

Stress Testing

Five types of stress tests are available at the Yakima Heart Center:

- Treadmill testing (For pre-employment only. i.e. firefighter, police officer)
- Exercise stress echocardiography
- Dobutamine stress echocardiography
- Exercise stress myocardial perfusion scanning
- Adenosine vasodilation myocardial perfusion scanning

The following information may be helpful in ordering the most appropriate test.

Treadmill testing

Treadmill testing is the least accurate of these tests. It is most useful when the likelihood of coronary atherosclerosis (based on history and physical exam) is at least moderate. Blood pressure must be controlled (160/90 or less). Many factors reduce the accuracy of the test. If any of the following is present, consider stress echocardiography or myocardial perfusion scanning instead:

- Left bundle branch block (consider adenosine myocardial perfusion scanning instead)
- ST-T changes on resting ECG
- Digoxin use
- Limited exercise capacity due to age, obesity, deconditioning or any type of physical disability
- Limited heart rate response due to beta blocker, verapamil or diltiazem*
- Female sex

* If it is felt to be safe, these medicines should be withheld for at least 48 hours prior to the test. If they can't be withheld, consider adenosine myocardial perfusion scanning instead. If they are being used for hypertension control, consider using another antihypertensive temporarily. If the BP is above 160/90 at the time of testing, the test will be cancelled.



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Exercise stress echocardiography

Exercise stress echocardiography is more accurate than treadmill testing. Its accuracy is comparable to that of myocardial perfusion scanning. Blood pressure must be controlled (160/90 or less). The test's accuracy is reduced by:

- Limited exercise capacity due to age, obesity, deconditioning or any type of physical disability
- Limited heart rate response due to beta blocker, verapamil or diltiazem*
- Severe obstructive pulmonary disease (poor images)
- Marked obesity (poor images)
- Left bundle branch block (consider adenosine myocardial perfusion scanning instead)

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Dobutamine stress echocardiography

Dobutamine stress echocardiography is useful for patients who can't exercise. The test's accuracy is comparable to exercise stress echocardiography and myocardial perfusion scanning. Blood pressure must be controlled (160/90 or less). The test's accuracy is limited by:

- Limited heart rate response due to beta blocker, verapamil or diltiazem*
- Severe obstructive pulmonary disease (poor images)
- Marked obesity (poor images)
- Left bundle branch block (consider adenosine myocardial perfusion scanning instead)

* If it is felt to be safe, these medicines should be withheld for at least 48 hours prior to the test. If they can't be withheld, consider adenosine



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myocardial perfusion scanning instead. If they are being used for hypertension control, consider using another antihypertensive temporarily. If the BP is above 160/90 at the time of testing, the test will be cancelled.

Pacemaker patients

We can do stress echocardiography in patients who are pacemaker dependent by varying the pacemaker rate. If your patient has a pacemaker, please let us know when scheduling the test so that we can have the appropriate personnel available.

Exercise stress myocardial perfusion scanning

The accuracy of exercise stress myocardial perfusion scanning is comparable to that of stress echocardiography. Blood pressure must be controlled (160/90 or less). The test's accuracy is reduced by:

- Limited exercise capacity due to age, obesity, deconditioning or any type of physical disability
- Limited heart rate response due to beta blocker, verapamil or diltiazem*
- Left bundle branch block (consider adenosine myocardial perfusion scanning instead)

* If it is felt to be safe, these medicines should be withheld for at least 48 hours prior to the test. If they can't be withheld, consider adenosine myocardial perfusion scanning instead. If they are being used for hypertension control, consider using another antihypertensive temporarily. If the BP is above 160/90 at the time of testing, the test will be cancelled.

Adenosine vasodilation myocardial perfusion scanning

The accuracy of adenosine vasodilation myocardial perfusion scanning is comparable to that of stress echocardiography. The test is especially useful for patients who can't exercise adequately and for those with hard-to-control hypertension. Beta blockers, diltiazem and verapamil don't have to be withheld prior to the test. It is the most accurate stress test for patients with left bundle branch block.



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Special considerations for adenosine myocardial perfusion scanning:

- Theophylline preparations and dipyridamole need to be withheld for 36-48 hours prior to the test. If this can't be done safely, another test should be considered.
- Patients need to avoid caffeine for 48 hours prior to the test.
- Marked sinus node dysfunction and 2nd and 3rd degree AV block are contraindications

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