CREATE
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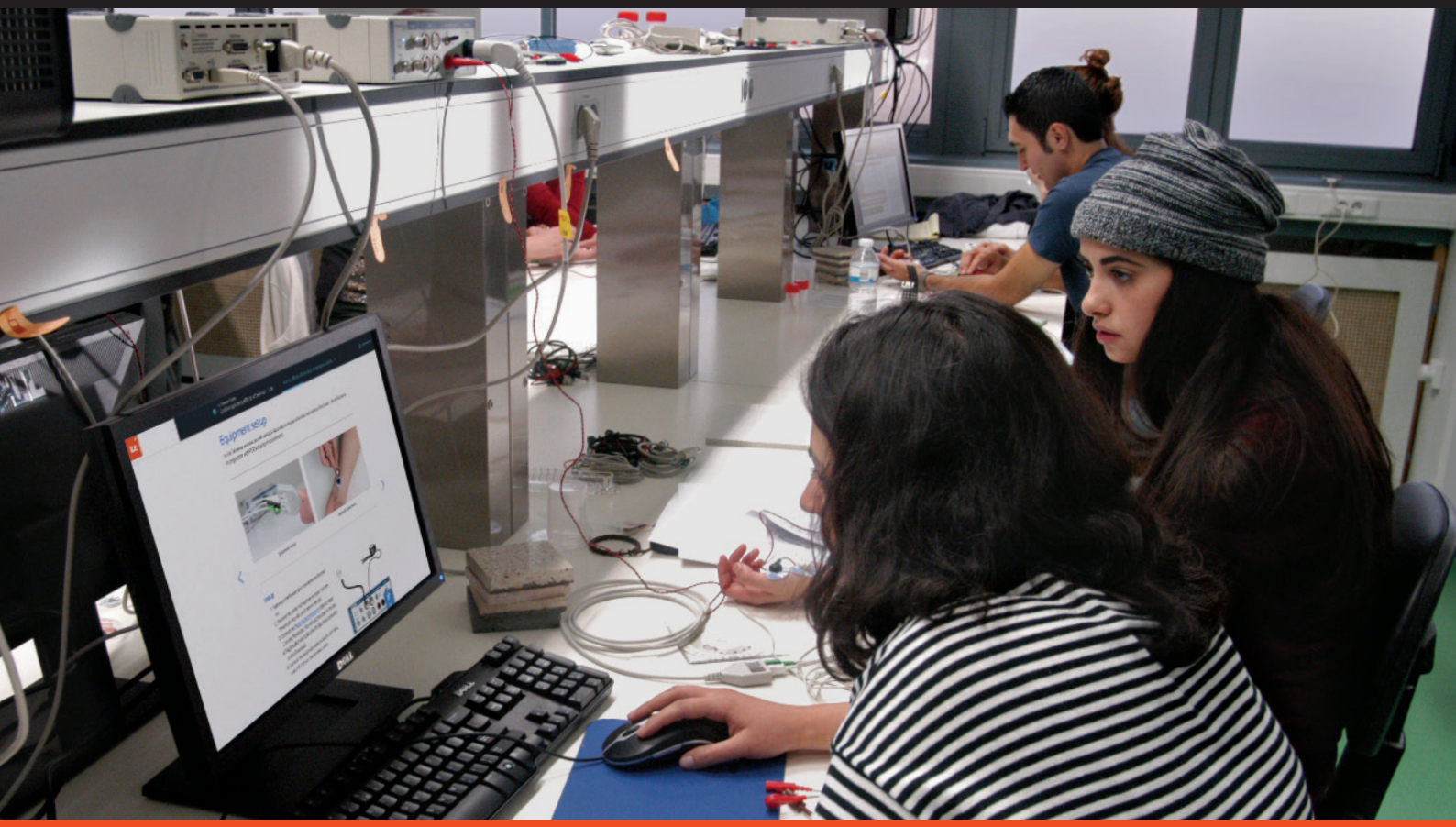
INSPIRE.

Human Physiology Collection

Giving students a clear understanding of core concepts



Lt is an online learning platform that engages students in active learning in the lab or remotely.

