

# Move Forward™ 3D Motion Simulation Service





# **Imagination** meets **visualization** through **3D range-of-motion** **simulation**

Joint problems are dynamic and multi-dimensional, while today's static imaging leaves much to the imagination. See beyond and move forward with Zimmer Biomet's 3-Dimensional (3D) motion hip analysis to convert your medical scans into interactive visualization reports.



The Move Forward™ 3D motion simulation service powered by Clinical Graphics, constructs an interactive 3D bone model from computed tomography (CT) or magnetic resonance imaging (MRI) and conducts motion simulations to identify areas of bony intersection. The service automatically calculates a suite of anatomic parameters, giving full insight into the bony anatomy of the joint.

## Each report contains:

1

### Interactive 3D motion simulation

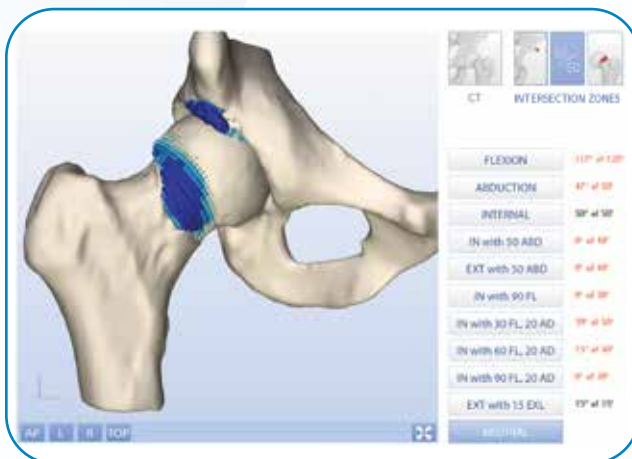
allows 360° views of the joint to show impingement points when simulated range-of-motion (ROM) is limited



2

### Bony intersection zones

that improve simulated ROM



## Bony anatomic parameter calculations

provide you with a comprehensive overview of the joint geometry

### Acetabulum

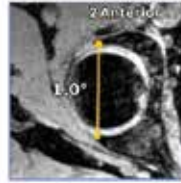
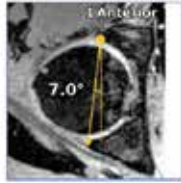
#### Acetabulum orientation

Sourcil angle: 7.0°

Version: 7.0°

Normal: 16°-26°<sup>1</sup>

Version of upper hemisphere\*: 1.0°



\* The version measurement in the right-most image is calculated halfway between the joint center and the roof of the acetabulum.

#### Acetabulum coverage



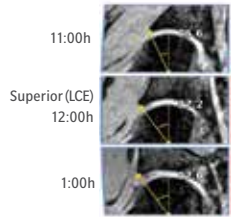
Normal

Posterior coverage: 37.3% (35%-43%)  
 Anterior coverage: **39.8%** (30%-38%)  
 Total coverage: 77.1% (66%-81%)<sup>2</sup>

#### Center edge angle

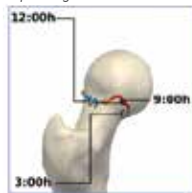


Expected range for LCE between 22° and 33°<sup>3</sup>



### Femur

#### Alpha angles



Posterior  
9:00h



10:00h



11:00h



Superior  
12:00h



1:00h



2:00h



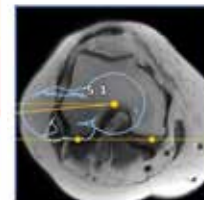
Anterior  
3:00h



Neck inclination: 127.8°  
 Normal: 123.0° - 135.4°<sup>4</sup>



Neck version: 5.1°  
 Normal: 0.4° - 19.0°<sup>4</sup>



# Getting Started

Our online service converts and upgrades your medical scans into interactive visualization reports in three easy steps.

1

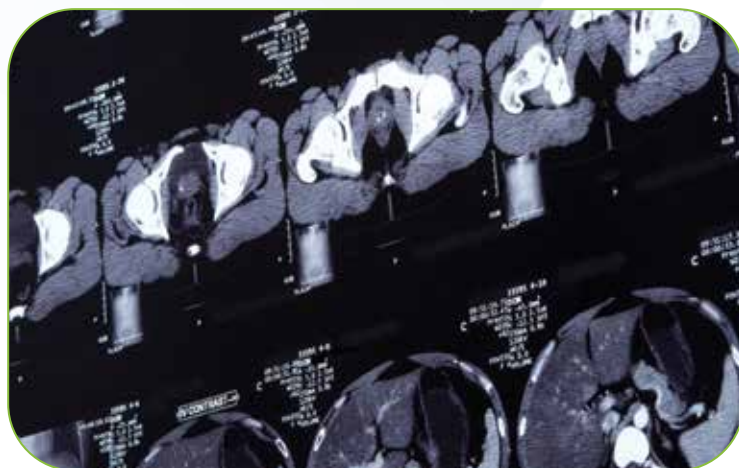
## Create an account

through your Zimmer Biomet sales professional



2

## Securely upload CT or MRI scan\*

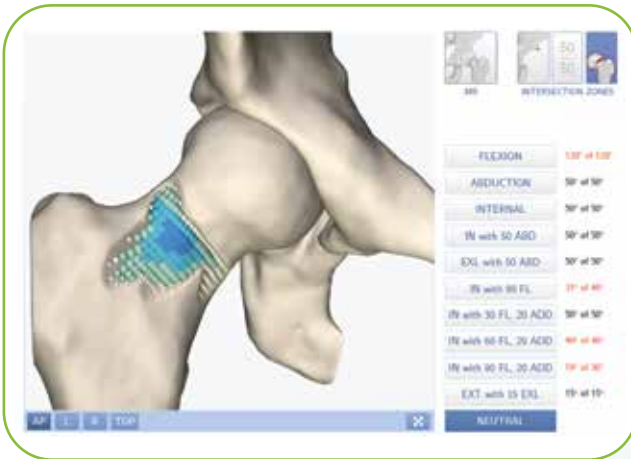


\*Patient sensitive information is removed from digital imaging and communication files during uploading to ensure patient privacy.

3

### Download

the interactive 3D PDF to view motion simulations, simulated intersection zones and anatomic calculations\*\*



\*\*The Move Forward™ 3D motion simulation service utilizes a web based platform and does not require installation of software onto the user's PC.

## References

1. Köhnelein, W., et al. Acetabular Morphology: Implications for Joint Preserving Surgery. *Clinical Orthopaedics and Related Research*. 2:467(3), 682–91, 2009.
2. Dandachli, et al. Analysis of cover of the femoral head in normal and dysplastic hips: New CT-based technique. *Journal of Bone and Joint Surgery*. 90-B, 1428–34, 2008.
3. Tannast, M., et al. Hip Pain in the Young Adult. In: Bentley G. (eds) *European Instructional Lectures*. 11: 141–154, 2011.
4. Toogood, P., et al. Proximal femoral anatomy in the normal human population. *Clinical Orthopaedics and Related Research*. 467(4): 876–85, 2009.

For indications, contraindications, warnings, precautions, potential adverse effects and patient counseling information, see the package insert or contact your local representative; visit [www.zimmerbiomet.com](http://www.zimmerbiomet.com) for additional product information.

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1719.2-GLBL-en-Issue Date 2022-03



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