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THE EFFECT OF PERINEUROTOMY ON NERVE REGENERATION IN DIABETIC RATS

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Nothing to Disclose

Purpose

To investigate the effect of **perineurotomy** on
nerve regeneration in diabetic rats

Materials and methods

groups

40 Male 'Sprague Dawley' rat (330 - 400 gr)

- 1. group:** Healthy control
- 2. group:** Healthy perineurotomy
- 3. group:** Diabetic control
- 4. group:** Diabetic perineurotomy

Materials and methods

inducing diabetes

3. group: Diabetic control

4. group: Diabetic perineurotomy

- >270 mg / dl \Rightarrow Diabetic
- Polydypsie, polyuria, loss of hair, loss of weight and cataracts
- After 8 week surgery was performed



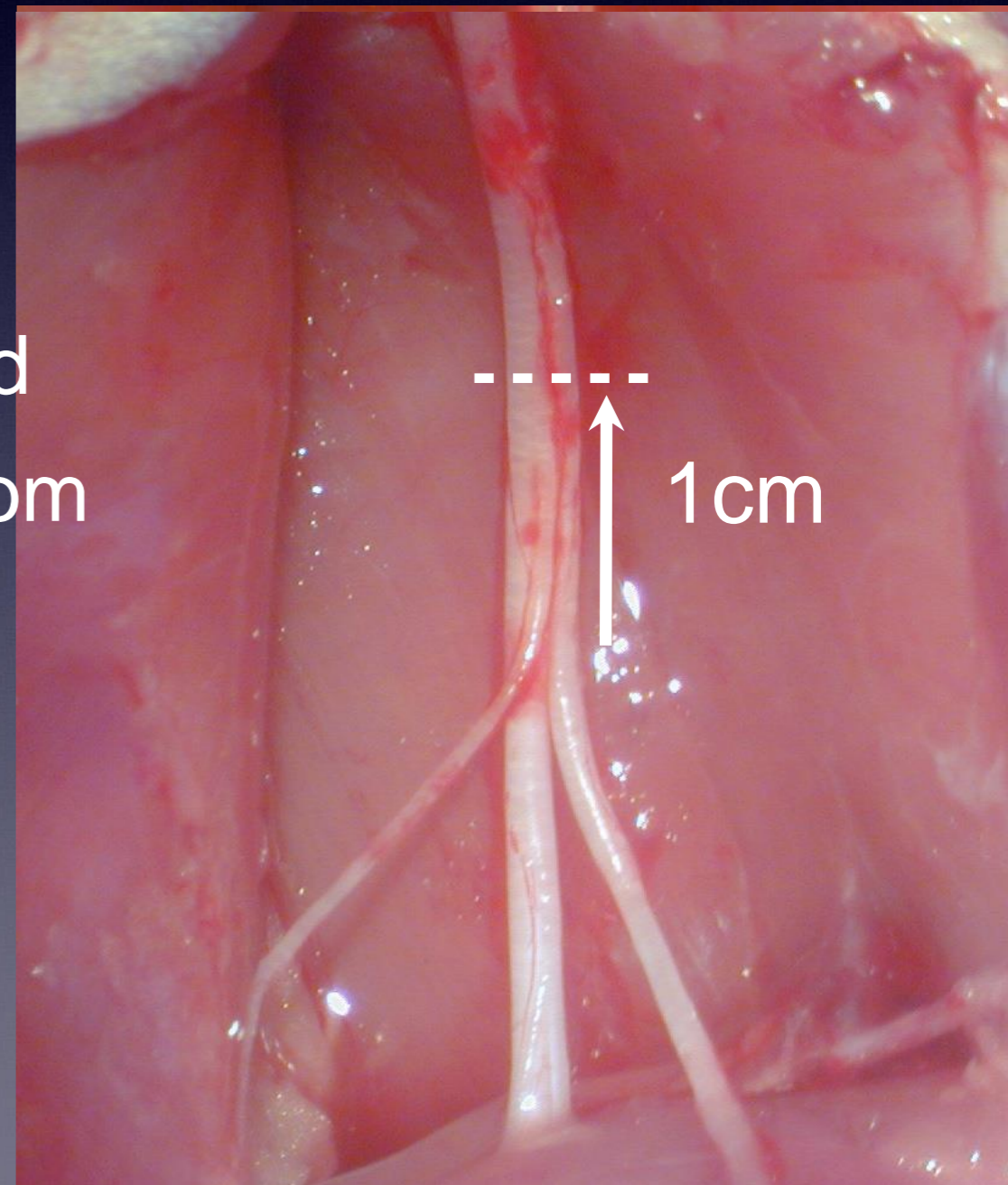
50 mg/kg

Materials and methods

surgical technic

Control Groups (Group 1, Group 3)

The sciatic nerve was transected and sutured epineurally 1 cm proximal from the trifurcation point.



