

# Comparison of the neural recovery effects of ESWT according to administration time in sciatic nerve injured rats.

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## Introduction

- Extracorporeal shockwave therapy (ESWT) is used in promoting the functional recovery and regeneration of injured peripheral nerves.
- However, the proper administration time of treatment has not yet been studied.
- The aim of this study is to investigate correlation between administration time and the degree of functional recovery in sciatic nerve injured rats.

## Methods

- Twenty 6-week-old rats with sciatic nerve injury were randomly divided into four groups, including the immediately treated (IT) group, delay treated (DT) group, the control group and the sham group.
- IT group received a single session of ESWT (0.19mJ/mm<sup>2</sup>) treatment immediately after a nerve-crushing injury.
- DT group received a single session of ESWT (0.19mJ/mm<sup>2</sup>) one week after sciatic nerve injury.
- The control group received no treatment.
- The sham group received only skin and muscle incision.
- For functional assessment, electrophysiological studies and serial sciatic functional index (SFI) analysis were performed every week for 9 weeks.

## Result

- The electrophysiological study results demonstrated gradually increase in compound muscle action potential amplitude (CMAP) in IT, DT and control groups, indicating a gradual recovery of motor function.
- Comparing IT and control group, IT group showed a significantly greater CMAP week 2 to 3, and week 7 to 9 after a nerve-crushing injury (p < 0.05).
- In the DT group, there was also significant difference from the control group week 2 to 4, and week 7 to 9 after a nerve-crushing injury (p < 0.05).

## Result

- But there was no significant difference in IT and DT groups. Even though time passed by week 9, all groups had considerably lower CMAP values than the sham group.

