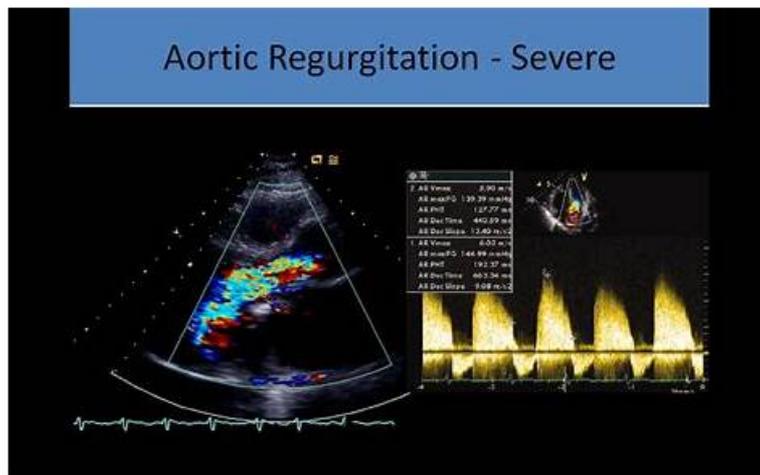


# 認定するAE-Adult-Echocardiography | 正確的なAE-Adult-Echocardiography日本語版復習指南試験 | 試験の準備方法AE Adult Echocardiography Examination模擬試験サンプル



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>> AE-Adult-Echocardiography日本語版復習指南 <<

## 試験の準備方法-真実的なAE-Adult-Echocardiography日本語版復習指南試験-最高のAE-Adult-Echocardiography模擬試験サンプル

AE-Adult-Echocardiography試験の質問を理解する限り、受験者にとってより簡単な運用システムが設定されていることがわかります。一度試してみると、AE-Adult-Echocardiography学習教材の自然でシームレスなユーザーインターフェイスがより流暢になり、最新の開発状況に応じてAE-Adult-Echocardiography学習教材を修正および更新したと感ずることが出来ます。理論と実践だけでなく、シラバスの指導のガイダンスで、当社のAE-Adult-Echocardiographyトレーニングガイドは、業界の傾向に従って高品質の試験資料を達成しました。

### ARDMS AE-Adult-Echocardiography 認定試験の出題範囲:

トピック	出題範囲
トピック 1	<ul style="list-style-type: none"> <li>Clinical Care and Safety: This section of the exam measures skills of adult echocardiography technicians in applying clinical care principles and safety protocols. It includes evaluating patient history and external data, preparing patients including fasting state and intravenous line management, proper patient positioning, EKG lead placement, blood pressure measurement, and ergonomic techniques. Candidates are expected to identify critical echocardiographic findings, know contraindications for procedures, and be able to respond and manage medical emergencies that may arise during echocardiographic exams.</li> </ul>