Materials and methods *surgical technic*

Perineurotomy Groups (Group 2, Group 4)

The initial procedures were exactly similar to those in groups I and III.

In addition, perineurotomy was performed to the peroneal, tibial, and sural nerves, including their proximal extensions in the sciatic nerve trunk.

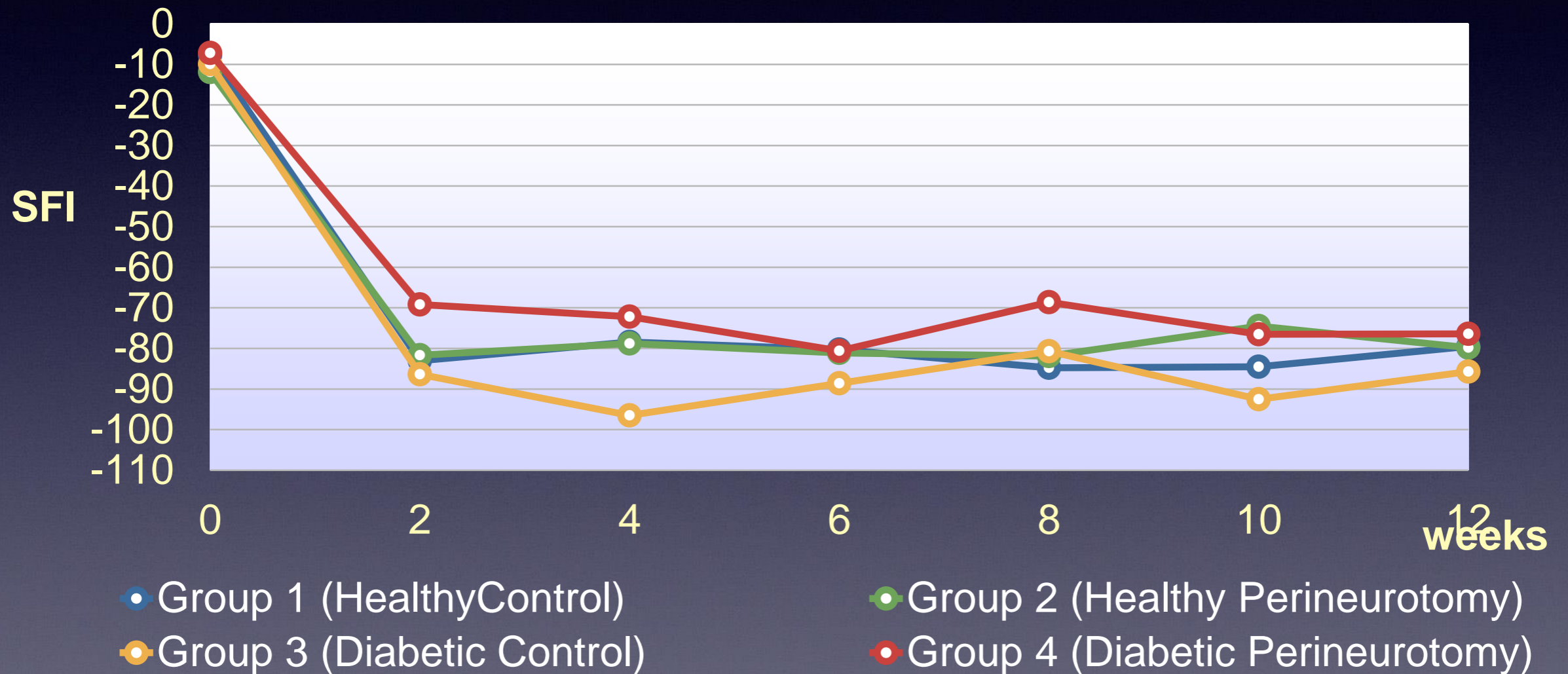
Materials and methods

assessment

- Walking track analysis
- Biopsy
- Myelinated axon counting with 'Image J' programme
- Light microscopy
- Electron microscopy

