Varus thrust visualized during gait was associated with inverted foot in patients with knee osteoarthritis: an exploratory study

Ohi H, Gait Posture 2018

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INTRODUCTION

- ✓ Varus thrust is an easily assessed measure of frontal plane motion of the knee during gait, which is present 16-30% in knee osteoarthritis (OA) patients (Chang A, 2004; Fukutani N, 2016) (Fig. 1).
- ✓ Varus thrust is defined as the dynamic worsening or abrupt onset of varus alignment as the limb accepts weight (stance phase), with a return to a less varus alignment during lift-off and the non-weight-bearing (swing phase) of gait (Chang A, 2004).
- ✓ **However, the pathomechanics of varus thrust in knee OA has not to be elucidated.**

With varus thrust **Without varus thrust**

Fig. 1 Varus thrust visualized during gait

- ✓ The foot is speculated to play a role in knee joint kinematics due to rotational coupling.

METHODS

Participants

- ✓ The ethical committee of Kyoto University approved the study (approval number: E1923).
- ✓ The inclusion criteria were (i) age ≥50 years; (ii) having radiographic OA (i.e., Kellgren and Lawrence [K/L] grade ≥1) primarily in the medial compartment in one or both knees, as evaluated by weight-bearing anteroposterior radiographs; and (iii) having the ability to walk independently on a flat surface without any ambulatory assistive device.

Varus Thrust Assessment

- ✓ Varus thrust during gait was evaluated by two experienced physical therapists using a recorded movie of gait (Fukutani N, 2016).
- ✓ Interrater reliability was good (κ : 0.75, 95% confidence interval [CI]: 0.61, 0.89).

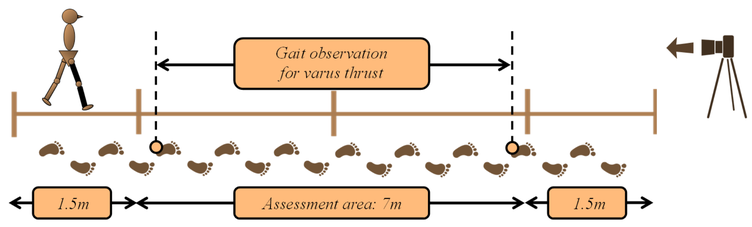

Fig. 2 Video movie assessment for varus thrust during gait

Gait was recorded while walking 10 m away from and toward a stationary camera at a self-selected speed, with their pants rolled up to expose the knees

Static Foot Posture Assessment