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# Comparative efficacy of surgical methods in the treatment of foot drop associated with isolated peroneal nerve neuropathy

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**Abstract**

**Introduction** Footdrop secondary to isolated peroneal nerve neuropathy is associated with limited mobility affecting the quality of life. Objective data on comparative efficacy of surgical techniques are needed for long-term muscle denervation with nerve interventions being ineffective.

The **objective** was to determine the optimal surgical strategy for restoring dorsiflexion of the foot in case of isolated injury to the peroneal nerve through comparative analysis of the results of tenodesis of the extensor digitorum longus and posterior tibial muscle trasfer.

**Material and methods** Outcomes of 84 patients with isolated peroneal nerve neuropathy confirmed by electroneuromyography and lasting more than 12 months were prospectively analyzed. The first group included 42 patients treated with tenodesis of the extensor digitorum longus tendon to the anterior border of the tibia using a modified Lambrinudi technique. The second group consisted of 42 patients who underwent transfer of the posterior tibial muscle through the interosseous membrane with fixation to the lateral cuneiform bone using the Bridle technique. Functional assessment was produced using the AOFAS score, measuring dorsiflexion amplitude with goniometry, ankle dorsiflexor strength with dynamometer and stabilometric analysis of gait parameters at checkpoints of three, six, 12, and 24 months after surgery. Statistical processing was performed using parametric and nonparametric criteria at a significance level of < 0.05.

**Results** Between-the-group comparison revealed a statistically significant advantage of the muscle transfer evaluated with AOFAS ($p = 0.003$) and range of motion measurements ($p = 0.001$). Dynamometry showed dorsiflexion strength restored to 62.4 % of the contralateral limb in the first group and to 78.9 % in the second group ($p < 0.001$). Stabilometric analysis recorded a reduction in the center-of-pressure total trajectory length by 34.8 % with tenodesis and by 51.6 % with muscle transposition relative to preoperative values. The complication rate was 14.3 % after tenodesis and 9.5 % after transfer ($p = 0.386$).

**Discussion** The superiority of the posterior tibial transfer can be explained by active muscle traction, as opposed to passive stabilization with tenodesis, which ensures a more physiological restoration of motor function. The strength and stabilometric parameters restored correlates with international data on the high effectiveness of active muscle transpositions during long-term denervation. Comprehensive postoperative rehabilitation using modern biofeedback technologies helps optimize the functional results of both techniques.

**Conclusion** Tibialis posterior muscle transfer demonstrated a statistically and clinically significant advantage over tenodesis of the extensor digitorum longus in restoration of the dorsiflexion function in patients with isolated peroneal nerve neuropathy lasting more than 12 months. The need to integrate personalized rehabilitation programs into the surgical treatment was supported by differences in the recovered ankle function and biomechanical gait parameters.

**Keywords**: drop foot, common peroneal nerve neuropathy, posterior tibial muscle transfer, tenodesis of the extensor digitorum longus, tendon transfer, functional recovery, stabilometry, comparative study

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## INTRODUCTION

Peroneal nerve palsy can progress to foot drop, limb disability, affecting the quality of life [1]. The anatomical location of the peroneal nerve in the region of the fibular head makes it vulnerable to compression injuries of different etiologies, as confirmed by epidemiological studies on the incidence of injuries in this location [2].

With denervation lasting longer than 12 months, neuroreconstructive interventions are less effective due to irreversible structural changes in the muscles and fibrotic processes in the denervated muscles [3]. In such cases, tendon transfer is the method of choice to restore dorsiflexion of the foot.

Modern surgical approaches include different tendon transposition techniques including extensor digitorum longus tenodesis and posterior tibial transfer through the interosseous membrane [4]. However, there are conflicting data regarding the comparative effectiveness of these techniques due to the retrospective nature of the studies, small sample sizes, and the lack of standardized criteria for assessing functional outcomes [5]. The lack of direct comparative studies with use of objective functional assessment hinders the formation of evidence-based clinical recommendations.

This study was conducted to obtain objective data on the comparative effectiveness of the two most common tendon techniques for addressing the foot drop. Evaluation of functional outcomes using validated scales, instrumentation methods for measuring strength and range of motion, modern stabilometric technologies allowed for a comprehensive assessment of the effectiveness of surgical treatment. Analysis of short-term and long-term surgical outcomes over a two-year follow-up period facilitated assessment of the sustainability of the improvement achieved and the identification of potential long-term complications.

