and female detailed anatomy
- 3D interactive models contain the minutest of details
- Interact directly with the anatomy (put your cursor on a structure and remove to reveal other structures)
- Over 4,300 structures modeled in 3D
- Over 13,000 anatomical landmarks, labeled
- Over 2,000 cryogenic cross-sectional images
- Over 10 sets of CT/MR sections throughout the body
- Ability to dissect, explode, hide, transparent and many other interactive tools
- Search and hieracrchial structures linked to a database of *Anatomica Terminologia*

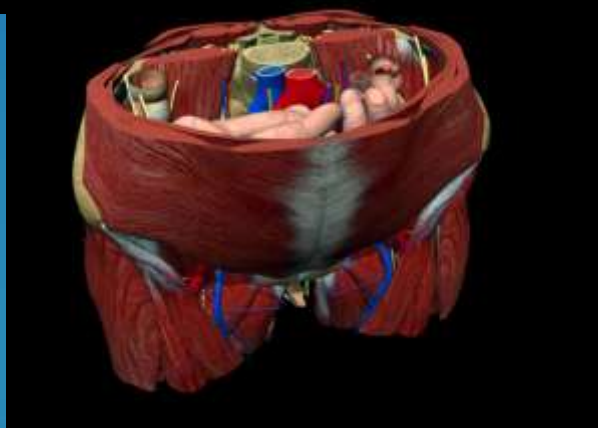
CYBER-ANATOMY

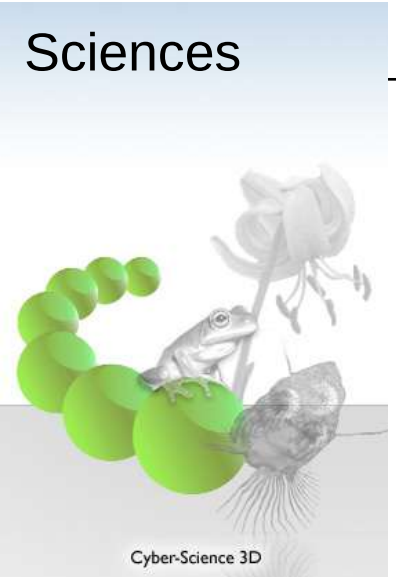
Cyber-Anatomy Repro™

- Complete Male and Female reproductive systems
- Most suitable for self learning and exploring
- Access from regular computer anywhere anytime!
- High level of detail
- High quality of models and realism









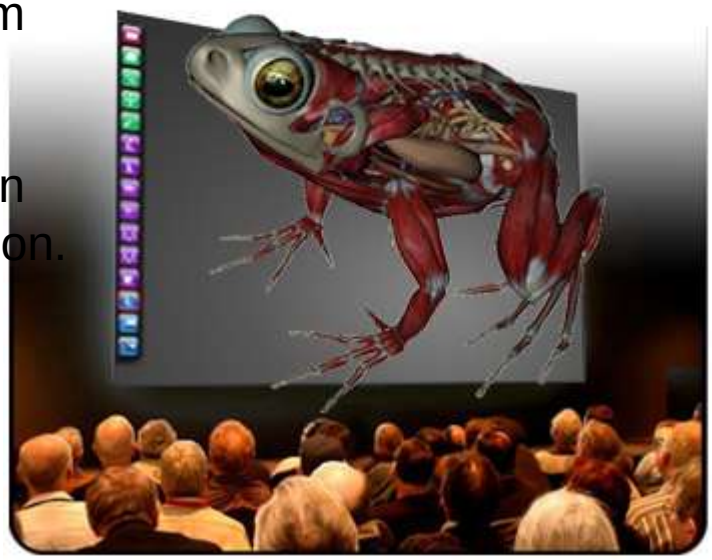
- Cyber-Science 3D™ server
- Cyber-Science 3D VR™
- Cyber-Science 3D VR™ system

Target market: Schools, students, K-12

Cyber Science 3D

An intuit
le

- ✓ Cyber Science VR is an advanced virtual reality turnkey system for learning science.
- ✓ It offers 3D immersive stereographics technology to visualize and to interact in 3D.
- ✓ Through the use of LCD objects float like a hologram in 3D space between them and the screen.
- ✓ The visuals give a true feeling of depth, which can aid in teaching or instruction.