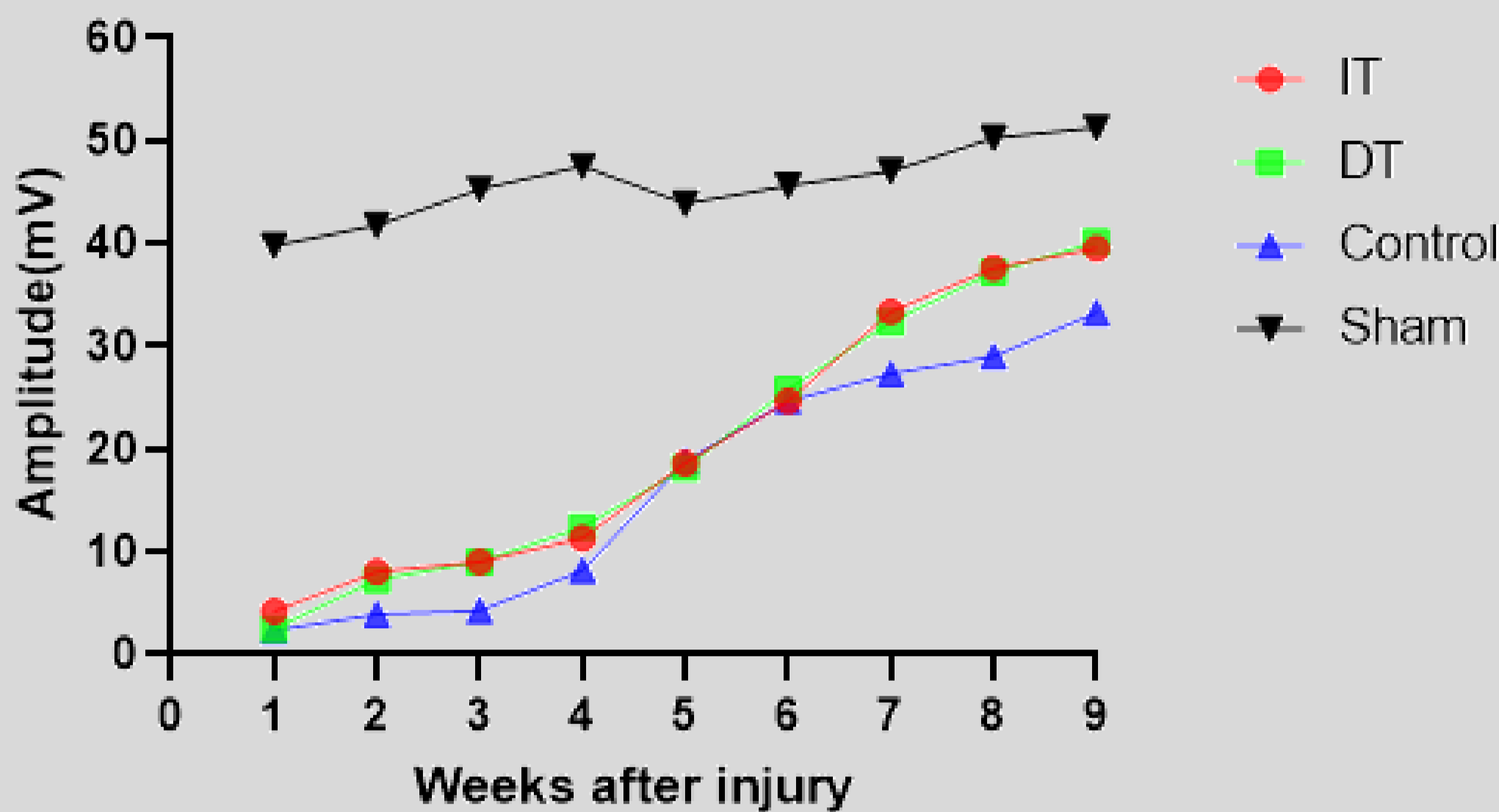


Figure 1. CMAP amplitude of each group

- The SFI results showed similar trends to the CMAP results.
- When compared to the control group, both IT and DT group had significantly higher SFI (p < 0.05).
- When comparing the SFI of IT and DT groups, there is no significant difference.

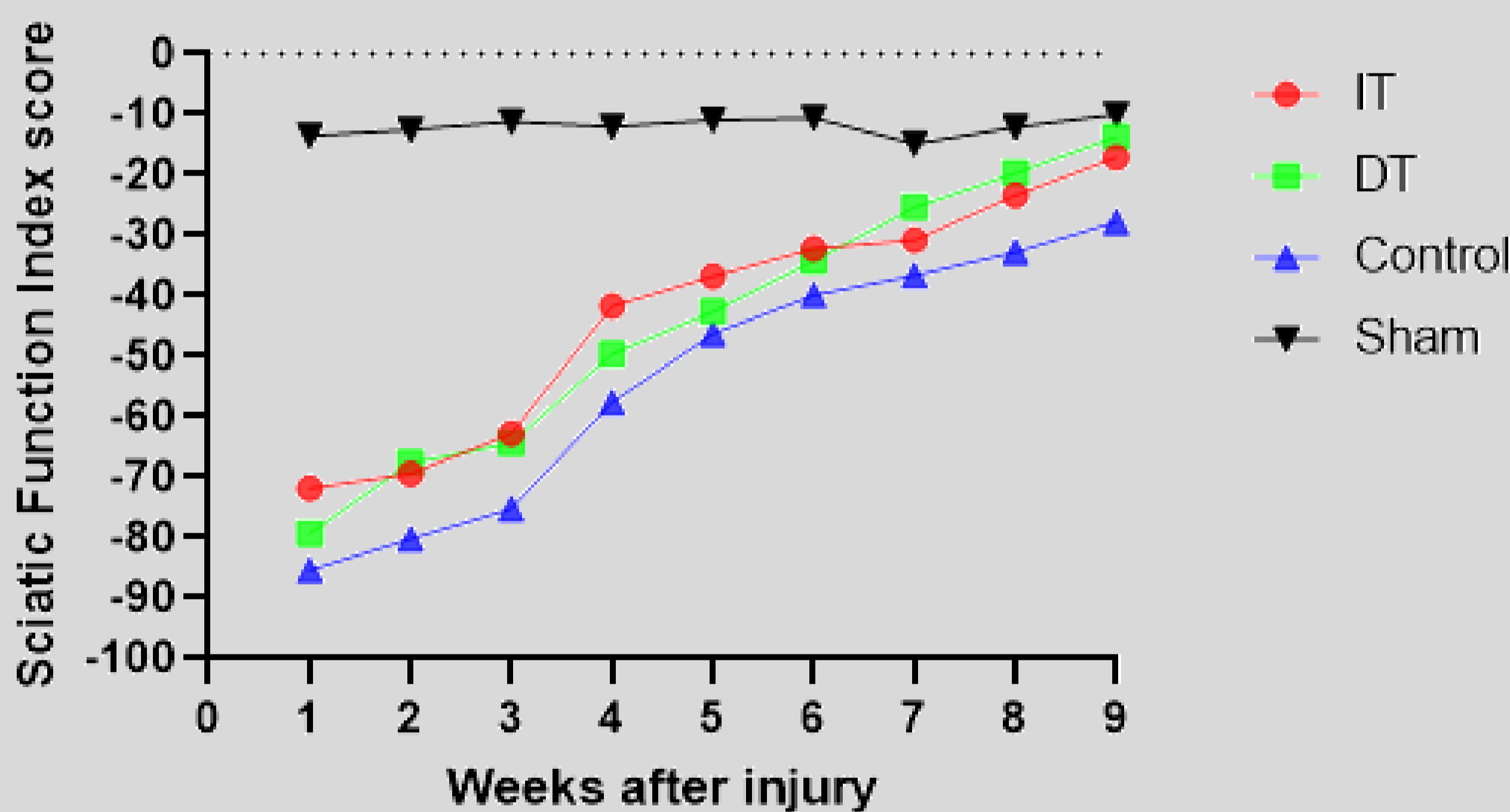


Figure 2. SFI score result of each group

## Conclusion

- Our research showed that ESWT either immediately or one week after nerve injury were both effective in CMAP amplitude and SFI.
- So, ESWT can help with the recovery of nerve damage regardless of the administration time.

## Reference

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