

MOTION SYNCHRONIZATION: REAL-TIME ADAPTIVE NO-TRADEOFF RADIATION THERAPY

Traditional Motion Compensation Requires Difficult Tradeoffs

You can't have it all. It's a common adage – and commonly accepted thinking in radiation therapy (RT), particularly when it comes to accounting for target motion. Clinicians have come to accept that they must make tradeoffs among key goals – minimal margins, efficient delivery and natural patient behavior – sacrificing one or more goals to achieve another. Moreover, this "choice" is typically pre-defined by the system currently in place. Many of the leading radiation therapy systems have been designed to optimize one goal at the expense of others.

Common Clinical Compromises^{1,2}

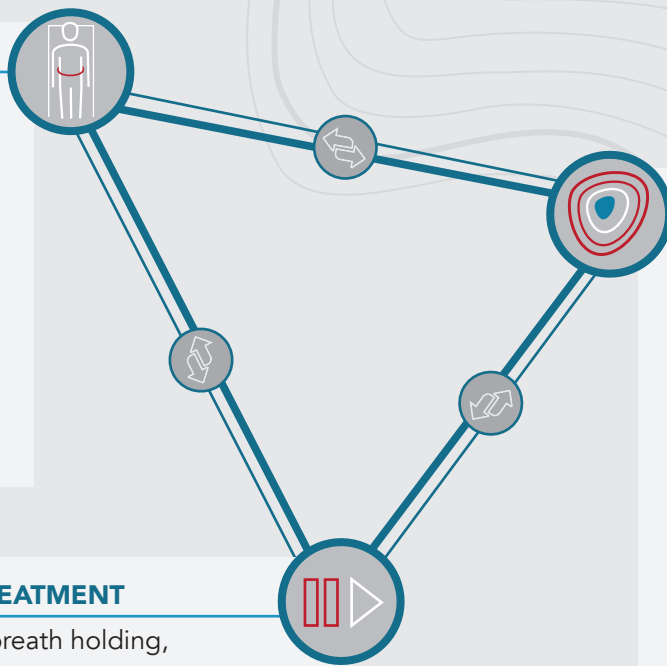
RESTRICT PATIENT MOVEMENT

Techniques: Restraint devices, breath holding

Benefit: Smaller margin expansion required

Cost:

- Slower treatments, more treatment fractions, higher total cost of treatment, resource intensive
- Lower patient comfort and poorer patient experience



INCREASE MARGIN SIZE

Techniques: ITV's encompassing motion

Benefit: Minimal resources required and no patient restrictions

Cost:

- More treatment fractions and higher total cost of treatment
- Potential for increased side effects, lower efficacy and secondary malignancies

PAUSE OR STOP TREATMENT

Techniques: Gating, breath holding, motion monitoring

Benefit: Small reduction in margin size

Cost:

- Slower treatments, more treatment fractions, higher total cost of treatment, resource intensive
- Poorer patient experience, work-flow disruptive

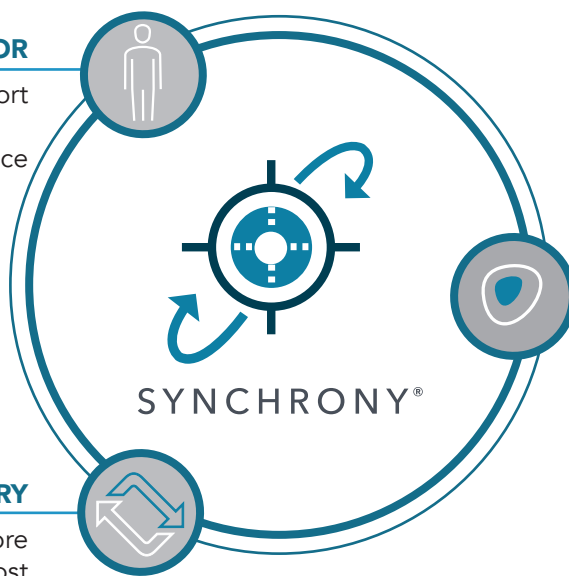
Motion Synchronization Shifts the Paradigm Without Compromise^{1,2}

To compensate is to attempt to reduce or counteract a force – in this case, target motion. By definition, there's a built-in conflict that leads to tradeoffs and sacrifices. Accuray enables a completely different approach that shifts the paradigm – **Real-Time Adaptive Treatment Delivery**. Automated, real-time tracking, detection and beam correction truly synchronizes beam delivery with target motion in real time – enabling more accurate, more efficient, more comfortable, and truly personalized RT treatments, **without compromise**.

NATURAL PATIENT BEHAVIOR

Greater Patient Comfort

Improving the Patient Experience



MINIMAL MARGINS

Potential for Better Clinical Outcomes with Fewer Side Effects

Freedom to Hypofractionate Treatment Delivery

EFFICIENT CONTINUOUS DELIVERY

More Efficient Treatments to More Patients at a Lower Cost

Potential for Increased Profitability

Synchrony®: Confidence in Motion^{1,2}

TREATMENT DELIVERY FACTORS	Motion Synchronization Synchrony®	Conventional Motion Compensation Methods				
		Gating	Breath Holding	Restraint	Monitor Motion Stop & Move Patient	Internal Target Volume (ITV)
Natural Patient Behavior	5	3	2	1	4	5
Efficient Delivery	5	2	2	3	1	4
Minimal Margins	5	3	3	3	2	1

Synchrony frees clinicians from being forced to make trade-offs that may be less than optimal for their patients, their practice or their center.

Visit accuray.com to learn how Accuray Systems with Synchrony are designed to help provide desired clinical and financial results both now and in the future.

1 Tomas Kron, Reduction of margins in external beam radiotherapy, Journal of Medical Physics (Vol. 33, Issue 2.)

2 Brandner ED, Chetty IJ, Giaddui TG, Xiao Y, Huq MS. Motion management strategies and technical issues associated with stereotactic body radiotherapy of thoracic and upper abdominal tumors: A review from NRG oncology. Med Phys. 2017 Jun;44(6):2595-2612. doi: 10.1002/mp.12227. Epub 2017 Apr 20.

Important Safety Information: Most side effects of radiotherapy, including radiotherapy delivered with Accuray systems, are mild and temporary, often involving fatigue, nausea, and skin irritation. Side effects can be severe, however, leading to pain, alterations in normal body functions (for example, urinary or salivary function), deterioration of quality of life, permanent injury and even death. Side effects can occur during or shortly after radiation treatment or in the months and years following radiation. The nature and severity of side effects depend on many factors, including the size and location of the treated tumor, the treatment technique (for example, the radiation dose), the patient's general medical condition, to name a few. For more details about the side effects of your radiation therapy, and if treatment with an Accuray product is right for you, ask your doctor.

Disclaimer: While hypofractionated treatments (with or without Synchrony) can potentially improve patient outcomes while supporting practice prosperity described herein, there is no guarantee that hypofractionated treatments will result in higher reimbursement rates, which are subject to change. Synchrony on Radixact has received 510(k) clearance but may not be for sale in all regions based upon regional regulatory approval.

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