Cyber Science VR System Summary

Setup time: 5 minutes
Manpower: 1 instructor, up to 30 students see 3D
Weight of box: >35 lbs
Packaging: One portable box and peripherals
Screen: Use any screen. A white wall will work.
Eyewear: Active LCD shutter glasses

Cyber Science 3D

An intuitive approach to learning and exploring the natural world...

Cyber Science 3D Content
About 100 models

Zoology
Frog
Jellyfish
Lobster
Fetal Pig
Cat
Cow
Tarantula
Starfish
Fly
Mosquito
Beetle
Mahi Mahi
T-Rex

Botany
Corn (Monocot)
Wheat (Monocot)
Flower (Dicot)
Orchid
Fern
Spruce Tree
Fir Tree
Pine Cone
Seed
Mushroom
Algae

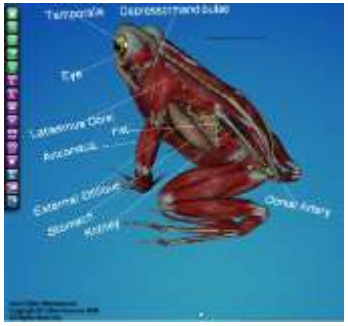
Microbiology
DNA
Bacillus
HIV
Herpes
Red Blood Cell
White Blood Cell
Halteria
Radiolarian
Flagellate
Plant Cell
Human Cell
(eukaryote)

Human Anatomy
Intro Human
Skeleton
Brain
Eye
Heart
Respiratory System
Digestive System
Male Reproductive
Female Reproductive
Urinary System
Upper Limb
Lower Limb
Circulatory System
Blood Vessel

Chemistry
Periodic Table

Mechanical Engineering
V8 Engine

Earth Science
Strato Volcano
Rift Volcano
Underwater Volcano
Super Volcano
Shield Volcano

Cyber Science 3D

An intuitive approach to learning and exploring the natural world...

Cyber-Science 3D Server™

Cyber-Science 3D Web™

- ✓ Educational software for learning and exploring interactive 3D science content
- ✓ Each simulation allows the user to explore and dissect interactive models on their computer
- ✓ Grade-relevant content available to teachers and students for K-12
- ✓ Virtual dissection of human anatomy, zoology, botany, microbiology, earth science, and more!
- ✓ Labeling feature allows for learning and identifying features and quizzing
- ✓ Intuitive controls and easy to use interface for students and teachers
- ✓ Server installed locally or access provided through web

Virtual dissection of:
- Human anatomy
- Zoology
- Botany
- Microbiology
- Earth science
- Chemistry
- And more!

Cyber Physiology

Cyber Physiology™
- Engine based on 150 differential equations
- Over 1000 parameters.
-Underlying models include:
  - Heart,
  - Lungs
  - Kidneys
  - Coupled to a vascular system
  - Coupled to peripheral organs
  - Coordinated by CNS

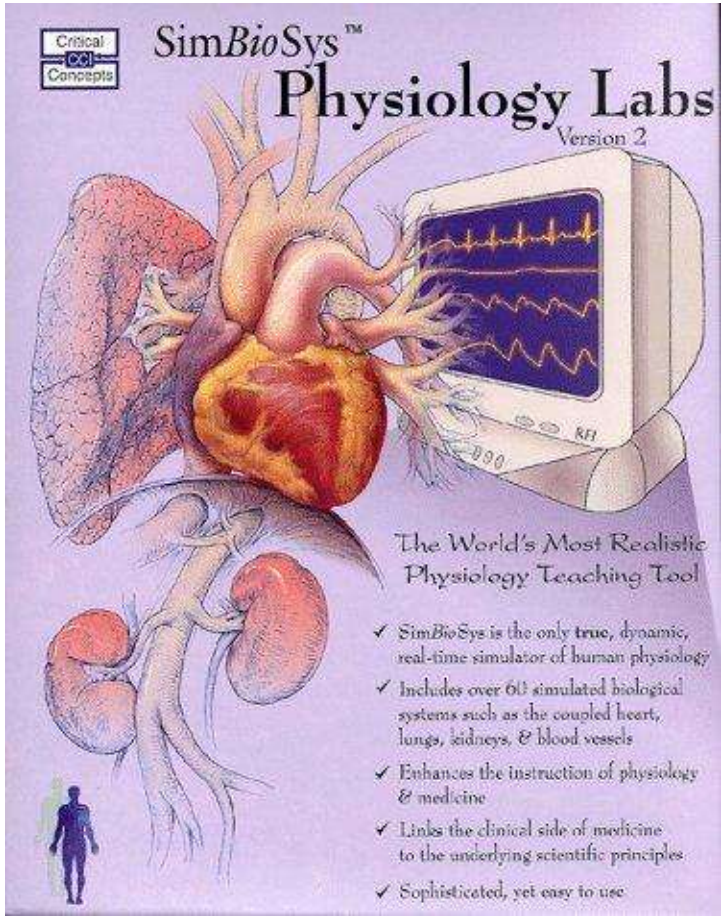
By continuously calculating a series of differential and algebraic equations, mathematical models of the coupled heart, lungs, circulation, kidneys and peripheral tissues are computed in real-time.

