

COLD INTOLERANCE

- Destruction of the Vasomotor Center. Involvement of the vasomotor center in the medulla is the responsible factor.
 - Histologically, the area of the reticular substance was damaged in most of their patients. Such a lesion should lead to a general absence of sympathetic activity with postural hypotension.
- Blood vessel disturbance in chronic poliomyelitis is like that in Raynaud's syndrome, and that the cramp like pain is similar to that of peripheral arterial claudication.
- Later in the disease: vasospasm on the affected side but not the unaffected one.
- In the chronic stage of poliomyelitis, on the other hand, the temperature of the paralysed gastrocnemius was very much lower than that of the normal muscle.

Weinstein, L. Cardiovascular Disturbances in Poliomyelitis
Circulation. 1957;15:735-756.

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- **50%** of polio survivors report intolerance to cold, and that their limbs become more sensitive to pain as temperature decreases (Owens 1985)
- When polio survivors were cooled in a lab to 20°C, motor nerves functioned as if they were 10°C, and they **lost 75% of hand strength** (Bruno 1985); this is particularly pertinent to environment control for valid EMG/NCS testing
- **Hypothalamus dysfunction** from acute polio affects the 'thermostat' control, namely the function of sympathetic vasoconstriction tone:
 - Unable to stop flow of warm blood to skin as external temperature drops
 - This allows heat loss and causes limb to cool
 - Passive narrowing due to cool limb trap venous blood in capillaries
 - Cold skin chills the motor nerves, slowing conduction and affecting motor function
 - Tendons and ligaments also cool, making movement more difficult

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