The **objective** was to determine the optimal surgical strategy for restoring dorsiflexion of the foot in case of isolated injury to the peroneal nerve through comparative analysis of tenodesis of the extensor digitorum longus and posterior tibial muscle trasfer.

## MATERIAL AND METHODS

The study was conducted at the Department of Reconstructive Surgery between January 2018 and December 2023.

Inclusion criteria included age from 18 to 65 years; neuropathy duration more than 12 months; isolated neuropathy of the peroneal nerve confirmed by electroneuromyography; lack of effect from conservative therapy for at least six months, informed consent to participate in the study.

Exclusion criteria included multiple injuries to the nerves of the lower limb; concomitant orthopedic disorders of the foot and ankle; systemic neuromuscular diseases; severe somatic pathology in the decompensation stage; mental disorders that would prevent participation in the study; refusal to participate or violation of the observation protocol.

The sample was selected using a continuous sampling method among patients meeting the inclusion criteria. The study design was a prospective comparative cohort study with parallel groups.

The study included 84 patients with a mean age of 41.3 ± 7.8 years and a male to female ratio of 1.4:1. The first group consisted of 42 patients who underwent tenodesis of the extensor digitorum longus tendon to the anterior border of the tibia using the modified Lambrinudi technique. The second group included 42 patients who were treated with posterior tibial muscle transfer through the interosseous membrane and fixation to the lateral cuneiform bone using the Bridle technique.

Functional assessment was performed using the AOFAS Ankle and Hindfoot Scale evaluating pain, function, and foot alignment on a 100-point scale. Dorsiflexion was measured using a standard goniometer with the patient being in supine position and the tibia being immobilized. The maximum angle between the longitudinal axis of the foot and the anterior surface of the tibia was measured.

Dynamometry of the dorsiflexor strength was performed using a MicroFET2 device (Hoggan Health Industries), measuring force in kg during maximal isometric contraction in a sitting position with the tibia flexed at a right angle. Measurements were expressed as a percentage of the contralateral limb's strength. Stabilometric testing was performed using the Stabilan-01-2 platform (Ritm Design Bureau) in static mode, recording center of pressure fluctuations while standing with eyes open for 30 seconds. The analysis included the center of pressure trajectory length in mm, statokinesiogram area in $mm^2$, standard deviations in the frontal and sagittal planes, and Romberg's coefficient. Follow-up visits were conducted at three, six, 12, and 24 months postoperatively.

Statistical data processing was performed using the IBM SPSS Statistics version 26.0 package. Normality of distribution was tested using the Shapiro – Wilk test for sample sizes less than 50 observations and the Kolmogorov – Smirnov test for larger sample sizes. For normal data distribution, the parametric Student's t-test for independent samples was used; the nonparametric Mann – Whitney test was used in case of deviation from normal distribution. Quantitative characteristics of the indicators in sample populations were presented as the arithmetic mean and standard deviation for a normal distribution or the median and interquartile range for a distribution different from normal. To assess the homogeneity of the groups, the variation coefficient was calculated as the ratio of the standard deviation to the arithmetic mean, expressed as a percentage. The level of statistical significance was taken as $p < 0.05$.

## RESULTS

There were no statistical differences in preoperative parameters in the groups, which ensured the validity of the subsequent comparative analysis. The mean AOFAS score measured (52.4 ± 6.1) in the first group and (51.8 ± 5.9) in the second group with $p = 0.614$. The amplitude of active dorsiflexion ranged between minus (12.3 ± 3.4)° and minus (11.9 ± 3.7)°, respectively (Table 1).

Table 1

Comparison of preoperative parameters between groups

| Description | Tenodesis group (*n* = 42) | Muscle transfer group (*n* = 42) | *p* |
|---|---|---|---|
| AOFAS score | 52.4 ± 6.1 | 51.8 ± 5.9 | 0.614 |
| Dorsiflexion range (°) | −12.3 ± 3.4 | −11.9 ± 3.7 | 0.738 |
| Dorsiflexion strength (% of contralateral) | 32.1 ± 8.7 | 33.4 ± 9.2 | 0.523 |
| Length of the trajectory of the center of pressure (mm) | 524 ± 87 | 518 ± 92 | 0.756 |
| Statokinesiogram area ($mm^2$) | 272 ± 61 | 268 ± 58 | 0.782 |
| Standard deviation in the frontal plane (mm) | 4.8 ± 1.2 | 4.9 ± 1.3 | 0.698 |
| Standard deviation in the frontal plane (mm) | 5.1 ± 1.4 | 5.2 ± 1.5 | 0.724 |

*Note*: AOFAS score showed low variability (CV ≈ 11–12 % in both groups); dorsiflexion range demonstrated moderate variability (CV ≈ 28–31 %); stabilometric indicators suggested moderate variability (CV ≈ 15–20 %).