A user can simulate experiments as well as see a cause and effect of standard medical interventions. Many variables in each system can be adjusted from normal values, allowing you to manipulate these systems and watch the effects in real-time on a computer screen.

Target market: Medical schools, medical students, Biology curriculum, Health practitioners, Nursing Colleges

Cyber Physiology™

- Developed at the University of Chicago and Critical Concepts Inc. as SimBioSys™
- Exclusively licensed to Cyber-Anatomy Corp. and named Cyber Physiology™: SimBioSys
- Developers include 5 MDs, 2 computer programmers, and 2 Computational physiologists
- Used in Simulation Mannequins for learning



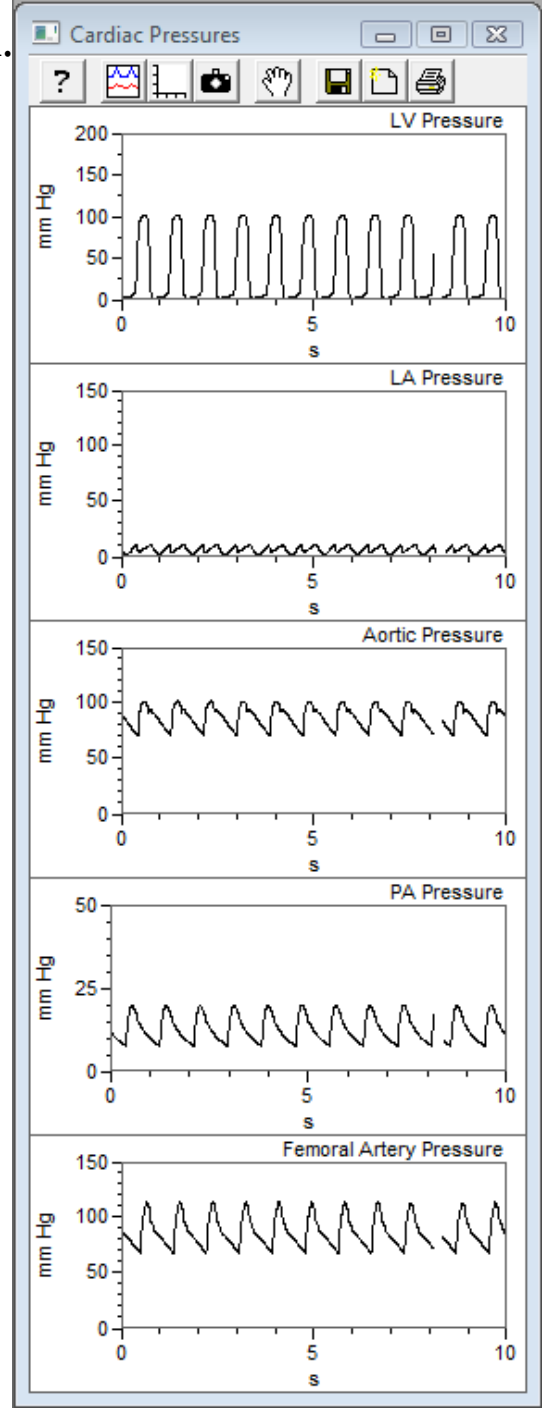
Cyber Physiology™: SimBioSys includes 19 chapters:

General physiology
Membranes;
Excitability;
Signaling;
Muscle;
Cardiovascular Physiology;
Pressure and Flow;
Cardiac Excitation;
Cardiac Structure and Function;
Cardiac Performance;
Circulatory Control;
Autonomic Control;
Respiratory Physiology;
Blood Gas Transport;
Systemic Oxygen Delivery;
Lung Gas Exchange;
Shunt and Dead Space;
Static Lung Mechanics;
Dynamic Lung Mechanics;
Fluid Balance;
Acid Base Physiology;
Body Fluid Compartments;
Renal Filtration.

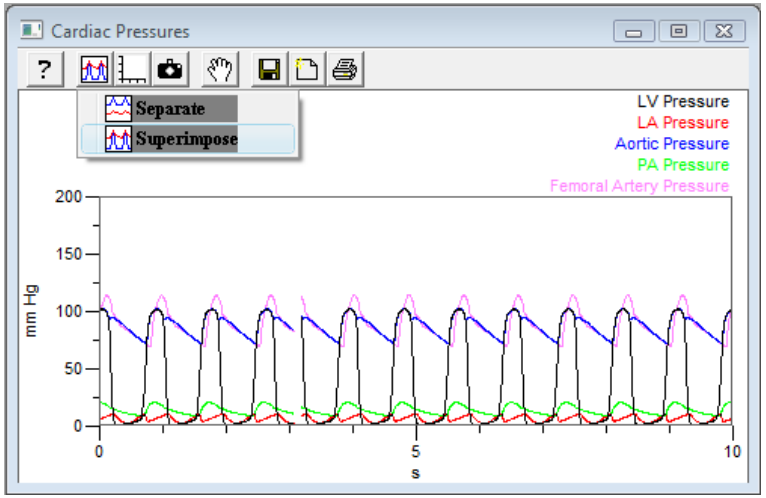
Cyber Physiology

Plotter Panels are tools to display data graphically. Five graphing options are available: *Waveform, Trendplot, Curve, Loop, or Scatterplot.* Waveforms can plot data as a function of time. Curves can be used to plot data that vary with changing physiology, such as dissociation curves (see Figure 2).

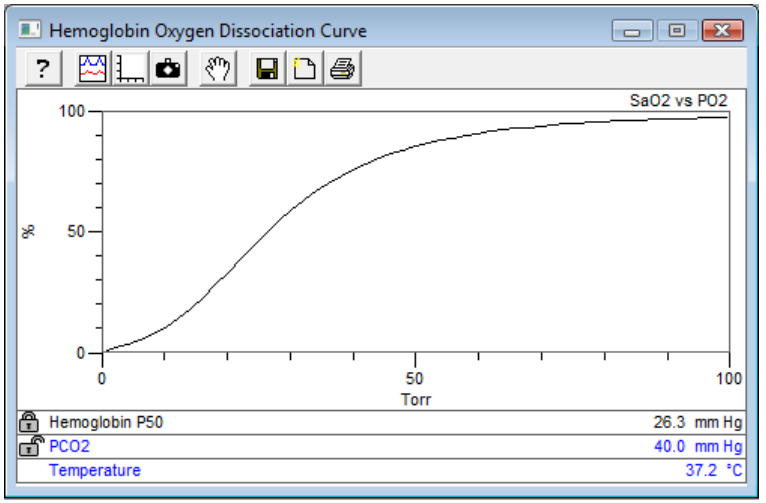
A.



B.

