

— ECG — Dr. FLM

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Navigating Cardiac Tests

And Home Monitoring

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Quick Summary

Tests should answer specific questions, not just gather data. Home technology is a useful tool for tracking trends, but it must be used correctly and should never replace clinical judgment.

Understanding Cardiac Tests: Purpose and Types

Cardiac tests are tools designed to answer specific clinical questions about your heart. They are not routine checklists but targeted investigations chosen based on your symptoms, risk factors, and previous results. Tests fall broadly into three categories:

Test Type	What It Assesses	Examples
Electrical	Heart rhythm and electrical activity	Resting ECG, Holter monitor, portable ECG devices
Structural	Heart anatomy and function	Echocardiogram, Cardiac MRI
Blood Flow	Blood supply and ischaemia	Stress ECG, Nuclear stress test, CT angiography

Each test has strengths and limitations. For example, a resting ECG shows electrical signals but cannot detect artery blockages. Echocardiograms visualise heart chambers and valves but do not measure blood flow directly. Stress tests reveal blood flow problems during exertion but may not pinpoint exact blockage locations.

Understanding which test answers which question helps you engage meaningfully in your care and avoid unnecessary or inappropriate testing.

Key Takeaway

More testing is not always better. The right test is the one that answers the specific clinical question your doctor needs to address.

Electrical Tests: The Heart's Rhythm and Signals

The resting electrocardiogram (ECG) is often the first test performed. It records the heart's electrical activity at rest, identifying rhythm irregularities, conduction delays, and signs of previous heart injury. It is quick, painless, and inexpensive.

However, a normal resting ECG does not rule out coronary artery disease. Some rhythm problems are intermittent and may not appear during a brief recording.

For intermittent symptoms such as palpitations, a Holter monitor records continuous ECG data over 24 hours or longer, capturing heart rhythms during daily activities and sleep. Portable ECG devices, including some smartwatches and handheld monitors, can record short ECG strips at home during symptoms. These are useful adjuncts but require professional interpretation and do not replace formal testing.

Structural Tests: Seeing the Heart in Motion

Echocardiography uses ultrasound to produce real-time images of the heart's chambers, valves, and function. It assesses chamber size, wall thickness, valve function, and pumping ability (ejection fraction). It is non-invasive and radiation-free.

In some cases, a transesophageal echocardiogram (TEE) is performed by inserting a probe into the esophagus for clearer images, especially of valves or clots. This requires sedation. Cardiac MRI provides detailed, high-resolution images of heart structure, function, and tissue characteristics such as scarring or inflammation. It is the gold standard for many structural assessments but is more expensive and less widely available.

Blood Flow Tests: Assessing Coronary Circulation

Stress tests evaluate blood flow to the heart muscle during exertion. The simplest is the stress ECG, monitoring electrical changes during exercise. More advanced tests add imaging: nuclear stress tests use radioactive tracers to map blood flow; stress echocardiography uses ultrasound to detect areas with poor contraction under stress; stress cardiac MRI offers detailed perfusion imaging without radiation.

Coronary CT angiography visualises coronary arteries directly, showing plaque location and severity but does not measure blood flow. It requires contrast dye and exposes you to radiation.

Coronary calcium scoring quantifies calcified plaque burden, helping refine risk assessment but does not detect soft plaque or blockages.

Home Blood Pressure Monitoring: Technique and Limitations

Home blood pressure monitoring is a valuable tool to understand your true blood pressure outside the clinic, avoiding “white coat” effects or masked hypertension.

To obtain accurate readings:

- Sit quietly for 5 minutes before measuring.
- Avoid caffeine and smoking for at least 30 minutes prior.
- Use a validated upper-arm cuff with the correct size.
- Sit with back supported, feet flat on the floor, and arm at heart level.
- Do not talk or move during measurement.
- Take 2-3 readings one minute apart and record the average.
- Measure at consistent times daily, ideally morning and evening.
- Keep a log to share with your healthcare provider.

Incorrect technique can lead to falsely elevated or low readings, causing confusion and inappropriate treatment changes.

Home Blood Pressure Monitoring Checklist

Sit quietly 5 minutes before measuring Use validated upper-arm cuff, correct size Keep arm at heart level, cuff on bare skin Take multiple readings, average results Measure at same times daily Record and share readings with your doctor Avoid caffeine, smoking 30 minutes before Do not talk or move during measurement.

Wearables and Home Devices: Benefits and Limitations

Consumer devices such as smartwatches, fitness trackers, portable ECG monitors, pulse oximeters, and smart scales have become popular for heart health monitoring.

They can:

- Detect intermittent arrhythmias like atrial fibrillation when used correctly.
- Track heart rate trends during exercise and rest.
- Monitor weight changes important in heart failure management.
- Support lifestyle changes and medication adherence.

However, limitations include:

- Variable accuracy depending on device and user.
- False positives and false negatives causing anxiety or false reassurance.
- Not suitable for diagnosing new conditions or replacing medical evaluation.
- Algorithms are not definitive; professional interpretation is essential.
- Overuse can lead to health anxiety and obsessive monitoring.

Use these devices as tools to supplement, not replace, professional care. Always discuss device use with your healthcare team.

Questions to Ask Before Cardiac Testing or Procedures

Before undergoing any cardiac test or procedure, consider asking your cardiologist:

Question	Purpose
Why is this test recommended for me?	Understand the specific clinical question it answers
What will the test show or rule out?	Clarify expected information and limitations
Are there alternative tests?	Explore options with different risks or benefits
What are the risks and preparation requirements?	Know what to expect and how to prepare safely
How will the results affect my treatment?	Understand implications for management decisions
What happens if results are normal or abnormal?	Set expectations for next steps

Being informed helps you participate actively in your care and reduces anxiety.

Emergency Contacts

Call 999 immediately if you experience:

- Chest pain or pressure
- Severe shortness of breath
- Sudden weakness, confusion, or numbness
- Loss of consciousness

Do not rely solely on home devices in emergencies. Always seek prompt professional evaluation.

Summary: Using Cardiac Tests and Home Monitoring Wisely

Cardiac tests are powerful tools when used appropriately to answer specific clinical questions about your heart's electrical activity, structure, and blood flow. Understanding their purpose and limitations helps you engage in shared decision-making.

Home monitoring devices can provide valuable trend information and support management but require proper technique and should never replace professional medical evaluation.

Always discuss testing and device use with your healthcare team. Focus on patterns and trends rather than isolated readings, and balance monitoring with living your life.

Your heart health depends on the partnership between you and your clinicians, combining clinical expertise, appropriate testing, and informed self-care.

Sources and Further Reading

This guide is adapted from **Heart Saviour** by Dr Francesco Lo Monaco and checked against current NHS guidance on metabolic syndrome. Individual targets for blood pressure, glucose, cholesterol, weight, liver health, and kidney health should be agreed with a qualified healthcare professional.

Important Medical Disclaimer

This guide is for educational purposes only and does not constitute medical advice. It is not a substitute for professional medical diagnosis or treatment. Always consult your healthcare provider before making changes to your medications, lifestyle, or treatment plans. If you experience severe symptoms such as chest pain or shortness of breath, seek emergency medical attention immediately (call 999 in the UK).



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A Calm Place To Begin

If you would like to discuss a symptom, a family history or a preventive heart assessment, you are welcome to contact the clinic.

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