トピック 2	<ul style="list-style-type: none"> <li>• <b>Anatomy and Physiology:</b> This section of the exam measures skills of adult echocardiography technicians and covers knowledge and abilities related to normal cardiac anatomy and physiology. It includes assessing great vessels like the aorta and pulmonary arteries, recognizing anatomic variants of the heart, and evaluating cardiac chambers, pericardium, valve structures, and vessels of arterial and venous return. Candidates must document normal systolic and diastolic function, normal valve function and measurements, the phases of the cardiac cycle, normal Doppler changes with respiration, and appearance of arterial and venous waveforms. This also involves assessing the normal hemodynamic response to stress testing and maneuvers such as Valsalva, respiratory, handgrip, and postural changes.</li> </ul>
トピック 3	<ul style="list-style-type: none"> <li>• <b>Instrumentation, Optimization, and Contrast:</b> This section of the exam measures skills of adult echocardiography technicians related to use and optimization of ultrasound instrumentation and the application of contrast agents. Candidates should recognize imaging artifacts, utilize non-imaging transducers, and adjust ultrasound console settings for optimal imaging and Doppler recordings. Knowledge of harmonic imaging, principles of contrast agents, and the safe and effective use of saline and echo-enhancing contrast agents is essential. Candidates must also be able to optimize images when using contrast agents to ensure diagnostic quality.</li> </ul>
トピック 4	<ul style="list-style-type: none"> <li>• <b>Measurement Techniques, Maneuvers, and Sonographic Views:</b> This section of the exam measures skills of adult echocardiography technicians in performing accurate cardiac measurements, conducting provocative maneuvers, and obtaining optimized sonographic imaging views. It involves applying 2D, 3D, M-mode, and Doppler techniques to measure heart valves, chambers, and vessels, including the aortic valve, mitral valve, left and right ventricles, atria, pulmonary artery, and shunt ratios. Candidates must instruct patients in maneuvers such as Valsalva, cough, sniff, and squat. They should also be proficient in acquiring standard echocardiographic views including apical, parasternal, subcostal, and suprasternal notch views.</li> </ul>
トピック 5	<ul style="list-style-type: none"> <li>• <b>Pathology:</b> This section of the exam measures skills of adult echocardiography technicians and focuses on identifying and evaluating abnormal physiology and perfusion and postoperative conditions. It includes assessment of ventricular aneurysms, aortic and valve abnormalities, arrhythmias, cardiac masses, diastolic dysfunction, endocarditis, ischemic diseases, cardiomyopathies, congenital anomalies, and postoperative valve repair or replacement and intracardiac devices. Candidates must demonstrate ability to recognize abnormal Doppler signals, EKG changes, wall motion abnormalities, and a wide range of cardiac pathologies including pulmonary hypertension and septal defects.</li> </ul>

## ARDMS AE Adult Echocardiography Examination 認定 AE-Adult-Echocardiography 試験問題 (Q113-Q118):

### 質問 # 113

Which mitral valve filling pattern is characterized by a long deceleration time and an E/A ratio of 0.6?

- A. Pseudonormal
- B. Restrictive
- C. Normal
- **D. Impaired relaxation**

正解: D

解説:

The mitral valve filling pattern characterized by a long deceleration time and a reduced E/A ratio (less than 1, such as 0.6) is consistent with impaired relaxation. This pattern is typically seen in early diastolic dysfunction, where there is slowed ventricular relaxation, resulting in reduced early diastolic filling (E wave) and a compensatory increase in atrial contraction contribution (A wave).

Impaired relaxation pattern shows:

E/A ratio < 1 (e.g., 0.6)

Prolonged deceleration time (>200 ms)

Prolonged isovolumic relaxation time (IVRT)

This pattern differs from restrictive filling, which has a high E/A ratio (>2), shortened deceleration time (<150 ms), and elevated left atrial pressures. Pseudonormal filling has a normal or near-normal E/A ratio but elevated filling pressures that mask underlying dysfunction and requires further evaluation with tissue Doppler or pulmonary venous flow for diagnosis. Normal filling has a typical

E/A ratio around 1 to 1.5 with normal deceleration times.

The textbook details that impaired relaxation is the earliest sign of diastolic dysfunction and describes the prolongation of the deceleration time and reduced E/A ratio as hallmark findings of this stage.

#### 質問 # 114

Where would a Swan-Ganz catheter be best visualized?

- A. Right ventricular outflow tract
- B. Left ventricular outflow tract
- C. Pulmonary veins
- D. Descending aorta

正解: A

解説:

Comprehensive and Detailed Explanation From Exact Extract:

A Swan-Ganz catheter (pulmonary artery catheter) is inserted via the venous system into the right atrium, right ventricle, and then into the pulmonary artery. The catheter passes through the right ventricular outflow tract (RVOT) before entering the pulmonary artery.