Results

walking track analysis

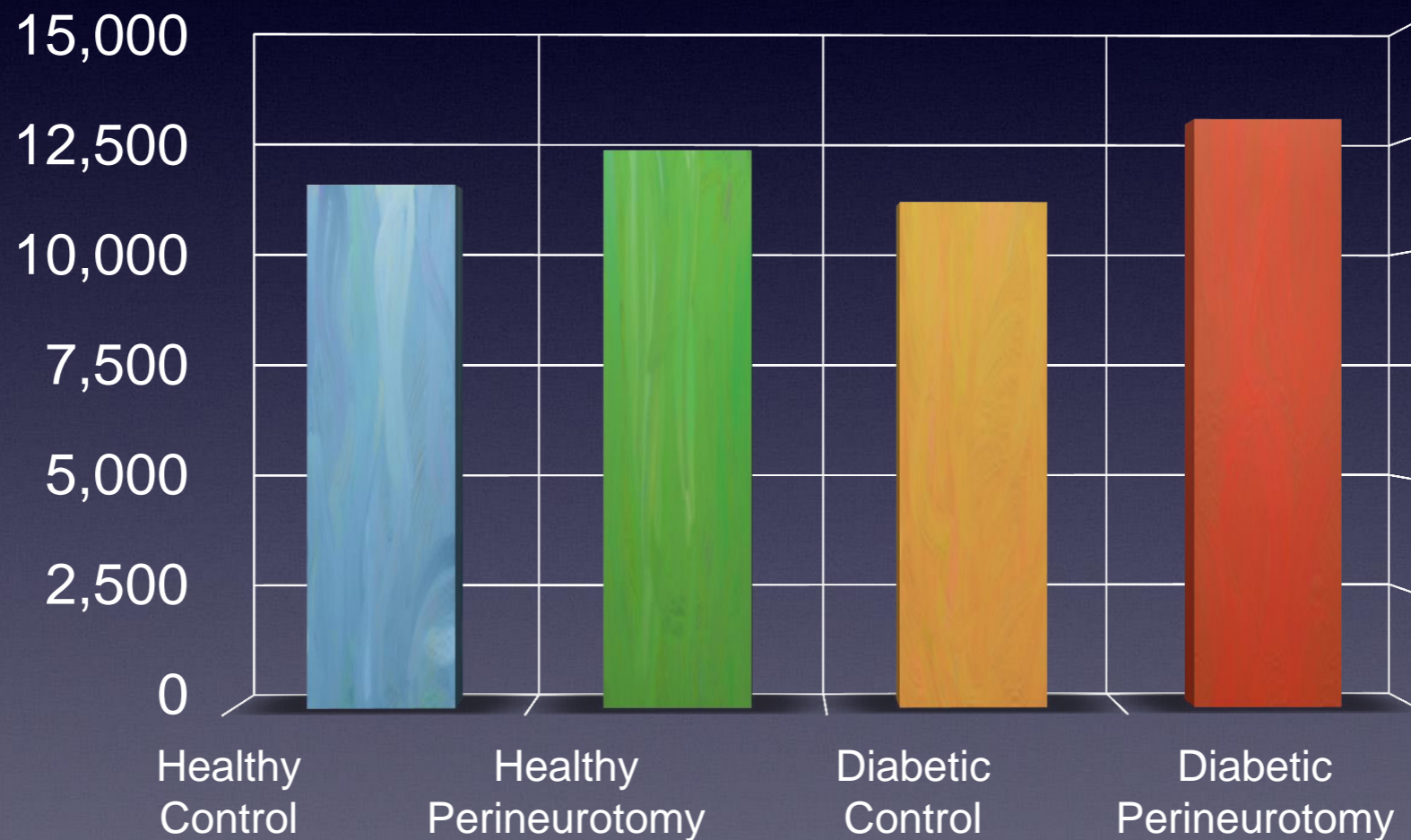


Grup 1 = Grup 2

Grup 3 < Grup 4 ($p < 0.05$)

