

Breakthrough in radiotherapy promises targeted cancer treatment

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(PhysOrg.com) -- Current radiation therapy treatment damages a patient's healthy tissue as well as eradicating the tumour it is intended to destroy, making the treatment especially invasive and often causing nasty side effects.

A new development in radiotherapy will enable a far more precise and accurate treatment for cancerous tumours by using real-time images to guide the [radiation](#) beam.

Real-time image-guided radiotherapy, combining [radiation treatment](#) with non-invasive MR imaging, would be far less harmful for patients as it would leave less healthy tissue damaged and give radiation oncologists the possibility of instantly modifying the treatment dose as tumours change in size and shift.

Published in issue 12 of IOP Publishing's *Physics in Medicine & Biology* the findings of a research group from the University Medical Centre Utrecht in the Netherlands are set to "open the door to start testing MRI-guided [radiation therapy](#) in the clinic".

The team of researchers has successfully proven that simultaneous radiation treatment and diagnostic-quality MRI is feasible. By actively shielding the radiation beam from the MRI scanner's magnet and redesigning the treatment room set-up, which has until now been difficult to put into practice, the researchers have managed to produce high-quality, real-time MRI images, which could enable oncologists to

target radiation far more accurately while it is being applied.

Working towards a clinical prototype, the research team is hoping to start the first clinical tests in a year's time.

More information: paper "Integrating a 1.5 T MRI scanner with a 6 MV accelerator: proof of concept", Raaymakers B W et al Phys. Med. Biol. vol 54 (no 12) N229, www.iop.org/EJ/abstract/0031-9155/54/12/N01

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