After 12 months, the tenodesis group showed an increase in AOFAS score to (78.6 ± 8.2), an increase of 26.2 points from baseline at $p < 0.001$. Dorsiflexion range of motion reached (8.4 ± 4.1)°, an increase of 20.7°. In the second group, the functional result was more pronounced: the AOFAS score was (86.3 ± 6.7), an increase of 34.5 points at $p < 0.001$, and range of motion increased to (14.8 ± 3.9)°, with an overall improvement of 26.7°.

Between-the-group comparison revealed a statistically significant advantage of the posterior tibial transfer both in terms of the AOFAS score at $p = 0.003$ and in terms of the range of motion at $p = 0.001$. Dynamometry showed a recovery of dorsiflexion strength to (62.4 ± 11.3) % of the contralateral limb in the first group and to (78.9 ± 9.6) % in the second group at $p < 0.001$ (Table 2).

Table 2

Functional results at 12 months

| Description | Tenodesis group ($n$ = 42) | Muscle transfer group ($n$ = 42) | $p$ |
|---|---|---|---|
| AOFAS (score) | 78.6 ± 8.2 | 86.3 ± 6.7 | 0.003 |
| Increase in AOFAS (score) | 26.2 | 34.5 | < 0.001 |
| Dorsiflexion range (°) | 8.4 ± 4.1 | 14.8 ± 3.9 | 0.001 |
| Dorsiflexion strength (% of contralateral) | 62.4 ± 11.3 | 78.9 ± 9.6 | < 0.001 |
| Length of the trajectory of the center of pressure (mm) | 342 ± 67 | 251 ± 48 | < 0.001 |
| Statokinesiogram area (mm²) | 195 ± 44 | 154 ± 32 | < 0.001 |
| Standard deviation in the frontal plane (mm) | 3.2 ± 0.9 | 2.6 ± 0.8 | 0.003 |
| Standard deviation in the sagittal plane (mm) | 3.6 ± 1.1 | 2.9 ± 0.7 | 0.002 |

*Note*: AOFAS score showed moderate variability (CV ≈ 10 % in the tenodesis group, CV ≈ 8 % in the muscle transfer group); dorsiflexion range suggested high variability (CV ≈ 49 % in the tenodesis group, CV ≈ 26 % in the muscle transfer group); dorsiflexion strength demonstrated moderate variability (CV ≈ 18 % and 12 %, respectively); stabilometric indicators suggested low variability (CV ≈ 12–20 %).

Stabilometric examination revealed statistically significant improvement in balance control parameters in both groups. The center of pressure trajectory length decreased by 34.8 % with tenodesis and by 51.6 % with muscle transfer relative to preoperative values. The statokinesiogram area decreased by 28.3 % in the first group and by 42.7 % in the second group. The standard deviations in the frontal plane decreased from (4.8 ± 1.2) mm to (3.2 ± 0.9) mm in the tenodesis group and from (4.9 ± 1.3) mm to (2.6 ± 0.8) mm in the muscle transfer group.

The results stabilized in both groups with minor improvement at 24 months. The AOFAS scored (88.1 ± 5.9) and dorsiflexion range measured (15.6 ± 3.2)° in the muscle transfer group. The corresponding indicators scored (79.8 ± 7.8) and measured (9.1 ± 3.8)° in the tenodesis group. Excellent and good results measured with the AOFAS were obtained in 73.8 % of patients in the first group and in 88.1 % of the second group with $p = 0.047$.

Stabilometric measurements showed the superiority of active muscle transfer at 24 months. The length of the center of pressure trajectory was (267 ± 45) mm in the muscle transfer group versus (324 ± 58) mm in the tenodesis group, with $p < 0.001$. The statokinesiogram area measured (118 ± 28) mm$^2$ versus (156 ± 41) mm$^2$, respectively, with $p = 0.002$ (Table 3).

