

Clinical Research

Outcomes of Noninvasively Treated Idiopathic Toe Walkers

Kerstin Radtke, MD, Nataliia Karch, Fabian Goede, MD, Bernhard Vaske, Gabriela von Lewinski, MD, Yvonne Noll, and Anneke Thren, MD

Abstract: Idiopathic toe walking (ITW) causes a common problem in pediatric orthopaedics. In the literature, numerous treatment options have been reported, but consensus about the management of ITW is still missing. The aim of the current study was to evaluate conservative treatment with pyramidal insoles. A total of 193 patients underwent conservative treatment between January 2010 and June 2013. Mean age at the beginning of the treatment was 7.75 ± 0.23 years (range 2.0-17.0 years). For all patients, demographic data, comorbid diseases, passive range of motion (ROM), persistent toe walking, and performed operations were retrospectively evaluated. Following operative treatment was defined failure. Eight (4.15%) patients underwent Achilles tendon lengthening operation after mean therapy time of 2.72 years (range 0.1-7.0 years), 174 cases were treated successfully (90.16%). In 50 cases, toe walking suspended completely after mean therapy time of 2.83 years. In cases of failure, patients were older at diagnosis and at the beginning of the treatment. Mean passive ROM increased over the time. In cases of failure, ROM decreased from the first to the second

examination. Conservative treatment of ITW using pyramidal insoles can be effective. Ankle dorsiflexion significantly improved in the patients who were successfully treated. Therapy should start early. A decrease of ROM under therapy should lead to critical revisal of individual therapy.

Levels of Evidence: Therapeutic, level IV: Case series

Keywords: pediatric podiatry; age-related problems; orthotic therapy; diagnostic and therapeutic techniques; physical therapy; toe walking; forefoot; toe; midfoot; tendo-Achilles lengthening (TAL); heel; rearfoot; ankle

Toe walking in children from the age of 2 years, for the duration of over half a year, and for more than 50% of the day is known as idiopathic toe walking (ITW).¹⁻⁷ ITW appears in approximately 5% of children after their second birthday and causes a common problem in pediatric orthopaedics.^{1,8,9} A spontaneous remission occurs in approximately 70% of these cases within

half a year after the ITW started.^{1,4,8-10} The role of gender and genetics is still unclear.^{1,7,9,11-15} In ITW, the cause for the changed gait pattern are not found to be only neurological or myogenic.^{1,9,11-13,16} Differential diagnosis like infantile cerebral palsy, muscular dystrophy, spinal amyotrophy, and hereditary motor sensory neuropathy as well as rare metabolic disorders of the musculature must be considered.^{1,7,9,11-13,17} ITW is also reported in patients with neuropsychiatric disorders, autistic spectrum disorders, and in children with language or cognitive developmental delay.^{4,16,18-21} Untreated ITW may lead to structural changes as limiting mobility in

“The effectiveness of treatment options is not clear and consensus about the management of ITW [idiopathic toe walking] is still missing.”

the upper ankle, broadening of the front foot, and the development of a contracted foot.^{7,8,12,13,22-26} Further health problems may arise due to the change in body statics, problems including

DOI: 10.1177/1938640018766609. From Department of Orthopedic Surgery, Hannover Medical School / DIAKOVERE Annastift, Hannover, Germany (KR, NK, FG, GvL, YN, AT); and Institute of Medical Biometry and Informatics, Hannover Medical School, Hanover, Germany (BV). Address correspondence to: Kerstin Radtke, MD, Department of Orthopedic Surgery, Hannover Medical School, 1-7 Anna-von-Borries Street, Hannover, 30625, Germany; e-mail: kerstin.radtke@diakovere.de.

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