Disease duration and disability in dysfeRlinopathy can be described by muscle imaging using heatmaps and random forests

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Introduction: The manner in which imaging patterns change over the disease course and with increasing disability in dysferlinopathy is not fully understood. Methods: Fibroadipose infiltration of 61 muscles was scored based on whole-body MRI of 33 patients with dysferlinopathy and represented in a heatmap. We trained random forests to predict disease duration, Motor Function Measure dimension 1 (MFM-D1), and modified Rankin scale (MRS) score based on muscle scoring and selected the most important muscle for predictions. Results: The heatmap delineated positive and negative fingerprints in dysferlinopathy. Disease duration was related to infiltration of infraspinatus, teres major?minor, and supraspinatus muscles. MFM-D1 decreased with higher infiltration of teres major?minor, triceps, and sartorius. MRS related to infiltration of vastus medialis, gracilis, infraspinatus, and sartorius. Discussion: Dysferlinopathy shows a recognizable muscle MRI pattern. Fibr