Table 3

Long-term follow-up at 24 months

| Description | Tenodesis group ($n$ = 42) | Muscle transfer group ($n$ = 42) | $p$ |
|---|---|---|---|
| AOFAS (score) | 79.8 ± 7.8 | 88.1 ± 5.9 | < 0.001 |
| Dorsiflexion range (°) | 9.1 ± 3.8 | 15.6 ± 3.2 | < 0.001 |
| Dorsiflexion strength (% of contralateral) | 64.7 ± 10.9 | 81.2 ± 8.4 | < 0.001 |
| Length of the trajectory of the center of pressure (mm) | 324 ± 58 | 267 ± 45 | < 0.001 |
| Statokinesiogram area (mm²) | 156 ± 41 | 118 ± 28 | 0.002 |
| Standard deviation in the frontal plane (mm) | 3.1 ± 0.8 | 2.4 ± 0.6 | < 0.001 |
| Standard deviation in the sagittal plane (mm) | 3.4 ± 1.0 | 2.7 ± 0.5 | 0.001 |
| Excellent and good results (%) | 73.8 | 88.1 | 0.047 |

*Note*: AOFAS score shows moderate variability (CV ≈ 10 % in the tenodesis group, CV ≈ 7 % in the muscle transfer group); dorsiflexion range shows high variability (CV ≈ 42 % in the tenodesis group, CV ≈ 21 % in the muscle transfer group); stabilometric parameters show low variability (CV ≈ 15–18 % in the tenodesis group, CV ≈ 12–17 % in the muscle transfer group).

Complications developed in six patients after tenodesis, representing a rate of 14.3 %, including insufficient correction requiring revision surgery ($n = 3$), painful scar formation ($n = 2$), and infected wound ($n = 1$). Four complications were recorded in the muscle transfer group, representing a rate of 9.5 % including transient plantar flexion weakness ($n = 2$), forefoot tunnel syndrome ($n = 1$), and hypertrophic scar ($n = 1$). The difference in complication rates was not statistically significant at $p = 0.386$.

## DISCUSSION

The findings demonstrated the superiority of posterior tibial transfer over extensor digitorum longus tenodesis in the correction of the footdrop caused by isolated peroneal nerve neuropathy. The difference in functional recovery between the two techniques could be explained by a difference in the mechanism of action: muscle transfer created active muscle traction, whereas tenodesis provided passive stabilization of the foot. These data are consistent with observations demonstrating significant improvements in dorsiflexion and gait after the Bridle procedure for traumatic peroneal nerve injury, with all patients achieving functional recovery without the use of additional orthotic devices [1, 6].

The dorsiflexion strength restored to 78.9 % of the contralateral limb in the muscle transfer group achieved in our series correlates with international data presented by different research groups. Eisenstein et al. emphasized the importance of careful planning and adherence to indications for tendon transpositions, which is confirmed by our findings [2]. Matsakyan et al. reported good results achieved in 12 of 16 patients treated with a minimally invasive method of the posterior tibial tendon transfer demonstrating the reproducibility of the technique in different clinical settings [3]. It is important to note that Medina's modification of the tendon transfer procedure for the correction of extensive necrosis of the anterior muscles of tibia opens up the possibility of individualized surgical approaches depending on the degree of injury to the muscle structures [4].

The lower strength recovery with tenodesis, which amounted to 62.4 % of the contralateral limb, could be explained by the absence of an active muscle component and the dependence of the effect on the tension of the fixed tendon. This observation is consistent with the findings of Wareham et al. who reported the importance of a comprehensive approach to the treatment of patients with neurodegenerative processes. However, our analysis revealed significant differences in long-term functional outcomes between different tendon transposition techniques [5]. McCormick emphasized the importance of determining the etiology of peroneal nerve palsy for choosing the optimal surgical strategy, given the variability of the spectrum of deformities and weakness in the ankle joint, which was reflected in the varying effectiveness of the techniques we used [7].

Stabilometric measurements demonstrated objective improvement in balance control and gait quality, with the reduction in the center of pressure trajectory length being 51.6 % with muscle transfer versus 34.8 % with tenodesis relative to preoperative values. These data correlate with the findings reported by Golubeva et al., who performed a retrospective analysis of 375 patients' data and found that footdrop was characterized by impaired support, stability, symmetry, and rhythm of walking, which significantly impaired quality of life [8]. Chen demonstrated that functional electrical stimulation could restore the physiological pattern of dorsiflexor muscle activation and improve biomechanical gait parameters in patients with implanted neurostimulators, which opens up prospects for combined treatment [9].