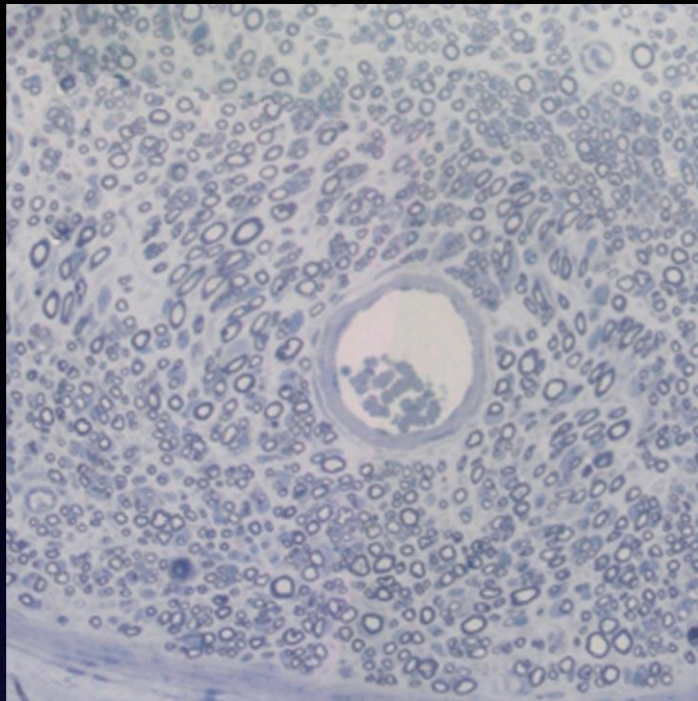
Results

axon counting results

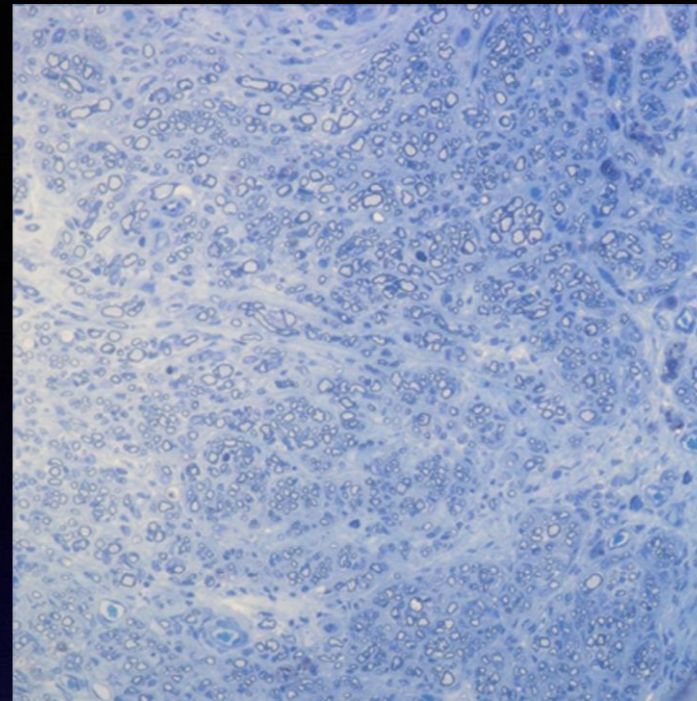


Grup 1 = Grup 2

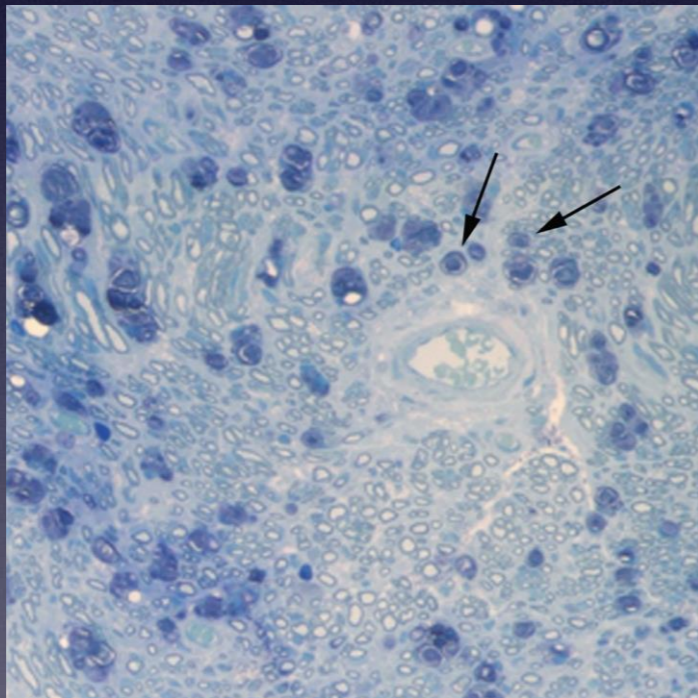
Grup 3 < Grup 4 ($p < 0.05$)



