KYOTO KAGAKU

MW57

Pediatric Lung Sound Auscultation Simulator

Gain familiarity with the characteristics of pediatric patients. Acquire clinical skills in action.

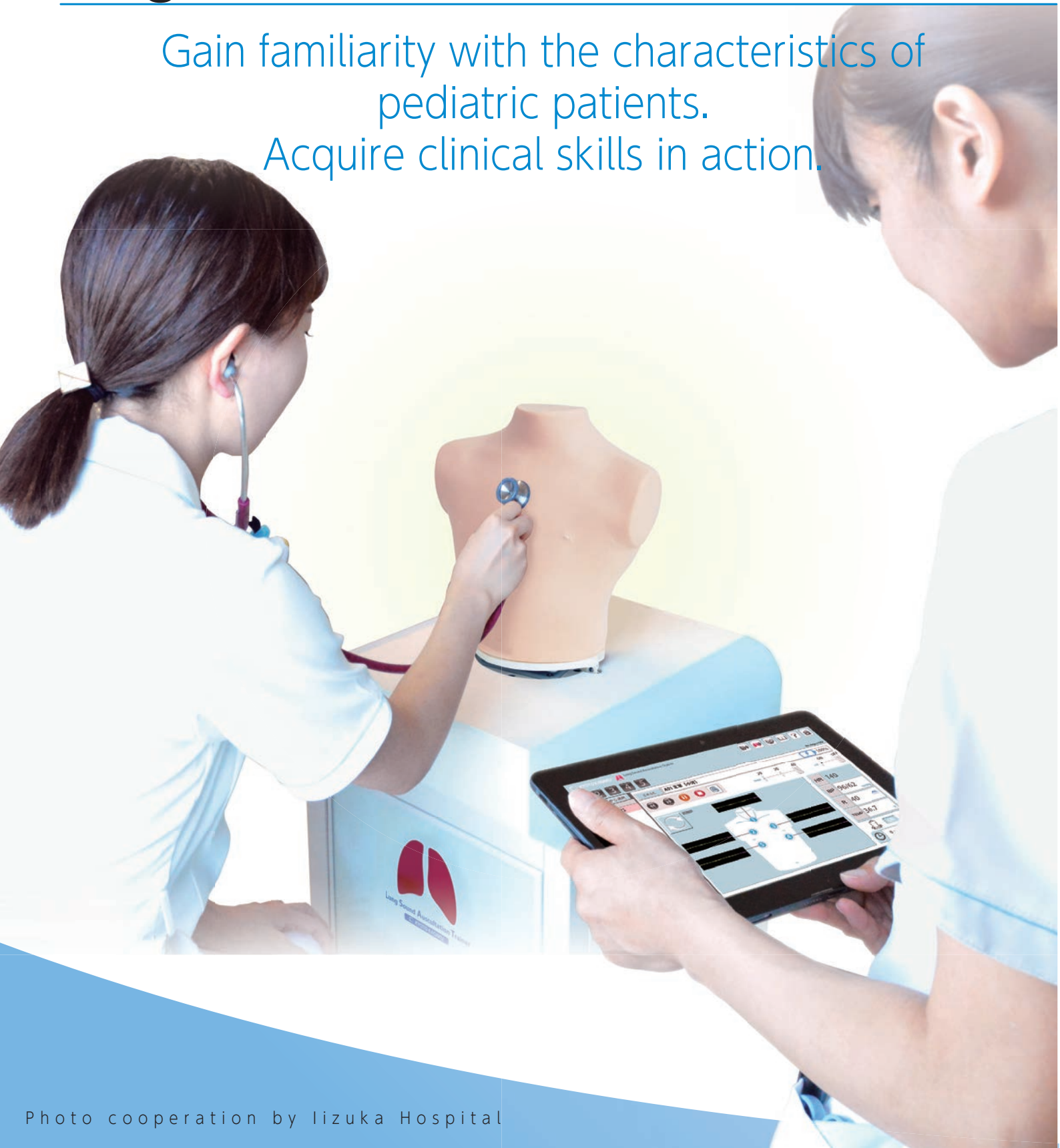


Photo cooperation by Iizuka Hospital

Let's Become Familiar with Pediatric Lung Sound Characteristics

Phew Phew

Phe Phe Phe

Respiratory Rate

Respiratory rate is adjustable between 15 and 50 breaths per minute, accurately depicting pediatric patients from neonates to school

