MARIE®

UPRIGHT PARTICLE THERAPY

510(k) CLEARED

CE MARKED

THE MORE HUMAN WAY TO TREAT WITH RADIATION THERAPY

Please note: Leo Cancer Care's Marie solution is currently commercially available in the US and Europe

LEO CANCER CARE WAS FOUNDED WITH ONE GOAL IN MIND, TO BE:

THE MORE HUMAN WAY TO TREAT WITH RADIATION THERAPY

This is a very large goal, but for us this is what it means:

Improve the clinical efficiency of Radiation Therapy through upright positioning.

Improve the access to Radiation Therapy by removing the need for large and expensive rotating gantries and instead introduce slow patient rotation.

Empower patients and clinicians to face Radiation Therapy together, eye-to-eye.

MORE HUMAN

MEET MARIE®

Named after Marie Curie, a pioneer of radiotherapy, our Particle Therapy solution combines our sophisticated, upright patient positioning system and fan beam CT.

The Marie solution can be placed in front of any fixed particle beam, unlocking modalities such as proton therapy, carbon ion therapy and BNCT. We believe this simple shift to upright positioning will change the particle therapy landscape for good.

FEATURES AND BENEFITS

WHAT MAKES MARIE SO SPECIAL

GANTRY-LESS PARTICLE THERAPY

We remove the need for large and expensive gantries by keeping the radiation beam fixed and instead slowly rotating the patient. This change will reduce the size and cost, bringing this previously considered inaccessible treatment to more patients.

ONLINE ADAPTIVE

Having an upright fan beam CT scanner in the treatment room will unlock the option for daily imaging and online adaptive in particle therapy. This approach helps deliver treatments that adapt as our bodies change throughout treatment.

FUTURE ARC THERAPY

Arc Therapy offers dosing for a multiplicity of angles with continuous rotation, aiming to enhance treatment conformity. Gantry-based methods pose precision challenges due to their size and weight; however, by rotating the patient instead, we will open the door for particle arc therapy in the future.

Please note: Pending additional regulatory clearance

MOMENTS THAT MATTER

Positioning a patient eye-to-eye with the team treating them allows both patient and therapist to read each others body language to interpret subtle distress or pain cues. It is also allows a connection to be made which is the foundation for a trusting relationship in a time when patients feel vulnerable.

