Whole Body MRI™

What Can a Whole-body MRI Detect?

A whole-body MRI (also called a full-body MRI) is a non-invasive scan that evaluates the entire body for early signs of cancer and other diseases. Using advanced magnetic resonance imaging technology, doctors can examine major organs such as the brain, lungs, liver, pancreas, kidneys, and spine in a single session.

This article explains what a full-body MRI can detect, how accurate it is, and why modern protocols such as diffusion-weighted imaging (DWI) have dramatically improved cancer detection.

What Does a Full body MRI detect?

A full-body MRI can detect abnormalities across many organs including:

- cancers and tumours
- pre-cancerous risk factors
- vascular abnormalities such as aneurysms
- neurological conditions
- metabolic diseases
- musculoskeletal disorders

However, not all full-body MRI scans are designed the same. The conditions that can be reliably detected depend on factors such as the anatomical coverage of the scan, its sensitivity and spatial resolution, and how the MRI protocol is optimised. These elements vary between providers depending on the imaging technology used, the sequences included in the protocol, and the expertise of the radiologist interpreting the results.

What Organs and Body Regions does a full body MRI Cover?

A full-body MRI scan evaluates most major regions of the body in a single imaging session. By scanning from head to toe, radiologists can assess multiple organs and anatomical systems without using radiation.

It is important to note that not all scans marketed as “full-body” or “whole-body” MRI evaluate the same anatomical coverage. Some providers, often in the interest of reducing scan time, perform anatomically abbreviated protocols focused primarily on the torso (typically the chest, abdomen, and pelvis). While these scans may still detect important findings, they do not evaluate the entire body.

A true full-body or whole-body MRI aims to image the body from the head to at least the mid-thigh or feet, including the brain, chest, abdomen, pelvis, spine, and major musculoskeletal structures. However, the upper limbs may not always be fully included, as MRI systems have a limited field of view and imaging large regions requires careful optimisation of image quality.

Our Advanced Whole Body MRI package evaluates the following anatomical regions:

Head

- Brain
- Skull base
- Major intracranial structures
- Facial bones and sinuses
- Vessels of the head (MRI head angiogram)

Neck

- Soft tissues of the neck
- Thyroid*
- Cervical spine
- Major vascular structures

Chest

- Heart and mediastinum (cardiovascular risk is evaluated by low-dose CT calcium score)
- Lungs (assessed with our included low-dose Spectral CT chest)
- Breast*
- Oesophagus
- Diaphram
- Thoracic spine

Abdomen

- Stomach*
- Liver
- Pancreas
- Gallbladder
- Ducts
- Spleen
- Kidneys and adrenal glands

Pelvis

- Urinary bladder
- Reproductive organs
- Pelvic structures
- Prostate*

Spine and Skeleton

- Cervical, thoracic, and lumbar spine
- Pelvic bones

- Major skeletal structures
- Knee joints
- Hip joints

Extremities

- Upper limbs* - *may be limited depending on body size*
- Lower limbs
- Major muscle groups

Additional coverage

Whole Body MRI™ forms the foundation of our comprehensive, multi-modality approach to proactive health screening. Depending on the screening package selected, our advanced 3T MRI whole-body scan may be complemented by additional targeted assessments including.

- Detailed lung assessment with our low-dose CT chest
- Cardiovascular risk assessment (CT calcium score)
- Metabolic condition screening with DEXA Body Composition (e.g. visceral adiposity) and quantitative fatty liver assessment
- Bone Health (e.g. DEXA Bone Mineral Density)

Compare our Whole Body MRI™ screening packages and inclusions.

Conditions we detect on our Whole-body MRI scan

Our multi-modality Whole Body MRI scan can detect hundreds of conditions including, but not limited to:

- **Solid tumours** across major organ, including but not limited to:
  - brain, oesophagus, lung, stomach*, liver, pancreas, gallbladder, kidney, urinary bladder*, uterus
  - bone, muscle and connective tissues (e.g. sarcoma).