Heart Rate

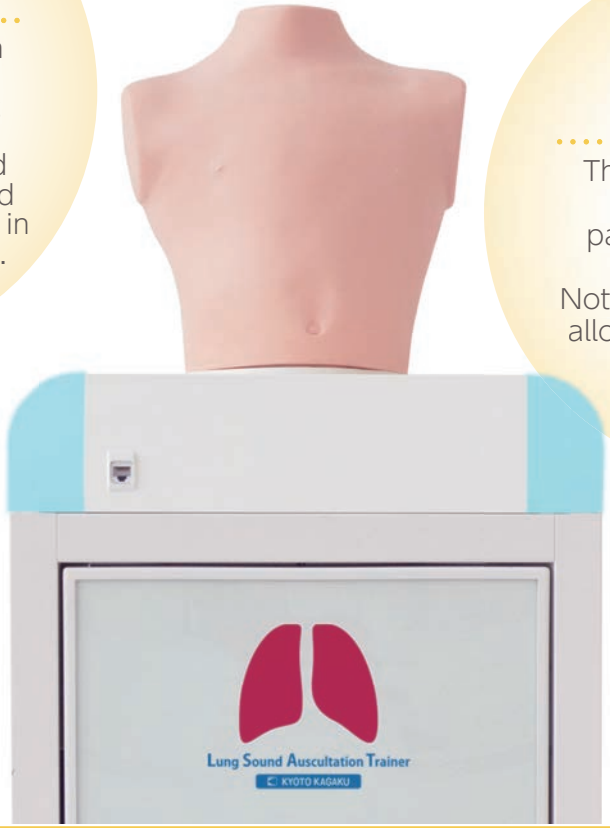
Heart rates are automatically set in accordance with the respiratory rates.

ex. respiratory 20 breaths/min:
heart rate 90 beats/min
respiratory 40 breaths/min:
heart rate 90 beats/min

Heart sounds can be turned off when necessary.

Propagation of Sounds

Propagation of sounds on the chest are a crucial characteristic of pediatric patients. For example, sounds of upper lung field are more easily transmitted to the lower lung field than in the case of adult patients.



Body Size

The torso is designed to represent a patient of 1-5 years old.

Not having a particular face allows imaging a variety of pediatric patients in different training scenarios

The photo is of the prototype.

■ Product supervision：Yuki Okamatsu, MD
Director of Pediatric department, Aso Iizuka

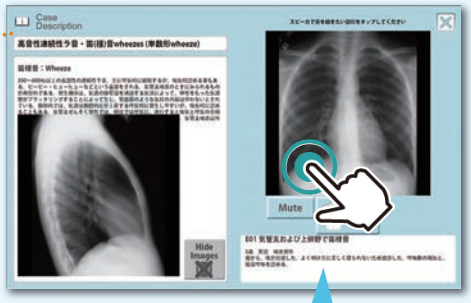
Software

Detailed Case Descriptions

Point

Characteristics of pediatric lung sounds and tips for auscultation

X-ray and CT images work as visual aids to facilitate learning.



By tapping on the X-ray image, lung sounds of each respective site will be played through the external speaker for group sessions.

Pediatric Torso

Hands-on using real stethoscope

Point

Soft skin of the torso simulates realistic sensation of touch.

The simulator works with real stethoscopes of trainees' own, allowing for hands-on training in a close-to-life clinical setting.

Realistic tactile feeling when placing the stethoscope on the torso is another key feature.