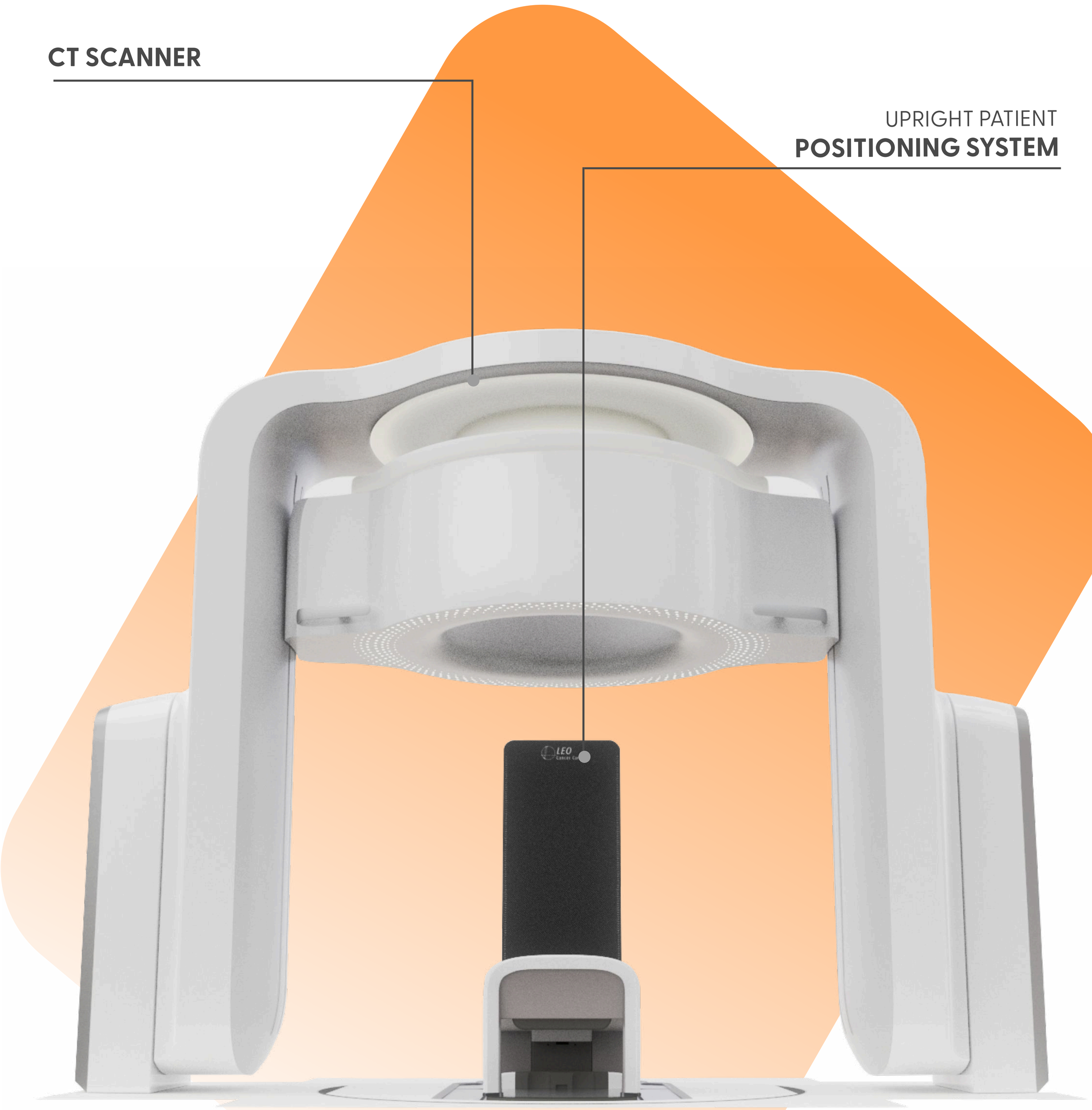
PRODUCT SPECIFICATIONS

CT SCANNER

Bore Size: 84 cm
Field of View: 62.3 cm
Imaging Energy: 120 kV
Gantry Tilt Angle: ± 15 °
Slice Thickness: 0.625, 1, 2, 4, 5 mm

UPRIGHT PATIENT POSITIONING SYSTEM

Isocenter Accuracy: <1 mm
X Translation: ± 13.5 cm
Y Translation: +15 cm/-35 cm
Z Translation: 70 cm
Pitch & Roll: ±3°
Backrest Angle: ±15°
Rotation: Continuous 360°



WHAT **MORE HUMAN** MEANS TO US

GIVING BACK MOMENTS OF CONTROL

We hear from patients that the treatment journey is an extremely vulnerable time. Even the smallest moments of feeling in control can be empowering. Our aim has always and will always be to be the more human way to treat cancer, beginning with how patients feel during your treatment. With patient's feet firmly on the ground, looking out, eye-to-eye with their clinician, we believe will help them to feel less like a passenger on their treatment journey.

WE'VE GOT YOUR BACK

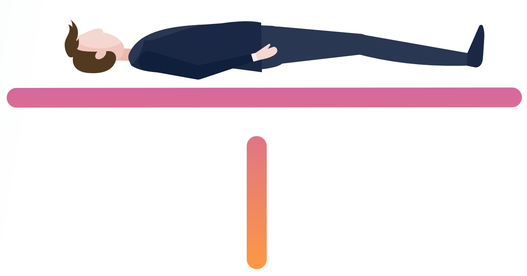
Approximately 80% of radiation therapists face musculoskeletal disorders, mainly in the neck, wrists, and lower back, due to repetitive movements during patient positioning. [1] An upright treatment position allows patients to self-position, minimizing manual handling by radiographers.