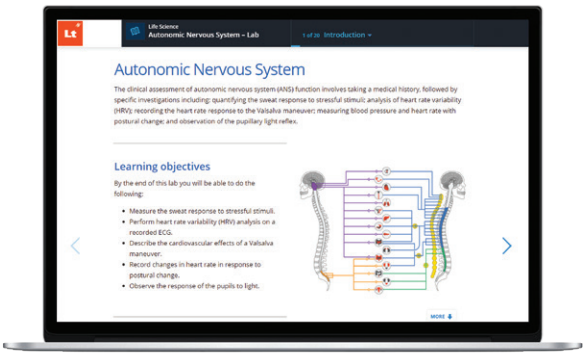
Our Human Physiology Collection includes customizable lessons, grouped into modules. Each module contains a combination of tutorial(s), pre-lab prep, and a lab. Combine lessons with our hardware teaching systems and kits to provide a true-to-life, practical learning experience for your students in the lab, or use Lt's pre-recorded example data for remote learning situations.

- Improved efficiency
- Increased student engagement
- Improved results in theory and clinical practice
- Increased student pass rates

Professionally developed lessons

Lessons in our Human Physiology Collection reinforce introductory and advanced concepts across a wide range of topics including cardiovascular and circulatory, respiratory, nervous, gastrointestinal, muscular, kidney and urinary physiology, and more.

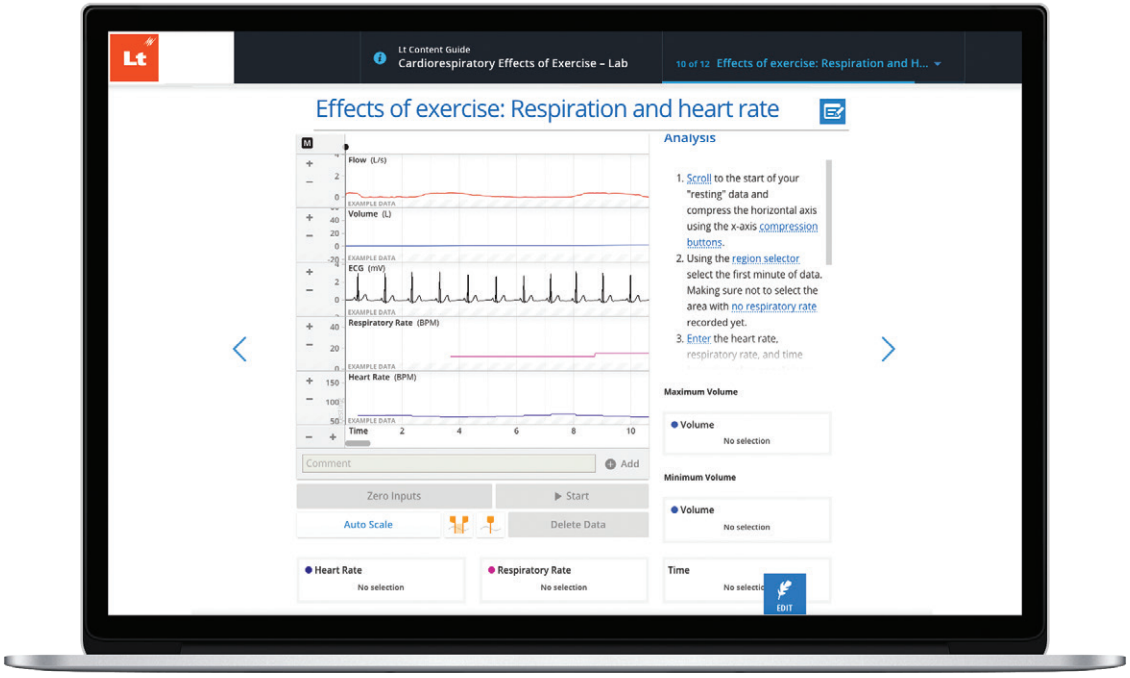
Each media-rich lesson is designed to maximize engagement and suit diverse learning styles, with a strong focus on student outcomes. Use our lessons off-the-shelf or tailor any lesson to suit your curriculum and your teaching preferences. Lessons can be grouped, and ordered per your course needs.