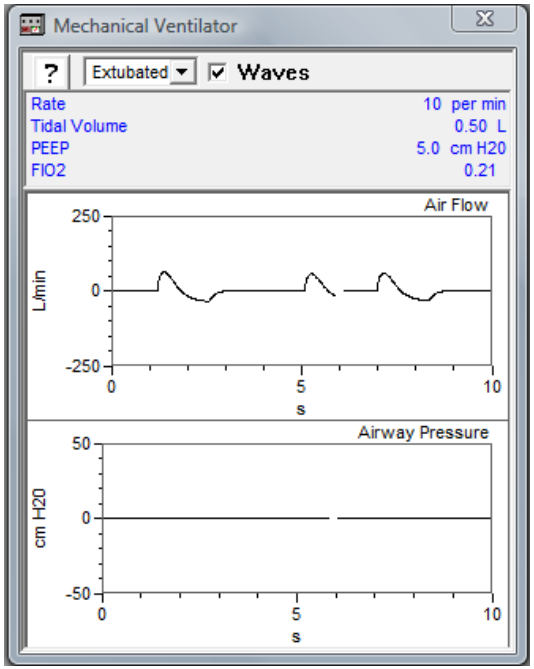


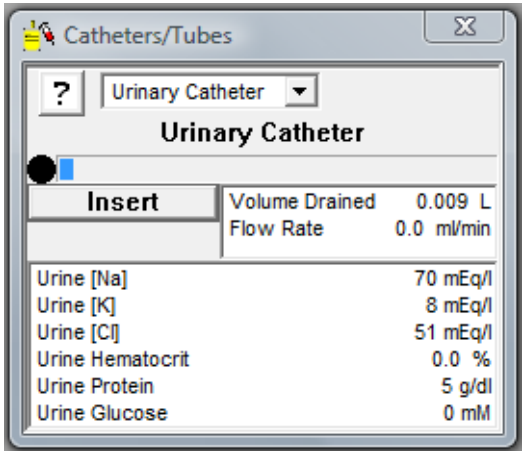
C.



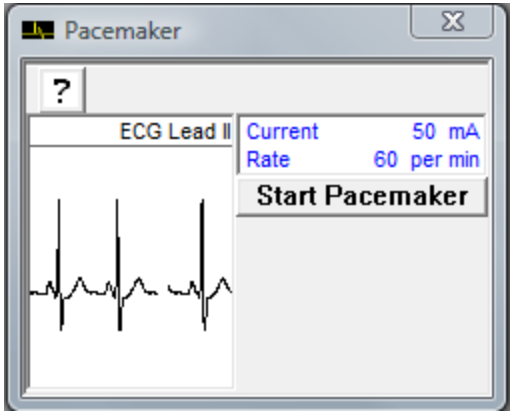
A. The Drug and Fluid Infusor (Figure 4B) tool allows administration of medication or fluids to the simulated patient. The user can vary the rate and amount given of each drug, as well as the delivery method (as a continuous IV, bolus IV, or in discrete doses). The Mechanical Ventilator (Figure 4A) can be used when the patient is in need of ventilatory assistance.

C.

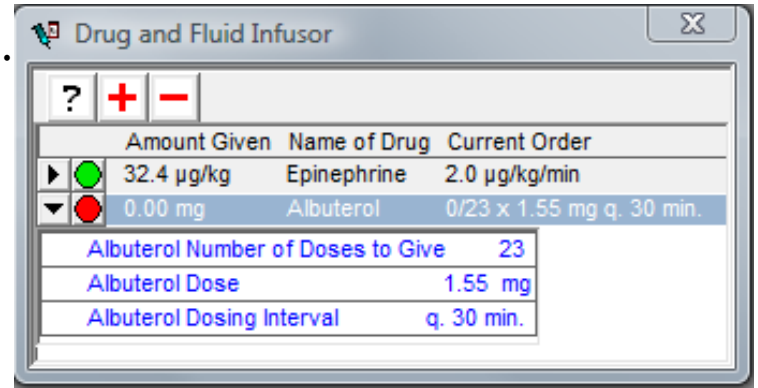




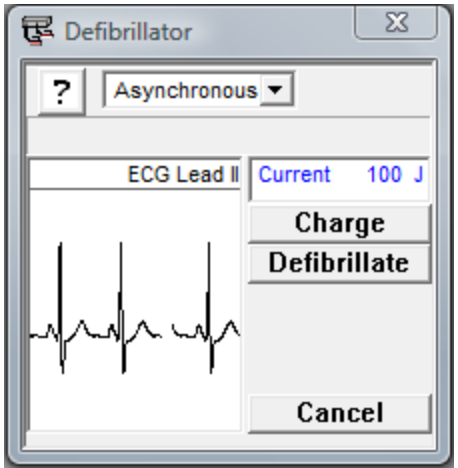
E.