Therefore, echocardiographic visualization of the Swan-Ganz catheter is best achieved in the right ventricular outflow tract or main pulmonary artery, often seen as an echogenic linear structure.

It would not be found in the left ventricular outflow tract (aortic valve region), pulmonary veins, or descending aorta as these are on the left heart or arterial side and not part of the catheter's path.

This is a well-known anatomical fact described in echocardiography procedural references and clinical guidelines on invasive hemodynamic monitoring#16:Textbook of Clinical Echocardiography, 6p.310-315#

#12:ASE Invasive Monitoring Guidelinesp.450-455#.

#### 質問 # 115

Which is an abnormal response to a stress echocardiogram?

- A. Increased ejection fraction
- B. Increased end-systolic volume
- C. Hyperdynamic wall motion
- D. Decreased end-diastolic volume

正解: B

解説:

Comprehensive and Detailed Explanation From Exact Extract:

During a normal stress echocardiogram, the left ventricle demonstrates hyperdynamic wall motion with increased contractility, leading to an increased ejection fraction and typically decreased end-systolic volume due to more complete emptying.

An increase in end-systolic volume during stress is abnormal and suggests ischemia or impaired contractile reserve. This indicates that the ventricle is not contracting effectively, possibly due to coronary artery disease or myocardial dysfunction.

This interpretation is thoroughly explained in the "Textbook of Clinical Echocardiography, 6e", Chapter on Stress Echocardiography and Ischemia Detection#20:400-410Textbook of Clinical Echocardiography#.

#### 質問 # 116

What is the normal dP/dt value of left ventricular systolic function?

- A. Greater than 1200 mmHg/s
- B. 400-799 mmHg/s
- C. 800-1199 mmHg/s
- D. Less than 400 mmHg/s

正解: A

解説:

Comprehensive and Detailed Explanation From Exact Extract:

The left ventricular dP/dt is a measure of the rate of rise in left ventricular pressure during isovolumic contraction, which reflects systolic function. It is derived from Doppler echocardiography by measuring the time interval between mitral regurgitant jet velocities of 1 m/s and 3 m/s. Using the simplified Bernoulli equation, the pressure gradient at each velocity is calculated, and the rate of pressure rise (dP/dt) is calculated by dividing the pressure difference by the time interval between these velocities.

A normal left ventricular dP/dt is generally considered to be greater than 1200 mmHg/s. Values lower than this indicate impaired systolic function, as the ventricle is slower to generate pressure during contraction.

For example, a measured time interval of 36 milliseconds (0.036 seconds) between the MR velocities of 1 and 3 m/s corresponds to a dP/dt of approximately 889 mmHg/s, which is mildly reduced, indicating some systolic dysfunction.

The exact extract from the "Textbook of Clinical Echocardiography, 6e" states that normal dP/dt values are typically above 1000 mmHg/s, with >1200 mmHg/s considered a robust indicator of normal systolic function.

This measure is useful but requires a measurable mitral regurgitation jet and consistent alignment of the ultrasound beam. Variability in measurement can occur based on technical factors, but the dP/dt remains a useful parameter to quantify systolic function noninvasively.

#### 質問 # 117

Which structure is the arrow pointing to in this video?



- A. Left lower pulmonary vein
- **B. Coronary sinus**
- C. Left atrial appendage
- D. Descending aorta

正解: B

解説:

The arrow points to the coronary sinus, which is a venous structure located posteriorly in the atrioventricular groove, emptying into the right atrium. It appears as a circular anechoic structure near the left atrium in echocardiographic images.

Left lower pulmonary vein enters the left atrium more superiorly. Descending aorta is posterior to the heart but not in this location. Left atrial appendage is an anterior finger-like projection of the left atrium, separate from the coronary sinus.

This anatomy is described in the "Textbook of Clinical Echocardiography, 6e", Chapter on Cardiac Venous Anatomy#20:140-145Textbook of Clinical Echocardiography#.

#### 質問 # 118

