

NUCLEAR MAGNETIC RESONANCE

Magnetic Resonance is defined as a “**non invasive**” method of investigating body tissues. Unlike many other types of radiological methods, which expose the patient to ionising radiation (CT, conventional radiology, nuclear medicine...), it **does not use X-rays**, but extremely intense magnetic fields combined with radiofrequency pulses instead. According to the latest studies, it does not cause harm. Practically speaking, it is a new way of “viewing” the human body which allows the doctor's eye to reach the various organs, thereby facilitating diagnosis.

Equipment:

The MRI is carried out using a Philips Achieva 1.5 Tesla with all the coils needed for diagnostic investigations. Examinations of the osteoarticular apparatus, the central and peripheral nervous system, the cardiovascular system, the abdominal blood vessels, pathologies of chest, abdomen and pelvis (both neoplastic and non).

Absolute contraindications:

the exam may not be performed by people with:

- pace-maker
- prostheses with electronic circuitry
- intercranial metallic elements
- non-magnetic vascular clips

Preparation:

For most examinations, preparation **is not necessary**, and in the few cases in which it is required, the technical or office staff will provide all necessary instructions. Prior to the examination, a questionnaire will be issued which must be completed and signed.

The examination:

The patient will be led to a dressing room, where all clothing will be removed apart from underwear, as long as it does not contain metal parts; the patient will be provided with single-use gown and footwear. Following the instructions of the technical staff, the patient will then lie in the

machine. The machine is a cylinder with a diameter of 65cm. It is **open at both ends**, and is equipped with a ventilation system to ensure the circulation of air. The patient must remain completely still during the examination, and will hear sharp and intense noises caused by gradient alteration. There is absolutely nothing to be concerned about, it is entirely normal, and earplugs or ear muffs will be provided; furthermore, there will be **continuous visual contact with the staff, the possibility to speak through the intercom system and an emergency alarm.**

Contrast medium:

The contrast media used in MRIs are different from those used in CT scans and radiology, because they do not use iodine but atoms of a rare element called **gadolinium**. This substance generally causes no intolerance, but in some cases may have allergy side-effects. The frequency and seriousness of these phenomena is far lower than with iodine-based contrast media; however, we have all the necessary medication to handle even the most extreme allergic reactions. The medium will be injected into an arm half-way through the examination. **It is very important for the patient not to move to ensure a perfect matching of pre- and post-injection images.**

End of examination:

The results, images and any digital reconstructions, as well as all the documentation (previous examinations, specialist visits, etc.) will be delivered to the patient **as soon as possible after the examination at the secretary's office**; if the need is urgent, the results will be made available sooner with a specific request to the technical or medical staff.