"I have 1000 students each semester, but my labs run smoother with Lt."

- **Aura Grandidge**, Manager Biology Labs,
  Anatomy and Physiology, University of Rhode Island

ADINSTRUMENTS



Human Physiology Collection

30 MODULE COLLECTION

Airflow
Record spirometry signals to examine FEV1 in normal and simulated airway restriction. Perform peak flow tests.

Autonomic Nervous System
Examine skin potential changes, heart rate variability, the Valsalva maneuver, rapid postural change and pupillary exercises.

Blood Clotting
Assess bleeding and coagulation time, and use a hemocytometer to perform a platelet count and calculate the number of platelets per µL of blood.

Blood Counting
Prepare a blood smear and identify different blood cells under a microscope. Determine the hemoglobin concentration using a spectrophotometer and perform a hematocrit test. Determine blood type using Eldon cards.

Blood Pressure
Measure blood pressure in the arm and assess the effect of cuff location, cuff size, and arm position. Examine how leg position affects leg blood pressure.

Body Temperature
Measure body temperature and explore the differences between conductive and convective heat loss.

Breathing
Use a respiratory belt to investigate the ability to hold the breath and the relationship between breathing and heart rate.

Cardiorespiratory Effects of Exercise
Record and compare ECG, blood pressure, and respiratory movements at rest, during exercise, and immediately after exercise.

Cardiovascular Effects of Exercise
Record and compare ECG and the finger pulse at rest and immediately after exercise.

Diving Response
Investigate the effects of simulated dives and breath holding on heart rate and peripheral circulation.

Electro-oculography (EOG)
Record EOGs to examine angular displacement, saccades, smooth tracking, gaze-holding, gaze-shifting, and nystagmus.

Electroencephalography (EEG)
Record EEGs to examine interfering signals, changes with eyes open and shut, and the effects of mental and auditory activity.

Energy Expenditure and Exercise
Measure the FEO_2, $FECO_2$, and RER during steady-state exercise, as well as ventilatory changes and changes in mechanical efficiency.

Getting Started with Lt
An introduction to data sampling in Lt where students practice recording and analyzing some finger pulse data, and becoming familiar with features of Lt.

Glucose Absorption
Measure blood glucose using a glucolet and glucometer and compare results from five protocols. Take urine samples to measure glucose levels.

Key

- No sensor required
- PowerLab Human Physiology Collection - 30 Modules
- Lt Sensors Human Physiology Collection - 23 Modules

MODULES MAY INCLUDE: TUTORIAL • PRE-LAB PREP • LAB

Heart and ECG
Measure the ECG and pulse, compare variations between the different leads of a 12-lead ECG and perform an Einthoven triangle analysis.

Heart and Peripheral Circulation
Practice palpation techniques on arm and leg arterial pulses, record the radial pulse and examine arterial anastomoses in the hand.

Heart Sounds
Listen to heart sounds via a stethoscope and phonocardiogram (PCG), record an ECG and pulse to investigate the relationship of ECG events and heart sounds.

Kidney and Urine
Estimate bladder capacity, view an abdominal CT scan, and perform urine testing and observation on “patient” urine samples.

Lung Volumes
Record and analyze spirometry signals to perform basic tests of pulmonary function and stimulate breathing with hyperinflated lungs.

Mechanics of Ventilation
Measure pressures generated passively and by contraction of expiratory and inspiratory muscles. Use spirometry to determine lung volume.

Muscle and EMG
Record EMG during voluntary muscle contractions to investigate coactivation, muscle fatigue, and how visual and verbal feedback impact the ability to sustain muscle contractions.

Peripheral Nerve Function
Record an evoked EMG, then calculate latency and nerve conduction velocity.

Reflexes and Reaction Times
Examine simple reflexes, and then explore reaction times to stimuli under different conditions.

