



# IMG PHYSICAL THERAPY

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## **BENEFITS OF WALKING BACKWARDS ON THE TREADMILL (RETROWALKING)**

### **Backward Walking vs. Normal Walking**

- Backward walking has an increased cadence and decreased stride length.
- Backward walking increases the ROM of the knee and ankle joints.
- Backward walking decreases the ground reaction force through the ankle, knee, hip, and lumbosacral spine.
  - This is achieved through the reversal of the gait cycle. In backward walking, initial contact is through the forefoot and body weight is gradually accepted via eccentric muscle control of plantar flexors, where as in forward walking impact and weight acceptance occurs more rapidly through initial contact at the heel.
- In backward walking, hamstring muscles are “pre-stretched” during swing phase prior to being loaded.
- In backward walking the gastrocnemius functions as a decelerator of foot and ankle motion at initial contact, rather than as an accelerator for propulsion during normal walking
- In backward walking patella-femoral compressive forces are significantly reduced during quadriceps contractions.

### **Benefits of Retro Walking**

- **Training option for those with hamstring strain:** Since the overall range of motion at the hip joint is reduced in backward walking (i.e. greater hip flexion and lesser extension), those patients who are recovering from a strained or pulled hamstring, who lack flexibility in the hamstrings and lower back may benefit from backwards walking before return to more intense training with forward jogging or running
- **Reduced shear force with no eccentric loading on knees:** the direction of knee joint shear force is reversed (controlled lengthening component is what causes most patients knee pain during normal walking), backward walking may help anyone who experiences pain going up and down stairs or hills, or anyone who has pain when performing lunges or squats
- **Cardiovascular:** Retro Walking is a safer way to increase your heart rate without placing stress on the low back or joints of the lower extremities.

### **Patients Who May Be Appropriate**

- Patients who had surgery for Knee replacement, meniscal repair, or ACL reconstruction
- Patients with lower extremity injuries including sprained ankles, Achilles tears, shin splints, or Patella-femoral Pain Syndrome
- Patients presenting with strains of groin and/or hamstring muscles
- Patients with low back pain, ranging from disc involvement, stenosis, or strain of low back muscles
- General fitness or gym patients not appropriate for running activity, but wish to increase workout intensity without increasing load applied to knee joint, but while still increasing cardiovascular effect