- **Precancerous conditions** such as high-risk pancreatic cysts (IPMN).
- Vascular abnormalities, including **aneurysms** of the brain, aorta, and other vessels.
- **Neurological conditions**, including early markers of dementia, demyelination conditions such as multiple sclerosis, evidence of prior strokes, and small vessel ischemia.
- **Reproductive conditions** (male and female):
  - Female – endometriosis, ovarian cysts, uterine fibroids, Mullerian duct anomalies
  - Male – enlarged prostate (BPH)

- **Metabolic conditions,** including risk of cardiovascular disease, high visceral adiposity, fatty liver disease (via fat quantification), and haemochromatosis/iron overload (via liver iron quantification).
- **Urinary tract conditions**, such as bladder or kidney stones.
- **Musculoskeletal and spinal conditions**, arthritis of major joints, spinal disc herniations, and spinal cord abnormalities.

- **Other clinically relevant findings**, including:
    - gallstones, hernias, pelvic free fluid, lung scarring, or an enlarged heart.

For a complete list of the conditions we can detect, see Our Reports.

Full-body MRI Should Be Optimised for Cancer Detection

Full-body MRI protocols consist of multiple imaging sequences, each designed to highlight different tissue characteristics. The specific combination of sequences used determines what abnormalities can be detected and how confidently radiologists can interpret the scan.

In routine diagnostic imaging, MRI protocols are tailored to answer a specific clinical question based on a patient's symptoms or medical history. In screening, however, imaging is performed in individuals without symptoms. For this reason, the primary goal of full-body MRI screening should be the early detection of cancer.

Achieving this requires carefully optimised imaging protocols that include diffusion-weighted imaging with background body signal suppression (DWIBS) alongside anatomical MRI sequences. These techniques are widely recognised in international imaging standards, including frameworks such as ONCO-RADS, as essential for detecting small or early malignant lesions.

At the same time, whole-body imaging inevitably reveals additional clinically important findings beyond cancer. These may include vascular abnormalities such as aneurysms, metabolic conditions, or other significant organ pathology that may benefit from further evaluation.

Full-body MRI sensitivity for cancer?

Sensitivity relates to how small of a potential cancer can be detected by the scan. In whole-body MRI, the sensitivity is dependent on a multitude of factors such as:

- spatial resolution (how many "pixels" also known as "voxels").
- signal to noise ratio (how noisey or clear the picture is)
- body region being scanned (some areas are difficult to image like the cardio-thoracic region, and bowel)
- radiologists experience and confidence in detecting subtle changes.

Generally speaking, the industry standard for full-body MRI is 10 mm.

In contrast, our Whole Body MRI^{TM} sensitivity for cancer is as small as 4 mm across the majority of organs in the torso, and even smaller in the brain.

This is because we are uniquely able to utilise 3T with our full-body distortion-corrected DWIBS. Importantly, the inclusion of low-dose CT chest scan in all of our whole-body MRI packages means we are able to characterise lung nodules as small as 3 mm.

How are findings reported?

Equally important to what the scan detects is how the findings are reported and followed up. Our structured reporting system uses internationally recognised ONCO-RADS criteria, which provide a consistent framework for interpreting whole-body MRI results. Each finding is assigned a score from 1 to 5, reflecting the likelihood of malignancy (see Table 1 below).

This standardised approach ensures that both patients and referring doctors receive clear, actionable information. A score of 1 represents a normal finding, while a score of 5 indicates a lesion that is highly suspicious for malignancy. By grading findings in this way, we help avoid unnecessary anxiety and reduce the number of avoidable follow-up tests, while ensuring that suspicious lesions are investigated quickly and appropriately.

This structured reporting system is designed to support informed decision-making, promote clarity in communication between radiologists and clinicians, and ensure that follow-up is both clinically justified and efficient.

We recommend consulting a trusted healthcare provider regarding any finding categorised ONCO-RADS 3 or higher for further follow-up imaging or testing.