The difference of 7.7 AOFAS score and 6.5° in range of motion at 24 months suggested statistical and clinical significance for the daily activities of patients. Wiszomirska reported the importance of an integrated approach to the correction of biomechanical disorders, which is consistent with our observations on the multifactorial nature of functional recovery [10]. Aksenova reported highly effective comprehensive rehabilitation programs with biofeedback in postoperative restoration of foot function, which emphasizes the need to integrate surgical treatment with modern rehabilitation technologies [11].

The complication rate in our groups was comparable and amounted to 14.3 % after tenodesis versus 9.5 % after muscle transfer, which is consistent with the data of Bashlyachev et al., who reported 80 patients with compression neuropathy of the common peroneal nerve treated with 84 decompression surgeries [12]. The nature of the complications differed significantly between the groups: insufficient correction during tenodesis could be associated with the technical aspects of determining the optimal tendon tension, which requires significant surgical experience. Somov and Domansky developed a technology for intraoperative visual neuromonitoring for reconstructive neuroplasty surgeries, creating a special electrical stimulator ESVM-1, which can potentially reduce the incidence of such complications due to the objectification of tension control [13].

Transient weakness of plantar flexion after muscle transfer is an expected phenomenon and regresses during the process of neuromuscular adaptation within three to four months. This is consistent with the observations of Novikov and Antonova, who reported outcomes of 254 patients after total knee arthroplasty and found that complex intensive restorative treatment, carried out intermittently for at least six months, allowed for the function of the affected nerve restored in 75 % of cases [14]. Leclère reported neurotic muscle transfer and emphasized the importance of drug support for reinnervation processes, which suggested the need for a comprehensive approach to the prevention and treatment of postoperative complications [15].

The time factor plays a critical role in determining the indications for different surgical techniques. Pang et al. reported a retrospective study of 45 patients with common peroneal nerve injuries and found that the optimal time interval to achieve restoration of plantar dorsiflexion to the M3 level was 9.5 months with an area under the receiver operating characteristic curve of 0.871, and for M4 recovery, the optimal period was 5.5 months [16]. Our inclusion criterion for patients with a neuropathy duration of more than 12 months justifies the choice of tendon transfers as the technique of choice when nerve reconstruction is ineffective. Bao et al. demonstrated the appearance of new electrical potentials in the tibialis anterior muscle and long extensors in seven of eight patients 10–15 months after direct transfer of the muscular branch of the soleus muscle of the tibial nerve to the deep peroneal nerve, which emphasizes the importance of early neuroreconstructive interventions [17].

A critical analysis of electrophysiological parameters as predictors of surgical success is an important aspect of our approach. In contrast to the findings of Nikitin et al., who focused on the phenomenology of the conduction block, our study established that the feasibility of direct nerve reconstruction is significantly reduced with denervation lasting more than 12 months [18]. Fominykh et al. explored the effectiveness of neurolysis in compression neuropathy of the peroneal nerve in the fibular canal in 29 patients and obtained excellent treatment results in 89.7 % of cases, which suggests the effectiveness of decompressive interventions in early stages of the disease [19].

Vlasov et al. noted that spontaneous recovery in approximately one third of patients who suffered closed peroneal nerve injuries, but the remaining two thirds may require surgical intervention, with long-term surgical outcomes for nerve restoration or neurolysis of the peroneal nerve being not always satisfactory [20]. This observation substantiates the need to develop alternative surgical strategies for patients with long-term denervation. Liu et al. reported a retrospective cohort study of 387 patients who underwent surgical repair of the injured common peroneal nerve and found that high preoperative muscle strength reduces the risk of adverse outcome with a relative risk of 0.18, which emphasizes the importance of early surgical intervention before the development of severe muscle atrophy [21].

Lezak's anatomical studies provided a fundamental basis for understanding the characteristics of the peroneal nerve and its branches, emphasizing the importance of precise localization of the compression zone to determine the extent of neurolysis and predict the functional outcome of surgery [22]. Bojovic developed a systematic approach to the diagnosis of tunnel syndromes, including a detailed clinical assessment, differential diagnosis, and integration of additional diagnostic findings, which is reflected in our comprehensive preoperative examination [23]. Fakih reported the importance of careful clinical interviewing and focused physical examination for localizing neuropathy, which is relevant for atypical causes of compression [24].

