Conclusion: Our results indicate that the instrumented treadmill is an appropriate tool for assessing ambulation capabilities of people with MS. Furthermore, spatiotemporal gait parameters collected by this device seem to be valid markers of neurological impairment in the MS population.

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Developing a measure of hand sensibility and manual dexterity in people with multiple sclerosis: the ReSense test

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Background: During the course of the disease, approximately 3 out of 4 people with MS (PwMS) encounter upper limb dysfunction and somatosensory deficits including both proprioceptive and cutaneous input. Recently, the ReSense, a new sensory measurement tool was developed at the MS Center, Sheba Medical Center in Israel. This tool is based on the active sensory exploration approach. The scoring method is based on successful identification of the geometrical and texture properties of different plastic elements.

Aim: To evaluate the concurrent validity and reliability of the ReSense tool, a new clinical test aimed at determining sensory and functional deficits of the hand in PwMS.

Methods: Study participants included 90 PwMS, 58 women and 32 men, with a mean age of 45.6 (S.E.=1.3), characterized by significant sensory symptoms in one or both hands. Thirty healthy subjects, 11 men and 19 women, mean age of 42.3 (S.E.=2.5) years, served as controls. The ReSense evaluation tool measures the ability to perceive and recognize texture and spatial properties of specific elements. ReSense scores were compared with the two-point discrimination (2PD), Semmes-Weinstein monofilament (SWM), Nine Hole Peg Test (9-HPT), Box and Block Test (BBT) and the Functional dexterity (FDT) tests.

Results: The Cronbach's alpha values of the ReSense test for the healthy controls were 0.91, 0.87 for the dominant and non-dominant hands, respectively. Scores for the MS participants were 0.85, 0.83 for the dominant and non-dominant hands, respectively. The ReSense was significantly correlated with the 9-HPT; Pearson's R= -0.44 and FDT; Pearson's R= -0.35. Correlation scores were similar regarding dominant and non-dominant hands. No correlations were observed between the ReSense to BBT.

Significant correlations were demonstrated between the ReSense score to SWM and 2PD. The strongest correlation was found with the 2PD performed on the dominant hand; Pearson's R= -0.55.

Conclusions: The ReSense is a valid tool developed for testing sensing properties of the hand in PwMS. We hope that the clinician will use the sensitivity and specificity values to formulate decisions related to rehabilitation management of his/her patient.

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Functional Electrical Stimulation to treat foot drop for people with MS; user perception of benefits, disadvantages and service provision in Edinburgh

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Aim: Although Functional Electrical Stimulation (FES) has emerged as a potential treatment for dropped foot in people with MS (pwMS), only one study has investigated the user experience in any detail. We explored the perceived benefits, disadvantages and views on FES service provision of past and current FES users.

Methods: A survey questionnaire, based on a previous study, was mailed to pwMS who had attended a specialist out-patient physiotherapy clinic and had been fitted with FES in the last 6 years. Each survey consisted of three sections: (i) demographics details, (ii) one section for current users and (iii) one section for past users (even if only for 1-2 weeks to trial the device).

Results: The FES data base consisted of 106 patients with MS who had been assessed for suitability for FES. Of those 18 were not suitable, 7 did not attend, and no notes were available for 2, resulting in the distribution of 79 surveys. Completed surveys were returned by 28 pwMS; 17 current and 11 past users of FES.

Current users (11 Pace, 5 ODFS, 1 WalkAide) listed 'reduced physical effort when walking' (29%), 'reduced risk of tripping' (35%) and increased walking distance (18%) as the most important reason for using FES. If asked for all benefits 'reduced physical (70%) and mental (47%) effort when walking', reduced risk of tripping and increased confidence (both 65%) and reduced fatigue (41%) were the most listed benefits. Main disadvantages were the appearance of the wires (59%), cost of the device (47%), problems with electrode positioning (41%) and bulkiness of device at waistline (47%).

The most important reason for stopping/not continuing reported by past users were painful stimulation sensation (36%) and time taken to set up equipment (18%). Interestingly, past users noted similar benefits as current users with 'reduced physical (64%) and mental (46%) effort when walking', 'reduced risk of tripping' (64%), 'increased confidence' (63%) and 'reduced fatigue' (46%) were most commonly identified.

When asked how the service could be improved, 10 people did not know or felt no improvement was necessary, 12 would like more on-line information, 6 wanted more clinical appointments, 5 requested a telephone helpline and 4 suggested an FES user group.

Conclusions: The results of the survey are interesting and perhaps most useful in highlighting some of the difficulties experienced, and service improvements recommended by pwMS who use(d) FES.

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Association of rehabilitation extent and content with change in walking in multiple sclerosis: a European multi-centre study

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