



INTRODUCTION

PURPOSE:

This **WALK OFF WITH ONE** help make the individual understand the importance of maintaining three points of contact to reduce the risk of slipping, tripping, and falling, as well as minimizing impact forces on the body when descending staircases or exiting vehicles.

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Maintaining three points of contact is not just about preventing falls but also about reducing long-term bodily wear and tear. When descending from a staircase and 3-points of contact are not maintained, increase knee compression and shear forces can go up to 2.9 times the weight of your body. By always having two hands and one foot in contact with a stable surface, the force can be reduced to 1.9 times the weight of your body. This will significantly reduce the force applied to our joints and ligaments, ease impact forces leading to arthritis in knees, hips, and back, and decrease risk of injury from repeated stress.

SCIENCE BEHIND IMPACT FORCES

NEWTON'S THIRD LAW: Every action has an equal and opposite reaction. The impact of the force applied to the ground will create an equal opposite force on your body when descending.

EXAMPLE: A 200-POUND PERSON EXPERIENCES:

WITH THREE POINTS OF CONTACT → Impact force = up to 1.9x body weight = 380 LBS

WITHOUT THREE POINTS OF CONTACT → Impact force = up to 2.9x body weight = 580 LBS

JUMPING OR HOPPING → Impact force can rise to 3.5x body weight = 700 LBS

DEMONSTRATION

Let's go to a staircase or vehicle and demonstrate how to descend or exit a vehicle. Take turns going down the stairs and focus on the final step. Begin without three points of contact and concentrate on the force impact feeling. They go ahead and try hopping off the last step to understand the force when landing. Lastly, hold three points of contact when stepping down. Compare the impact felt with each try.

BEST PRACTICES:

- 1 Always face forward when descending staircases or steps.

- 2 Use handrails whenever available.

- 3 Avoid distractions (e.g., looking at your phone, carrying heavy items).

- 4 Step down carefully instead of jumping.

- 5 Encourage a safety culture in the workplace by promoting three points of contact as standard practice.

Resources:

Taylor, William R., et al. "Tibio-femoral loading during human gait and stair climbing." *Journal of Orthopaedic Research* 22.3 (2004): 625-632.