Training Example

Opportunities for Effective Training

Pre-Training

1. Lung sounds classification
2. Explanation of how to use the simulator

Normal
Abnormal
Coarse crackles
Fine crackles
Wheezes
Rhonchi
Miscellaneous continuous sounds
Miscellaneous

Hands-on Session

1. Auscultation of normal sounds
2. Differences between left and right
3. Adventitious sounds

Point One touch setting

Features for clinical reality

- Heart sounds as background (Can be turned off when necessary)
- Adjustable respiration rate (20･30･40/min)

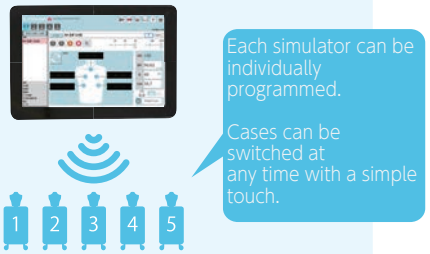
Features for group sessions

- Anterior and posterior chest can be listened to simultaneously.
- Multiple units operation with one tablet
- The external speaker to share the sounds

Wireless multi-units operation

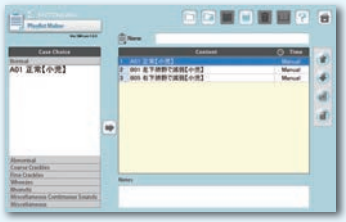
For small group learning

Wireless operation up to five units from one tablet.



Playlist maker

Using 20 different cases, playlist mode enables optimization of training sessions.



Error indication system

The error indicator performs check-up of the system to keep the Pediatric LSAT in its best condition.

Simultaneous auscultation

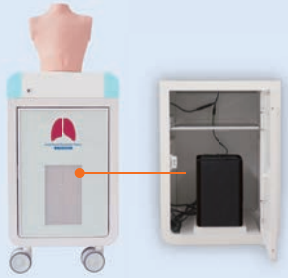
Simultaneous both anterior and posterior auscultation. Two or more trainees can work at a same time.

Respiratory cycle indicator

LED light panel indicates inspiration and expiration phases, illustrating the respiratory rate during auscultation.

External speaker

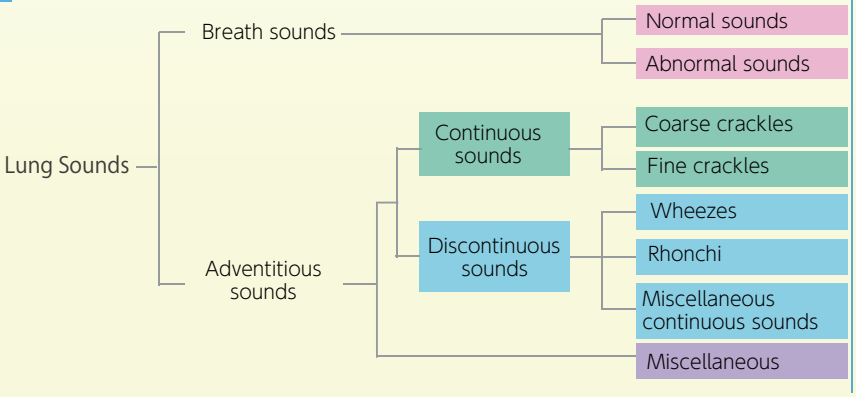
The external speaker shares sounds with an audience allowing for group sessions in combination with the LED indicator.