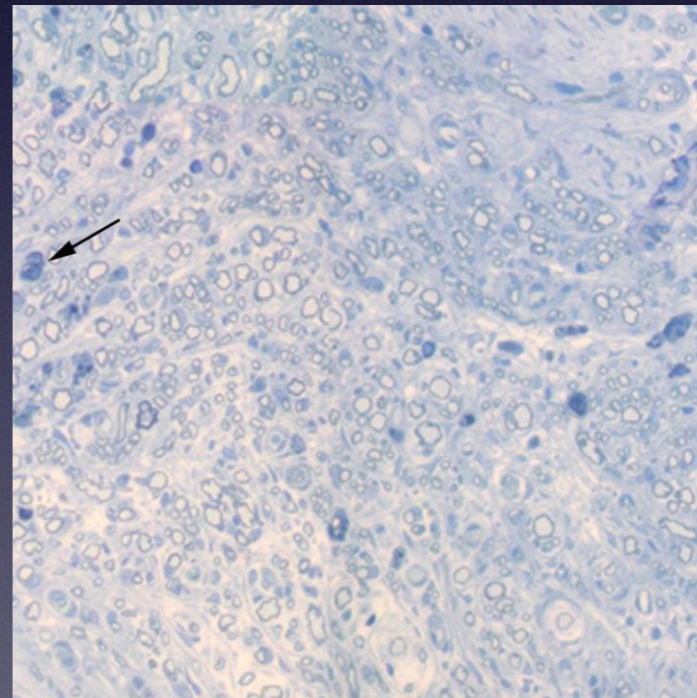
Healthy Control



Healthy Perineurotomy

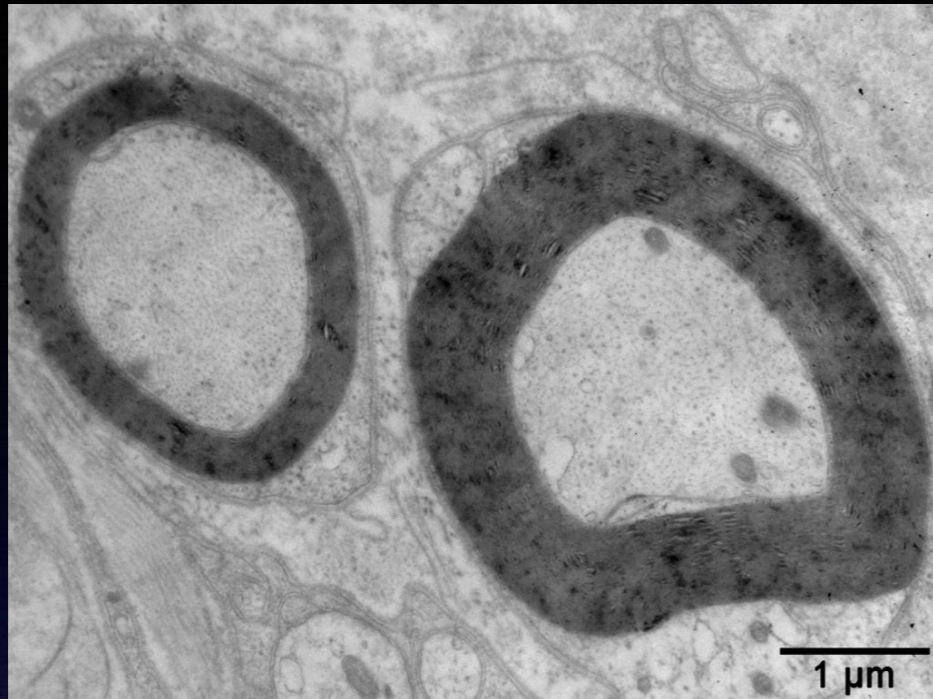


Diabetic Control



Diabetic Perineurotomy

(arrows show degenerated axons)



Healthy Control



Healthy Perineurotomy



Diabetic Control



Diabetic Perineurotomy

Vacuolizations (*) and disintegrated myelin sheath with abnormal contour (*arrow*)

Discussion

Endoneural edema → Pressure increase



Compartment syndrome → FASIOTOMY

Peripheral nerves → **PERINEUROTOMY**

Discussion

PERINEUROTOMY



Functionally and
Hystopathologically better results