Table 1, ONCO-RADS structured reporting & follow-up guidelines.

Category (Score)	Interpretation	Likelihood of Malignancy	Typical Next Steps
1	Normal / No abnormal findings	None	Routine follow-up only
2	Benign Finding	Highly unlikely	No additional tests required
3	Probably benign	Low to moderate	May require monitoring or targeted imaging for clarification.
4	Suspicious abnormality	Moderate to high	Recommend further dedicated imaging and/or clinical work-up
5	Highly suspicious for malignancy	Very high	Urgent referral for definitive diagnostic tests and management

Final Thoughts

Whole-body MRI has advanced from a niche musculoskeletal tool to a novel imaging option available valuable as a part of a full-body health check up, including the detection of cancer and other significant conditions before symptoms arise. The value of this technology is not in counting up “500 conditions,” many of which are irrelevant (e.g. "hysterectomy"), but in delivering precise, clinically meaningful answers. By using carefully optimised protocols and structured reporting such as ONCO-RADS, whole-body MRI allows radiologists to grade findings with confidence, helps patients and doctors make informed decisions, and reduces unnecessary follow-up.

For more information, read our guide on how to choose a full body MRI provider.

Whole Body & Full Body MRI Screening in Australia

Whole Body MRI™ provides advanced 3T whole body and full body MRI screening from our Gold Coast imaging facility, MBR Health. Explore our screening packages or contact our team to learn more.

Frequently Asked Questions

Below are some of our most commonly asked questions. For a complete list of frequently asked questions, visit our FAQ page. Alternatively Contact Us or our Partner Clinic MBR Health (formerly Mermaid Beach Radiology)

Can a full-body MRI detect cancer?

A full-body MRI can detect many types of cancer by identifying abnormal tissue signals within organs and bones. Modern protocols using techniques such as diffusion-weighted imaging (DWI) allow radiologists to detect suspicious lesions in organs including the brain, liver, pancreas, kidneys, and spine.

However, the ability to detect cancer depends on factors such as the resolution of the scan, the sequences used, and the experience of the radiologist interpreting the images.

Can a full-body MRI detect disease before symptoms appear?

Yes. One of the main advantages of whole-body MRI screening is the ability to detect abnormalities before symptoms develop.

Early detection may identify cancers, vascular abnormalities such as aneurysms, or metabolic conditions that might otherwise remain undetected until later stages. This is why full body MRI scans are considered a valuable addition to a comprehensive full body health check.

How Accurate is Full-body MRI scan?

The accuracy of a full-body MRI depends on several factors, including the spatial resolution of the scan, the imaging protocol used, and the expertise of the radiologist interpreting the results. These factors influence how small an abnormality can be detected and how confidently it can be characterised.

For individuals considering whole-body MRI screening, accuracy is one of the most important factors to consider when choosing a provider. Differences in scanner technology, imaging protocols, anatomical coverage, and radiologist experience can significantly affect the sensitivity of the scan and the reliability of the findings.

To learn more, visit our guides "What to look for in a Whole-body MRI Provider in Australia" and "Cancer Screening Tests Full Body MRI Doesn't Replace".

What happens if an abnormality is found?

If an abnormality is detected on our Whole Body MRI scan, the finding is typically graded according to a structured reporting system such as ONCO-RADS, which estimates the likelihood that a lesion is benign or malignant.

Depending on the score, further evaluation may include targeted imaging, laboratory testing, or referral to a specialist.

It is important to note, that not all providers are capable of meeting ONCO-RADS image acquisition guidelines, and therefore are unable to report according to the ONCO-RADS criteria.

Related Articles

- How Much Does a Full Body MRI Cost?
- How to Choose a Whole Body MRI Provider?
- Cancer Screening Tests Full Body MRI Doesn't Replace?
- Is Full Body MRI Worth It?
- Midjourney Medical: Can Full Body Ultrasound Replace Full Body MRI?

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