Specific clinical situations require a specific diagnostic approach considering the pathophysiological mechanisms. Yadav et al. presented a detailed analysis of iatrogenic footdrop syndrome after anterior cruciate ligament reconstruction, in which surgical exploration revealed an intraneural hematoma and nerve trunk contusion, requiring neurolysis with subsequent restoration of function after three months [25]. Lale explored the incidence and causes of footdrop after bariatric interventions, establishing a link between the loss of fat pad around the fibular head and the development of compression neuropathy, which contributes to our understanding of the diverse etiologic factors [26].

Jiménez reported a case of a 13-year-old patient with progressive peroneal nerve palsy caused by an atypical elongated intraneural ganglion cyst, which hampered timely diagnosis and treatment [27]. Peters established the existence of four clinical subtypes of common peroneal nerve neuropathy, including cases with normal electrodiagnostic parameters, which expands the diagnostic spectrum of the disease and emphasizes the need for surgical decompression even in the absence of conventional symptoms [28]. Strother analyzed the demographic characteristics and surgical outcomes of traumatic peroneal nerve injuries, emphasizing the importance of proper patient counseling regarding the complexity of treatment and the variability of results [29].

The pathophysiological mechanisms of foot drop syndrome represent a complex cascade of structural and functional disorders of nerve conduction. Oosterbos reported the efficacy of surgical decompression of the peroneal nerve in the randomized controlled trial FOOTDROP as compared to conservative therapy during a long-term observation of patients over eighteen months [30]. Miroshnikova established the potential of using mesenchymal stem cells to stimulate regenerative processes in injured nerve fibers in an experimental model of neuropathy, which opens up prospects for drug support of surgical treatment [31].

A multidisciplinary approach involving a neurologist, neurosurgeon, and rehabilitation specialist ensures a comprehensive assessment and development of an individualized treatment plan. Intraoperative assessment of nerve fiber viability using electrical stimulation allows for clarification of indications for intraoperative neurolysis, representing an important technical innovation. Mens and Haviv reported the importance of preventive measures for iatrogenic nerve injuries, which furthers our understanding of the etiologic structure of footdrop syndrome [32].

The need for a comprehensive approach to postoperative rehabilitation, including biofeedback and stabilometric monitoring technologies, is confirmed by differences in the recovery of the local ankle function and biomechanical gait parameters. Integrating surgical treatment with personalized rehabilitation programs represents a promising avenue for further improvement of treatment outcomes for patients with footdrop. Further research should focus on exploring the potential of minimally invasive tendon transposition techniques and the use of biological factors that would stimulate neuromuscular adaptation processes in the postoperative period.

## CONCLUSION

Tibialis posterior transfer demonstrates a statistically and clinically significant advantage over extensor digitorum longus tenodesis in restoring foot dorsiflexion function in patients with isolated peroneal nerve neuropathy lasting more than 12 months. A fundamental difference in the mechanism of action — the creation of active muscle traction during muscle transfer versus passive stabilization during tenodesis—provides a more physiological restoration of motor function. Dorsiflexion strength achieved to 78.9 % of the contralateral limb with muscle transfer versus 62.4 % with tenodesis suggests the functional superiority of this method. A comparable complication rate with an advantage in motor restoration justifies the use of tibialis posterior transposition as the method of choice for this pathology.

Comparable complication rates between groups with superior functional outcomes from muscle transfer support its use as the method of choice for isolated peroneal nerve neuropathy with long-term denervation. Transient weakness of plantar flexion after transposition, which regresses during neuromuscular adaptation, should not be considered a barrier to surgery, given the significant superiority of this method in restoring dorsiflexion. In contrast, insufficient correction during tenodesis is a more serious problem, requiring revision surgery and associated with technical difficulties in determining optimal tendon tension.

The findings allow us to recommend posterior tibial transfer as the preferred surgical technique for patients with isolated peroneal nerve neuropathy where denervation has lasted more than twelve months and conservative therapy or neuroreconstructive interventions have failed. Tenodesis of the extensor digitorum longus may be considered as an alternative technique in the presence of contraindications to muscle transfer or technical limitations; however, patients should be informed of its lower effectiveness in restoring strength and range of dorsiflexion.

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