THE ONLY JUDGES WE NEED

Patients found it comfortable to breathe



100% Upright

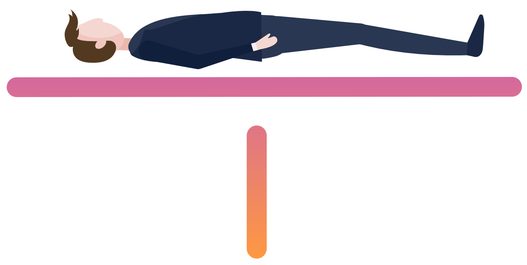


87% Supine

Patients felt it easy to get out of the system

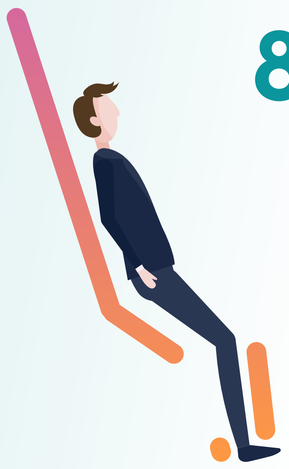


94% Upright

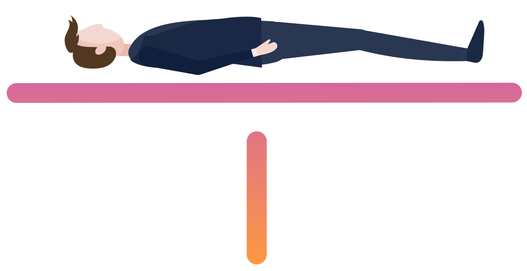


60% Supine

Patients felt stable



87% Upright



67% Supine



References

1. Hannia, A., et al. (2020) Prevalance of Musculoskeletal Work-related Injuries Among Radiation Therapists.
2. Boisbouvier S, Boucaud A, Tanguy R, Grégoire V. Upright patient positioning for pelvic radiotherapy treatments.

HIGHEST POTENTIAL INDICATIONS FOR UPRIGHT



BREAST

Increased upright lung volumes suggest that improved cardiac and lung sparing could be achievable for breast radiotherapy. A recent study concluded that, upright body positioning for breast radiotherapy appears to be comfortable and feasible. [1]



LIVER

A research paper by the Paul Scherrer Institute identified that when a patient lies down the liver can drift and deform in position up to 20mm over 35 minutes, [2] This could affect tumour location and accuracy during treatment when patients are in the supine position.



HEAD AND NECK

A study by Alghadir et al found that difficulty swallowing was 6 times greater when a patient is lying down with their neck extended compared to upright. [3] Suggesting that being treated in an upright position will help patients better manage thick oral secretions and reduce the risk of aspiration and patient anxiety.



PROSTATE

Recent data indicated that when upright, the prostate has been shown to move less. Its position is unaffected by changes in bladder fill, the seminal vesicles are pushed down by the bladder allowing them to be included in treatment volumes without compromising on healthy tissue, the space between sacrum and anterior bladder wall is also significantly smaller. [4]



