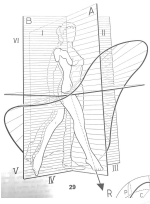


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Hip Biomechanics

Bilal Kapanci
Orthopaedica Belgica
Service de chirurgie oncologique
Institut Jules Bordet - HUB



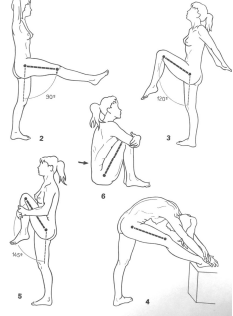
The diagram illustrates the hip joint's range of motion in three planes: sagittal (flexion/extension), coronal (abduction/adduction), and transverse (rotation). It shows the femoral head, acetabulum, and the resulting arcs of movement.

1

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Range of motion : Flexion

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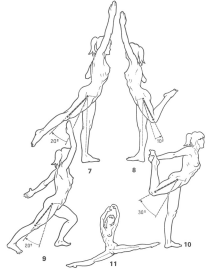
Diagrams 2, 3, 4, 5, and 6 show hip flexion in standing, sitting, and kneeling positions. Diagram 2 shows a 30-degree flexion in standing. Diagram 3 shows 100-degree flexion in sitting. Diagram 4 shows 120-degree flexion in kneeling. Diagram 5 shows 150-degree flexion in a deep squat. Diagram 6 shows 180-degree flexion in a full split.

2

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Range of motion : Extension

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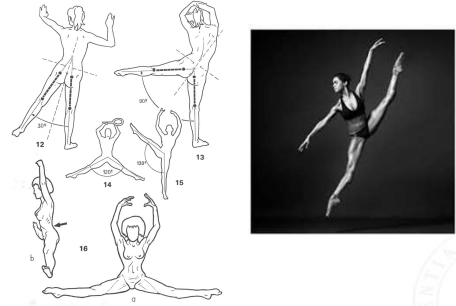
Diagrams 7, 8, 9, 10, and 11 show hip extension. Diagram 7 shows 30-degree extension in standing. Diagram 8 shows 60-degree extension in standing. Diagram 9 shows 90-degree extension in standing. Diagram 10 shows 120-degree extension in standing. Diagram 11 shows 150-degree extension in a deep squat.

3

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Range of motion : Abduction

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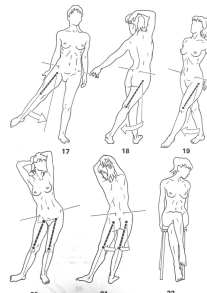
Diagrams 12, 13, 14, 15, and 16 show hip abduction. Diagram 12 shows 30-degree abduction in standing. Diagram 13 shows 60-degree abduction in standing. Diagram 14 shows 90-degree abduction in standing. Diagram 15 shows 120-degree abduction in standing. Diagram 16 shows 180-degree abduction in a full split. A photograph of a ballerina in a high arabesque position is included.

4

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Range of motion : Adduction

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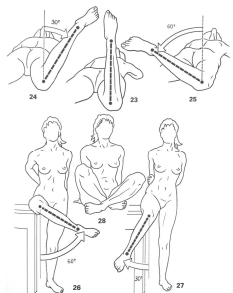
Diagrams 17, 18, 19, 20, 21, and 22 show hip adduction. Diagram 17 shows 30-degree adduction in standing. Diagram 18 shows 60-degree adduction in standing. Diagram 19 shows 90-degree adduction in standing. Diagram 20 shows 120-degree adduction in standing. Diagram 21 shows 150-degree adduction in standing. Diagram 22 shows 180-degree adduction in a full split.

5

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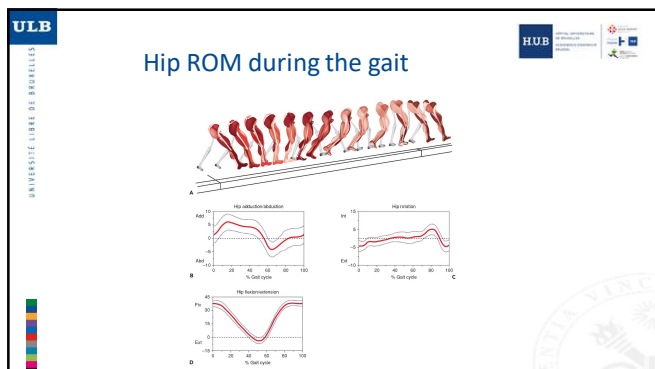
Range of motion : Rotation