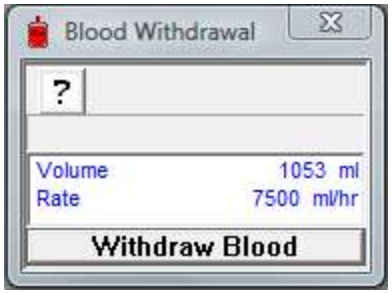
B.



D.



F.

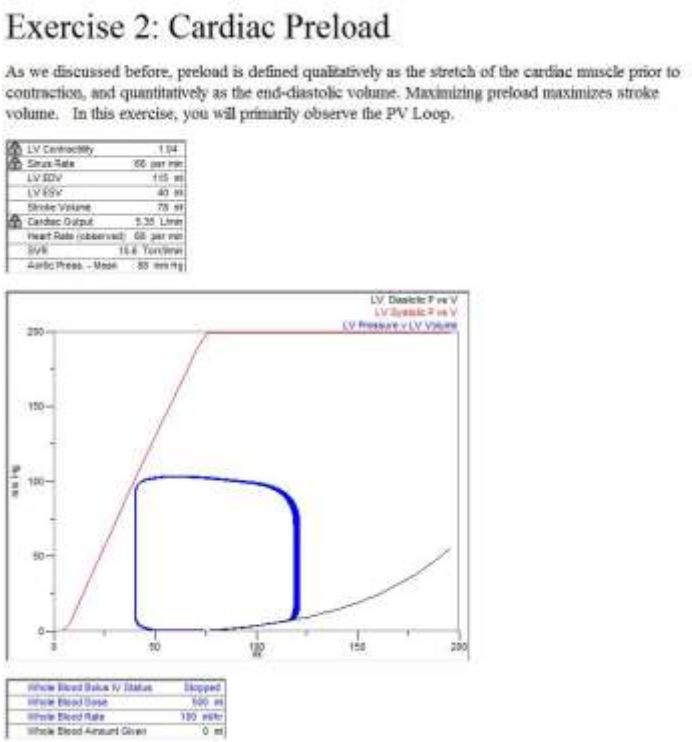


Real Time and coordinated Simulations

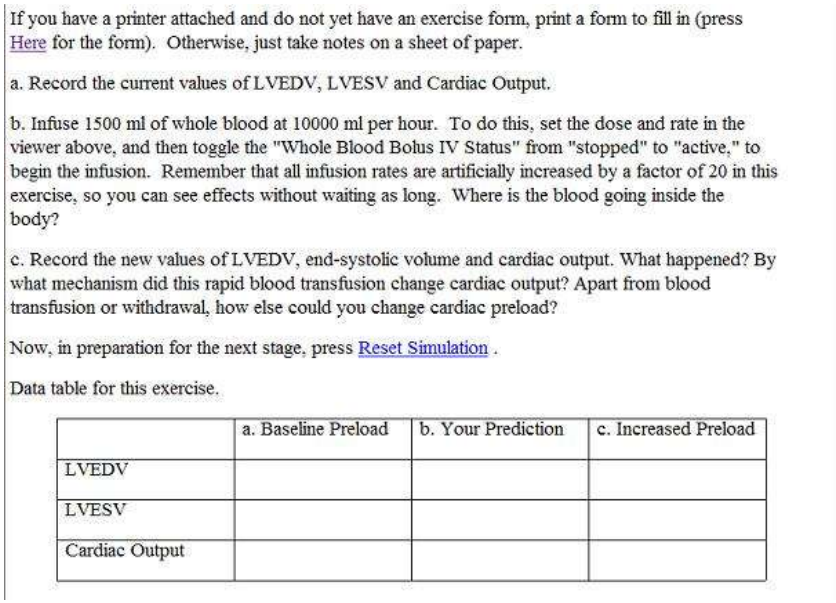
Cyber Physiology

The real-time simulation feature of Physiology Labs implies that the outcome of experiments are available in real time, as they occur. Some values are calculated several times per millisecond, while others are calculated a few times per second. In addition, all simulations are synchronized. For example, if a student performs an exercise in the *Respiratory* chapter and decreases the oxygen fraction in inspired air (FIO_2), and then goes to perform an exercise in the *Cardiac Excitation* chapter, the effect of the lowered FIO_2 (increased heart rate) will be apparent in the following exercise. If required this can be switched off by selecting 'Reset Physiological State' under the 'Simulation' tab in the main menu.

