live affected male being born, after parents proceeded with the pregnancy.

Conclusion Rigorous and expansive approaches to cascade-screening/counselling may account for decreases in preventable cases. Age of diagnosis has fallen, providing potential for more timely intervention, aided by newer diagnostic techniques that allow more accurate proband genotyping. Prenatal testing identified small numbers of affected males, facilitating parental decision-making in these select cases.

024

RESISTANCE EXERCISES WITH BLOOD FLOW RESTRICTION IN PATIENTS WITH SPORADIC INCLUSION BODY MYOSITIS

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Introduction Sporadic inclusion body myositis (sIBM) is the most common muscle disease affecting older adults with no disease-modifying treatment. Resistance exercises increase muscle hypertrophy, but weakness prevents exercising with higher resistance. In healthy subjects, augmentation of light-load training with blood flow restriction improved muscle strength¹; and similar exercises were safe in the elderly.² We therefore investigate whether resistance exercises with blood flow restriction is safe and helpful in sIBM patients. We explored methods for exercising weak leg muscles, and options for better outcome measures.

Methods A matched-control pilot study, with 12-week treatment and 4-week follow-up periods, where participants concentrated on lower limbs resistance exercises with 50% blood flow restriction 3 times/week, at 20%-30% of their repetition maximum. Patients are reviewed 4-weekly for muscle strength, blood biomarkers, 2-minute walk test (2MWT), timed up-and-go (TUG) test, minimal chair height standing ability test (MCHSAT), thigh girths, and quality of life scales.

Results 4 patients with varying abilities were on the exercise arm, and 3 acted as controls. Muscle groups with MRC score ≥ 2 were able to be exercised. We found strength testing by hand-held dynamometer was unreliable, whereas the 2MWT, TUG test and MCHSAT showed less variability. All patients could perform their exercises at significantly increased repetitions or weights by week 4, without concerning adverse events, with trend towards continued improvement over the 4-month period.

Conclusion Resistance exercises with blood flow restriction appear safe, and may be helpful in sIBM patients, even in weakened muscles, enabling improvement in muscle strength and endurance.

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025

THE UTILITY OF NERVE BLOOD FLOW IN THE ASSESSMENT OF PERIPHERAL NEUROPATHY

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Introduction Animal and human studies of diabetes have shown significant alterations in nerve blood flow (NBF), which may also play a role in the development of neuropathy. However, the non-invasive assessment of NBF in human subjects has remained elusive until the recent technological advancements in ultrasound (US) technology. We undertook sonographic assessment of NBF in 75 patients with type 2 diabetes and correlated the findings with neuropathy severity scores and electrophysiological parameters.

Methods Blinded median and tibial nerve ultrasound scans were performed at non-entrapment sites using a high-resolution linear probe. NBF was quantified using power Doppler techniques to obtain the vessel score (VSc) and maximum perfusion intensity (MPI). Routine nerve conduction studies were performed, and neuropathy severity was assessed using the total neuropathy score (TNS). Aged- and gender-matched controls were enrolled.

Results Diabetic nerves had higher rates of NBF detection (28%) compared to the control group ($p < 0.0001$). Significant correlations were found between NBF parameters and nerve size ($p < 0.001$), reported sensory symptoms ($p < 0.05$) and neuropathy severity scores ($p < 0.001$). The cohort with diabetes had significantly larger median ($8.5 \pm 0.3 \text{ mm}^2$ vs. $7.2 \pm 0.1 \text{ mm}^2$, $p < 0.05$) and tibial ($18.0 \pm 0.9 \text{ mm}^2$ vs. $12.8 \pm 0.5 \text{ mm}^2$, $p < 0.05$) nerves compared to controls.

Conclusions Peripheral nerve hypervascularity is detectable by US in moderate to severe diabetic neuropathy with prominent sensory dysfunction. Consistent with previous studies, the sonographic detection of NBF is a pathological finding.

026

VARIATION IN THE ANATOMY OF THE NORMAL HUMAN OPTIC CHIASM: AN MRI STUDY

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Introduction Compression of the optic chiasm gives rise to bitemporal hemianopia. The reason for this is unclear, but one hypothesis suggests it relates to the fact that nasal retinal fibres cross each other while temporal fibres do not. This 'crossing' hypothesis has been investigated using finite element modelling but this requires accurate anatomical data. The precise shape of the chiasm is not clear: nasal fibres may not decussate centrally (as if the chiasm were 'X'-shaped) but, instead, decussate paracentrally and run