



Product Overview for Clinicians



Who We Are

Modulate was born from 30+ years of research in spinal biomechanics, combined with advanced design & 3D printing technologies.

Our goal is simple: make bracing more comfortable and effective so it fits better into everyday life.

Why Better Braces Matter

A spinal brace may be worn up to 23 hours per day. Traditional braces often mean:



Heat and sweat

Plastic shells and liners trap heat and humidity.



Pressure and discomfort

Inaccurate pressure points make a brace harder to tolerate.



Poor esthetics

Bulky designs are hard to hide under clothing.



Inconsistent results

Design and quality varies by maker.



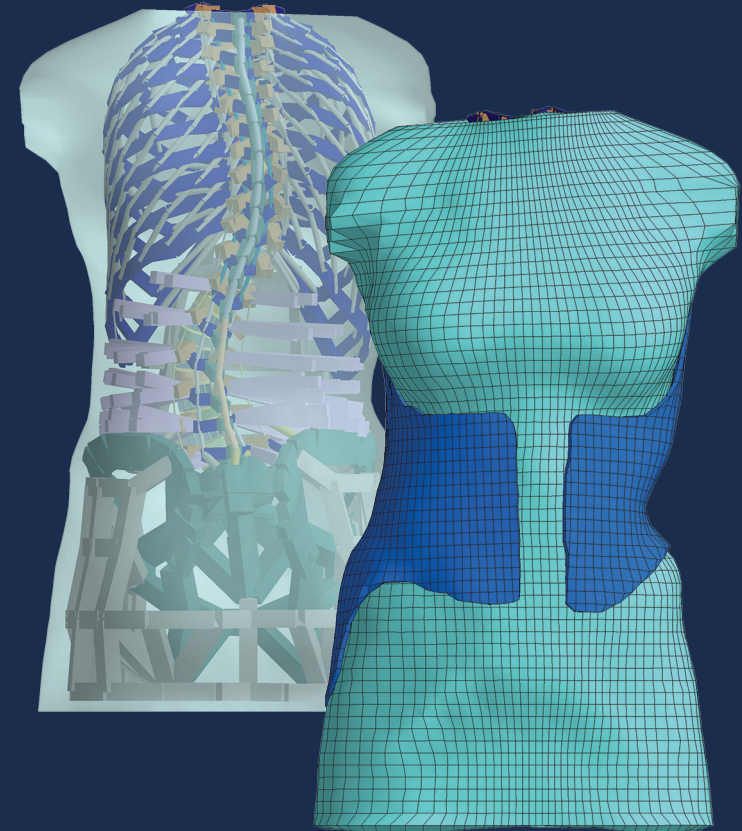
Patient-Optimized Braces

Our technology tackles common bracing issues by combining advanced algorithms, biomechanical simulations and additive manufacturing to create braces that patients accept more easily and that clinicians fit faster.

Designed Into Every Brace



Twin3D™: Our Patient-Specific Simulation Engine



Twin3D™ is our proprietary patient-specific finite element model. It accurately simulates brace effects before fabrication, including immediate correction and modulated growth. These simulations drive our design algorithms to find the optimal brace shape for every patient.

Published studies show our Twin3D™ model predicts immediate and 2-year correction with an **accuracy of 5°**. (Guy et al. J Orthop Res 2023)

Our Process

From Scan to Optimal Alignment

Clinical assessment and scan



Clinicians assess and scan the patient's torso. Any 3D scanner works, no measurements needed.

1



Data sharing

Clinicians share with us the patient's X-rays, 3D torso scans, and order form.

2

Twin3D™ generation



We generate the patient's digital twin (finite element model).

3



Design optimization

Our algorithms iterate on the Twin3D™ model to optimize correction and comfort. The best design is kept for manufacturing.

4

3D printing and finishing



The brace is printed, finished and inspected before it is sent to the clinic for fitting.

5

You Send Us

- Patient X-rays
- Patient scans
- Order form

You Get

- Optimized 3D brace, finished & assembled
- Pre-cut custom foam pads
- Simulation report

Our Simulation Report

For every patient, our simulation-driven process provides:

Simulated 3D correction analysis

Guidance for fit and tightening

Visual education for patients



Who Can Use It?

Modulate is appropriate for children, adolescents and adults who have been prescribed any type of custom spinal brace for idiopathic scoliosis. Beyond scoliosis, please reach out to verify if your patient can benefit from a Modulate brace.

Our braces are eligible for the same insurance coverage as traditional spinal braces.



Benefits



Optimized
Correction



Easier Patient
Acceptance



Faster Clinical
Workflows

“Testimonials

“With the ventilation holes, it’s less hot and more comfortable.”

– Alycia, Patient, Montreal (Canada)

“She never wanted to wear her old brace but now she’s wearing the Modulate brace at school, her mom is very happy.”

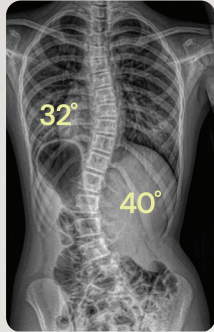
– Tony, Orthotist, California (USA)

“I felt more symmetrical at the end of my treatment. The brace was a lot more comfortable than my previous one. I would’ve liked to switch earlier.”