A.



B.



Cyber Physiology™ parameters for use in Santos™.

*Light font indicates a user-variable input parameter, while black font indicates an simulation output parameter.

[H]a
[H]v
A-a PO2 Diff.
Age
Altitude
Aoritic Resistance
Aortic leak
Aortic Valve Jet
Arterial pH
Arterial Pressure - Systolic
Arterial Pressure - Diastolic
Arterial Pressure – Diastolic
Arterial Pressure – Mean
Arterial Pressure – Systolic
Arterial Pressure- Mean
Ascites Drained
Ascites Volume
AV Nodal Conduction
Barometric Pressure
Basal HR
Base Excess
Body Weight
Cardiac Output
Cardiac Rhythm
DLCO
DLCO Corr
DLCO Corr Pct Predicted
DLCO Corr Predicted
DLCO Pct Predicted
DLCO Predicted
FEF 25-75
FEF 25-75 Pct Predicted
FEF 25-75 Predicted
FEV1
FEV1 Pct Predicted
FEV1 Predicted
FEV1/FVC
FEV1/FVC Pct Predicted
FEV1/FVC Predicted
FVC
FVC Pct Predicted
FVC Predicted
Heart Rate (observed)
Height
Hematocrit
Hemoglobin
Hemoglobin P50
HP Conduction Probability
L Pneumothorax Vol.
LA Contractility
LA Diastolic
LA EDV
LA Pressure – Mean
LA Systolic
Lactate Production
Left Pleural Effusion
LLL Basal Airway Conductance
LUL Basal Airway Conductance
LV Contractility
LV EDP
LV EDV
LV Ejection Fraction
LV ESP
LV ESV
LV Functional Fx
LV Pressure – Diastolic
LV Pressure- Systolic
Minute Ventilation
Mitral leak
Mitral Resistance
O2 Demand, Basal
O2 Demand, Muscle
O2 Demand, Total
PA Pressure – Diastolic
PA Pressure – Mean
PA Pressure – Systolic
PaCO2
PaO2
PEF
PEFR
PEFR Pct Predicted
PEFR Predicted
Pericardial Effusion
Pericardial Stiffness
Periton. Bleed Cond.
Peritoneal Fluid Hct
Plasma Lactate
Plasma SID
Pms
PO2
PR Interval
Pulmonic Curvature
Pulmonic Resistance
Pulse Pressure
Pumonic Leak
QRS Duration
QT Interval
R Pneumothorax Vol.
RA Contractility
RA Curvature
RA EDV
RA Functional Fx
RA Pressure – Diastolic
RA Pressure – Mean
RA Pressure – Systolic
Respiratory Rate, Spontaneous
Respiratory Rate, Total
Right Pleural Effusion
RLL Basal Airway Conductance
RML Basal Airway Conductance
RUL Basal Airway Conductance
RV
RV Contractility
RV Curvature
RV EDP
RV EDV
RV Ejection Fraction
RV ESP
RV ESV
RV Functional Fx
RV Pct Predicted
RV Predicted
RV Pressure – Mean
RV Pressure –Systolic
RV Prssure- Diastolic
RVR
SaO2
Serum Bicarbonate
Sex
Sinus Rate
Stroke Volume
Target Rate
Target Ventilation
Temperature
Tidal Volume, Target
TLC
TLC Pct Predicted
TLC Predicted
Tricuspid Curvature
Tricuspid Leak
Tricuspid Resistance

CYBER-ANATOMY

CYBER–SCIENCE 3D

Cyber Physiology

Thank you

www.Cyber-Anatomy.com

www.CyberScience3D.com

Contact:

sales@cyber-anatomy.com

Tel. 319-354-2555
Iowa City, IA
USA