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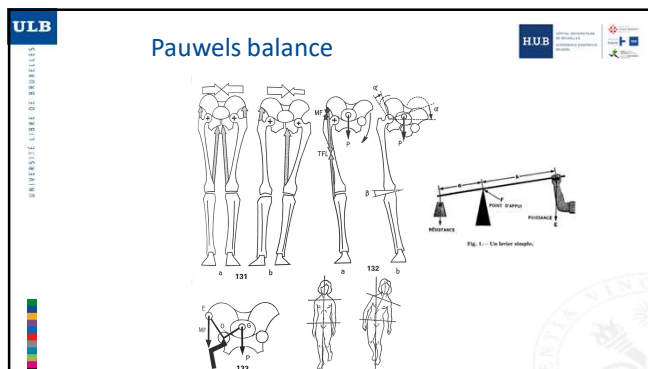


Diagrams 23, 24, 25, 26, and 27 show hip rotation. Diagram 23 shows 30-degree rotation in standing. Diagram 24 shows 60-degree rotation in standing. Diagram 25 shows 90-degree rotation in standing. Diagram 26 shows 120-degree rotation in standing. Diagram 27 shows 150-degree rotation in standing.

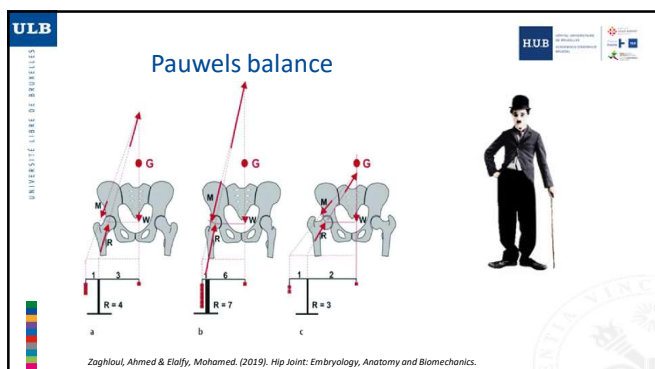
6



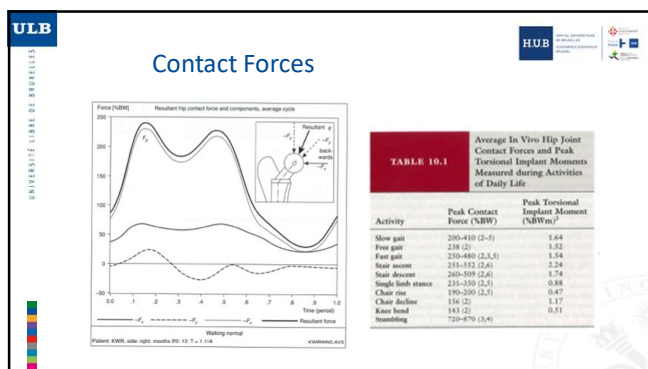
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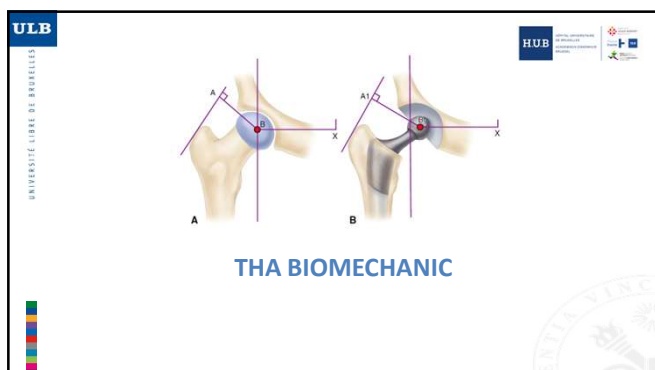
8



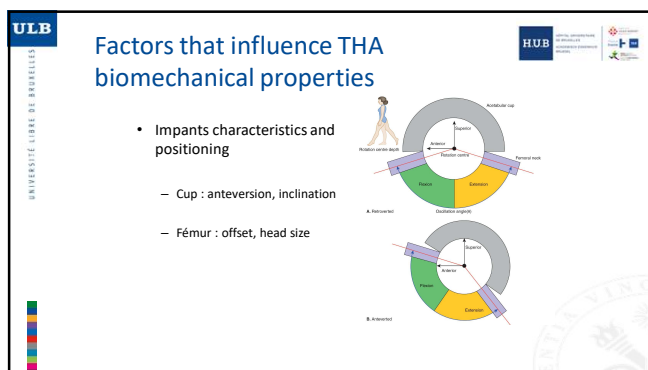
9



10



11



12

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Factors that influence THA biomechanical properties

- « Stabiliser » injury
 - Static : capsule, ligaments
 - Dynamic : muscles

Failure Mode	Distribution (%)
Failure of the cement mantle	10%
Failure of the acetabular shell	60%
Failure of the femoral stem	5%
Failure of the total hip assembly	25%

Biomechanic preservation is essential to ensure good function and prolonged survival of the implants

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Thank you

Desire to help people

Bob The Builder

Hammer

Being an Orthoped!

Jesus

Thor

God Complex

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