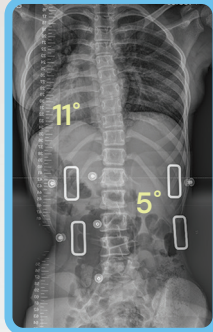
– Koral, Patient, Montreal (Canada)

Clinical Validation

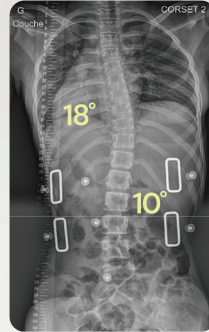
Initial patient



Our algorithm



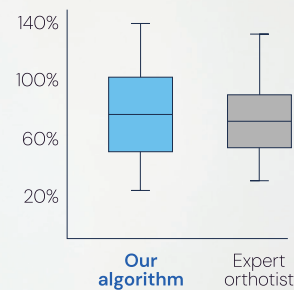
Expert orthotist



Our tech was built on 30+ years of scientific research at Polytechnique Montreal and Sainte-Justine Hospital. We've validated every step of our process on **over 150 patients**.

A recent randomized controlled trial (NCT05001568) showed that our design algorithm achieved an immediate and 2-year efficacy equivalent to that of an expert orthotist, while requiring significantly **fewer adjustments at fitting**. (Coulombe et al. Spine 2024)

Principal Curve Correction:



Our algorithms and simulation-driven workflows keep improving as we gather more data.

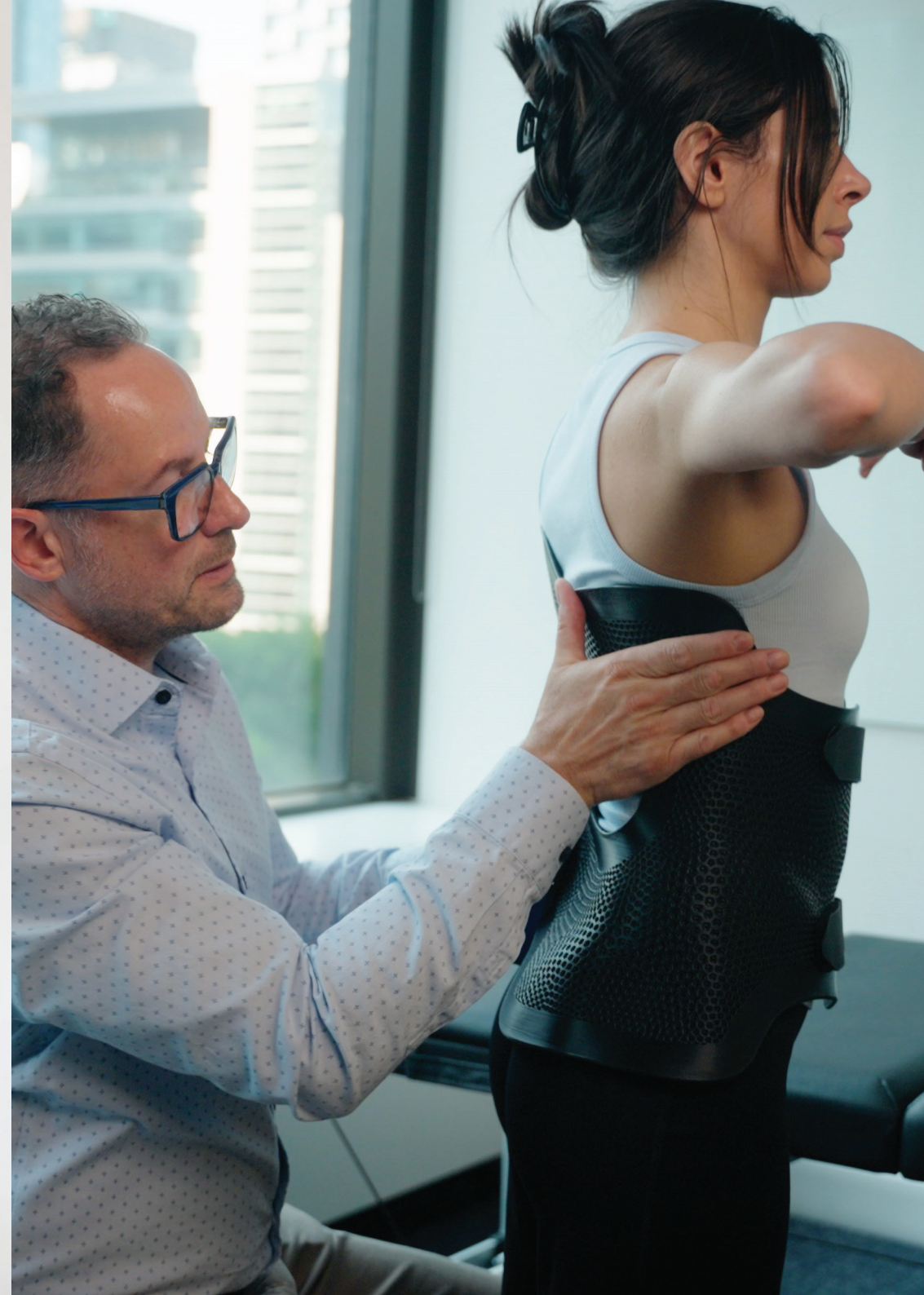
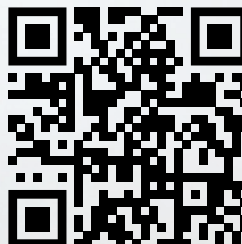
See more of our validation results published in:

Spine
An International Journal for the Study of the Spine

nature
scientific reports

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Orthopaedic
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PLOS ONE





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