

Biomechanics
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Lecture - 14
Transverse Plane Movements

Welcome to this video on biomechanics. We have been looking at some basic terminologies in particular discussing how the human body can be considered to be a biomechanical system.

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In this video we will be looking at movements that happen within the transverse plane. What is the transverse plane? Let us remember ourselves, let us remind ourselves, it is a plane that divides the body into two parts a top part of the; and the bottom part this is called as a transverse plane. We will be looking at one special movement called circumduction.

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Transverse plane movements – Rotation about longitudinal (vertical) axis

- **Medial (inward) rotation:** Rotation towards the center of the body.
- **Lateral (outward) rotation:** Rotation away from the center of the body.
- **Pronation:** movement of hand and forearm to bring the palm facing posterior
- **Supination:** movement of hand and forearm to bring the palm facing anterior

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Comexions
https://commons.wikimedia.org/wiki/File:Body_Movements.jpg (CC-BY-SA 3.0)

Comexions
<https://commons.wikimedia.org/wiki/File:Pronation.jpg> (CC-BY-SA 3.0)

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Some movements that happen within the transverse planar, medial rotation when you are moving when you are rotating your body towards the centre of the body like this easy to say like this. Actually, the leg I am showing it with the hand as if that is the leg like that when I am moving towards the centre of the body making that moment that is called as a medial or the inward rotation, rotation towards centre of the body.

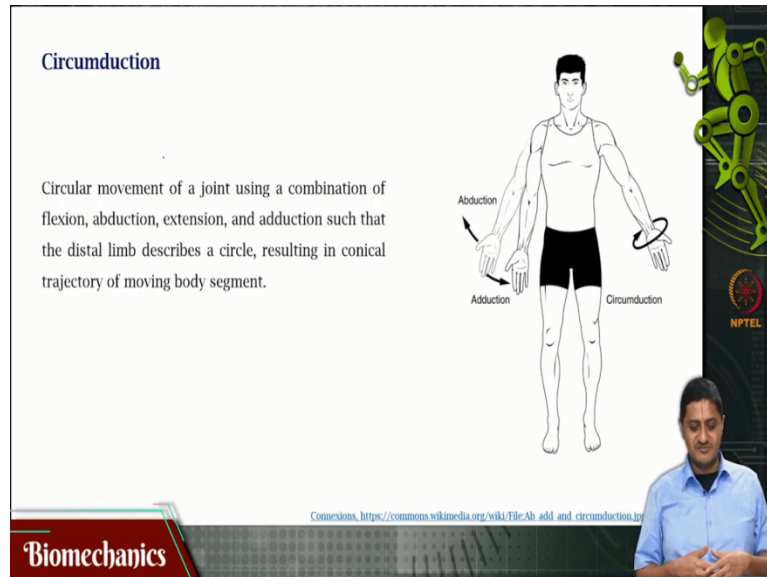
I am moving it I am keeping it like this and away from the body it is called as the external or outward or lateral rotation outward rotation on lateral rotation. Then you have pronation and supination, pronation is the movement of the hand and forearm so that the palm will face the posterior like this, the palm is facing the back when I am keeping it like this the my palm is facing the back when I am keeping it like this, that is called as pronation.

When my palm is facing the front that is called supination facing anterior, it is called supination. Remember in the anatomical reference position the arms are the forearm is supinated but how do you remember which is supination and which is pronation because it might be confusing, all you remember is nation which is supination and which is pronation. When your hands when your arms are supinated like this, now my arm is supinated.

And when you join them together you can your hand will be in such a shape as if you are drinking a soup, for example it is like a soup bowl. You cannot hold a soup bowl like this you

can hold a soup bowl like this. So, this is supination when your arms are supinated you can hold a soup. The other one is pronation that is how you remember which is supination and which is pronation.

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Then you have this special movement called circumduction, I can do that again I can do that circumduction. It is not a movement that happens in a single plane this is actually a combination of flexion, extension, abduction and adduction such that the distal limb describes a circle I can do that you know. I am so if I am if you are taking the locus of my; the tip of my thumb and the index finger it will actually make a circle this is called circumduction.

It describes a circle resulting in a conical trajectory. So, if because these two are connected essentially, I will be making a cone whose base is that circle that I am you know describing using this moment this is called circumduction, this is not a simple movement this is actually a combination of many movements flexion, extension, abduction and adduction.

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Summary

- Transverse plane movements
- Circumduction



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With this we come to the end of this video. In this video we saw some movements that happen within the transverse plane such as supination and pronation and some special movement called circumduction. Thank you very much for your attention.