Sensory Illusions
Investigate mechanisms of sensory perception and discover techniques that send conflicting information to the central nervous system.

Sensory Physiology
Familiarizes students with their senses as they observe a range of sensory illusions.

Skeletal Muscle Function
Record and measure muscular twitch responses, observe recruitment as stimulus strength increases, and explore muscle twitch summation and tetanus.

Spinal Reflexes
Investigate the interference of conflicting messages, and examine the effects of the Stroop test as an experimental stressor.

Stroop Test
Investigate the interference of conflicting messages, and examine the effects of the Stroop test as an experimental stressor.

Water Balance
Learners drink a variety of solutions, then collect and measure the volume and specific gravity of their urine over two hours.

How can Lt help?

Educators

Easy lesson authoring

Building media-rich lessons is simple. Drag-and-drop a range of content types to create interactive exercises, including multiple choice questions, short form written answers and image annotation.

Collaborative

Share content and workload with your fellow educators and teaching assistants. Set varying levels of access to allow others to review content, add content, or publish revisions online.

Flexible grading

Automatically grade quizzes while keeping the flexibility to add feedback and positive reinforcement, and manually grade written assessments.

Supporting your Lt journey

When you sign up to Lt, you become part of our global community of Lt collaborators. We provide you with ongoing support, including a dedicated Customer Success Manager during onboarding and beyond to ensure you're meeting your teaching objectives.

Administration

Simple setup

Lt needs only an internet browser to allow course administration, authoring and publishing. Our data acquisition app, used for sampling, installs in 30 seconds.

Analytics

Our analytics allow you to view class progress in each lesson and across your course, and provide valuable insights about where and how students are interacting with course material.

Secure and scalable

Totally secure, Lt is hosted on Amazon Web Service's encrypted servers with guaranteed 99% uptime and the ability to maintain speed as more students login to Lt.

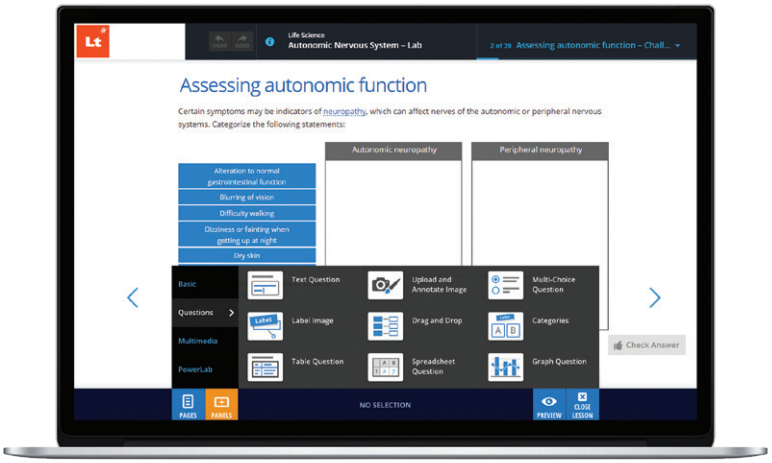
Future proof

Lt is automatically updated with new features by our team of engineers, developers, and education specialists.

Getting started with Lt

Custom training and specialist support

Whether you need help with Lab installation and setup, IT training, Lt training or specialized support, we can get you up and running even faster with an add-on package of training and support services.



Students

Learn anywhere

Lt's cloud-based platform means students can learn on almost any device that connects to the internet. Whether they use iOS or android, tablet, mobile or laptop, lessons will be resized and optimized to look great.

PowerLab and Lt Sensor integration

In the lab, students can record and view their own physiological signals live on screen with PowerLab or Lt Sensors. Sampling panels in Lt can record Pulse, ECG, Respiratory rate, Blood Pressure and more.

Remote learning

All human physiology labs include built in pre-recorded example data that students can access for their practical work to obtain the desired learning outcomes in situations that don't have data recording capabilities.

"Lt allows me and my colleagues to collaborate on lesson plans in real time."

- **Dr James Clark**, Senior Lecturer,
  Human & Applied Physiology,
  King's College, London

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