20 Pediatric Lung Sounds Examples Based on Lung Sounds Classification

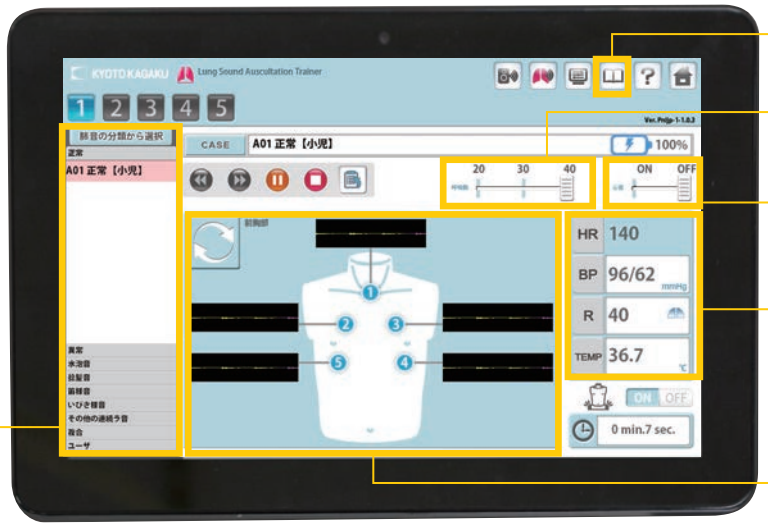
Classification of Lung Sounds

Based on acoustic analysis of recorded lungs sounds, each are classified according to the American Thoracic Society Standards.
With this approach, lung sounds are categorized as continuous (wheezes, rhonchi, or stridor) or discontinuous (crackles).
Crackles are further identified as fine or coarse.

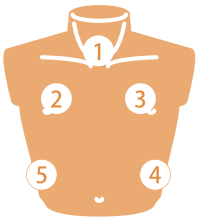


Basic Operation Window

Simple designed display provides immediate understanding of respiratory waves, HR, BP, respiratory rate, and body temperature.

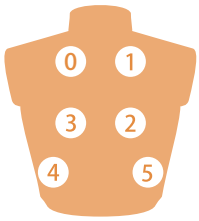


Auscultation Sites



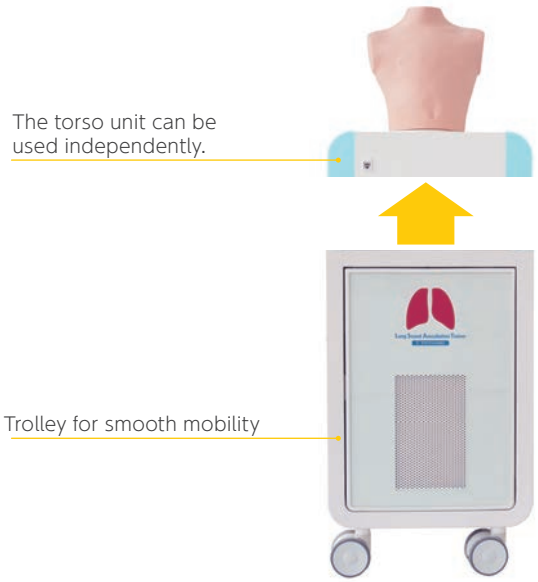
Anterior Five Sites

1. trachea
2. upper right lung field
3. upper left lung field
4. lower left lung field
5. lower right lung field



Posterior Six Sites

0. upper left lung field
1. upper right lung field
2. middle right lung field
3. middle left lung field
4. lower left lung field
5. lower right lung field



20 cases recorded from real patients

normal	abnormal	coarse crackles	fine crackles
normal	weak: left lower area weak: left whole area weak: right lower area weak: right whole area	right lower area both lower area left lower area both upper area whole area right upper area	both lower area whole area
wheezes	**rhonchi**	**combined cases**	**miscellaneous continuous sounds**
trachea and upper area whole area	trachea and upper area whole area	coarse crackles and rhonchi fine crackles and wheezes	stridors

Point

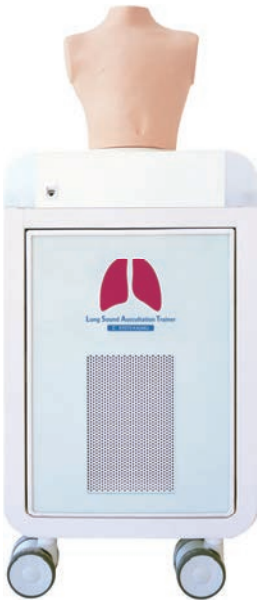
Examples of common multiple adventitious sounds are included.

Pediatric
Lung Sound Auscultation Trainer

MW57

pediatric LSAT unit (external speaker incl.)	1
control PC	1
accessories	1
pediatric LSAT T-shirt	1
instruction manual	

size	W39×D39×H98cm
weight	35kg
power supply	AC100V-240V 50/60Hz
power consumption	180W



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