LUNGS

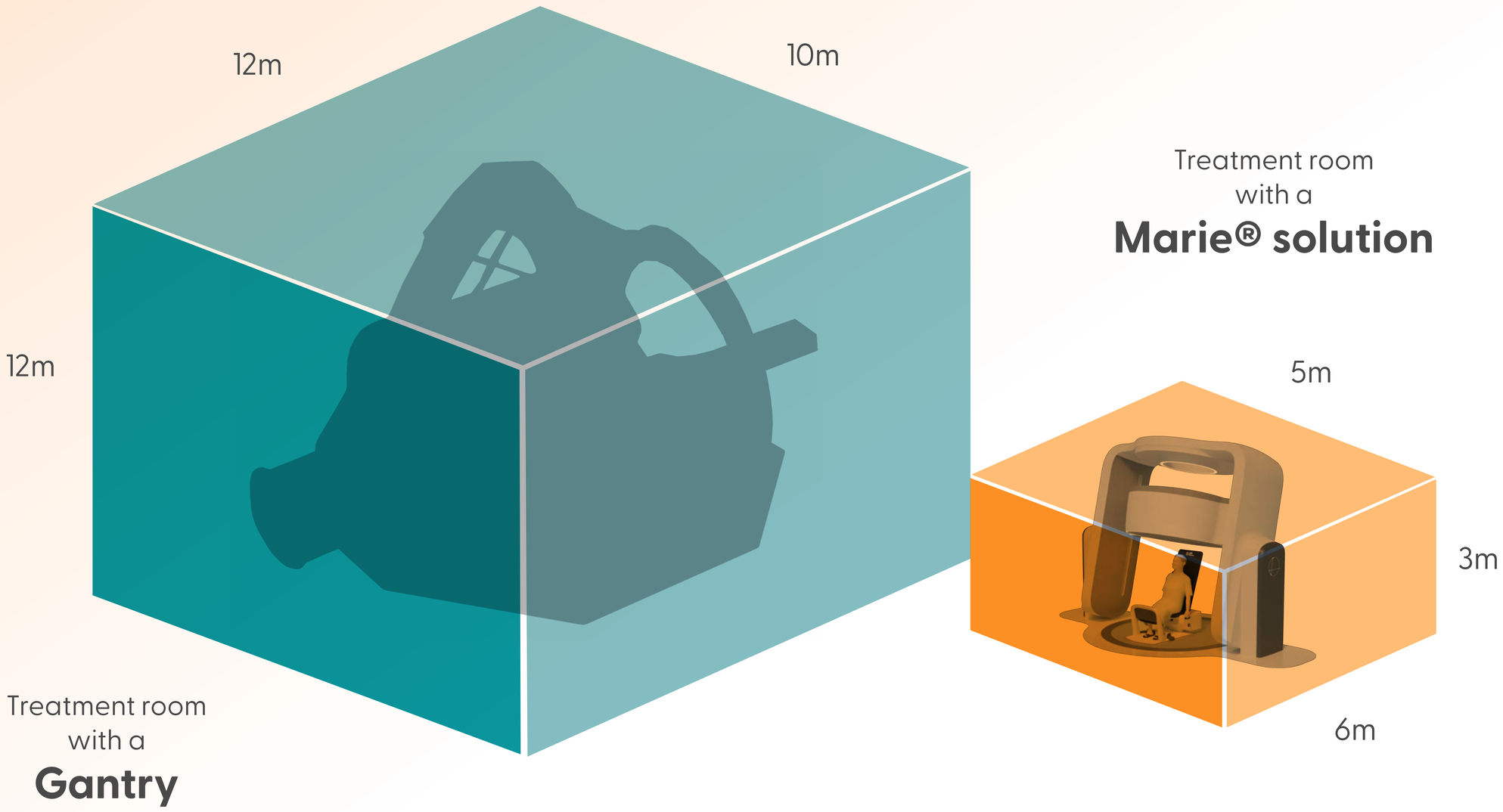
A study by a team at MD Anderson suggested that in the upright orientation, lung volume was on average 25% larger but in some cases up to 50% larger. [5] This increased lung volume suggested a reduction in breathing motion, allowing clinicians to challenge current treatment margins for thoracic tumours.

REFERENCES

1. Boisbouvier, S., et al. Upright patient positioning for gantry-free breast radiotherapy: feasibility tests using a robotic chair and specialised bras.
2. Siebenthal, M., et al. (2007) Systematic errors in respiratory gating due to intrafraction deformations of the liver
3. Alghadir, A., Zafar, H., Al-Eisa, E., Iqbal, Z. (2017) Effects of posture on swallowing.
4. Schreuder, N., et al (2023) Anatomical changes in the male pelvis between the supine and upright position
5. Yang J, Chu D, Dong L, Court LE. Advantages of simulating thoracic cancer patients in an upright position.

THINK PARTICLE THERAPY IS OUT OF REACH? **THINK AGAIN.**

SIMPLY ROTATING **THE LIGHTER OBJECT**



REPURPOSING EXISTING INFRASTRUCTURE

Removing the need for a gantry enables centers to repurpose existing treatment rooms, even linac vaults, avoiding new costly construction or hospital developments.

MORE PATIENTS TREATED

Two of our solutions can be installed in a single gantry vault, treating more patients and making this once-costly modality, now more commercially viable.

SCAN QR CODE TO VISIT WEBSITE

Treatment room with a gantry size is estimated using multiple sources.

Please note: Leo Cancer Care's Marie solution is currently commercially available in the US and Europe

LEO
CANCER CARE