**Round-up of research and other items of interest**

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The first two overviews were provided by Sandra Connolly, MSWA Community Nurse.

**Can quitting smoking after MS diagnosis improve outcomes?**

According to a Swedish study, conducted in September 2015, it does appear that modifying this risk factor, by quitting smoking after diagnosis, is worthwhile. In fact, this study may be the first evidence that quitting smoking may slow progression to secondary progressive MS (SPMS).

The study included 728 people with MS, in the Genes and Environment in MS study in Sweden, who smoked at diagnosis. 332 of these, called quitters, continued to smoke following diagnosis. 118 were people who had stopped smoking within one year of diagnosis. 278 people were not included in the final evaluation because they were classed as intermittent smokers.

**Findings**

216 people converted to SPMS during the study time. The time to conversion to SPMS, increased by 4.7%, for each year people continued to smoke following diagnosis. Continuers reached SPMS faster (median age 48), compared to quitters (median age 56).

**Comment**

This adds to already existing evidence, that smoking can slow progression to secondary progressive MS (SPMS).

**From the UK MS Trust Website**

**Drugs in development:**

**Anti-LINGO –** an experimental drug, given as an infusion or subcutaneous injection every two to four weeks, to promote remyelination of nerve cells. It is thought to promote the development of oligodendrocytes, the cells which maintain the myelin coating around nerves.

A protein called LINGO-1, occurring only in the central nervous system, prevents the development of young cells into oligodendrocytes. Oligodendrocytes are the myelinating cells of the central nervous system (CNS).

Anti-LINGO-1 has been found to block the action of LINGO-1, allowing young cells to mature into oligodendrocytes. This may restore repair of damaged myelin, offering the potential for preventing or possibly reversing disability.

In a phase II study of people diagnosed with optic neuritis, anti-LINGO-1 treatment resulted in a small but significant improvement in transmission of nerve impulses via the optic nerve.

No significant side effects have been reported so far.

**BIOTIN (MD1003)** is in phase III trials. A highly concentrated formulation of biotin is under investigation for SPMS and PPMS; it is taken as a capsule, three times a day. Also known as vitamin H or coenzyme R, biotin is one of the B-group vitamins (vitamin B7). It is necessary for cell growth, the production of fatty acids, and the metabolism of fats and amino acids, the building blocks of proteins.

At the cellular level, it activates enzymes involved in energy production and synthesis of myelin.

**MD1003** is a highly-concentrated formulation of biotin. The doses being used in clinical trials correspond to 10,000 times the recommended daily intake of biotin. A small pilot study has provided initial evidence that high doses of biotin might have an impact on disability and progression. A phase III clinical trial showed some evidence of a small improvement in disability.

Preliminary results of a phase III study were reported at a scientific meeting. Investigators recruited 144 people with SPMS or PPMS who were having increasing difficulty with walking and leg weakness.

No significant side effects have been reported so far.

**The effect of rhythmic-cued motor imagery on walking, fatigue and quality of life in people with multiple sclerosis**

A randomised controlled trial

Motor imagery (MI) is a technique where somebody thinks about moving their body in a certain way without actually moving; a technique commonly used by athletes to rehearse movements and skills to improve performance.

This study investigated the use of MI in people with MS, combined with music with a strong beat or metronome, to see if walking could be improved. 101 participants, in three test groups received MI training session CDs and were told to practice for 17 minutes a day, six days a week for four weeks.

**Australian discovery of MOG antibody marker as determinant of treatment in children with MS**

Myelin oligodendrocyte glycoprotein (MOG) is a structural protein that makes up part of the insulating material (myelin) around neurons (nerve cells). An antibody which attacks MOG (MOG antibody) can occur, which contributes to demyelination in MS and other demyelinating conditions.

MS Research Australia funded research in 2015, looking at MS-like immune conditions in children. The study carried out by Dr Fabienne Bristol-Turville and Professor Russell Dale from the children’s hospital at Westmead, resulted in identification of this antibody in the blood. They then tested these groups of children:

- Ten children who tested positive for the MOG antibody
- Nine children who tested negative for the MOG antibody
- A group of children who did not have a demyelinating condition.

Over the course of time, they found that the MOG antibody positive group had more relapses, more disease progression and changes on MRI than those negative to the antibody.

This valuable information because it implies that earlier discovery of more aggressive disease progression can be determined, then choices of treatment can be tailored to the severity so that more aggressive treatments can be used in order to suppress the inflammatory processes within the immune system and slow disease progression.

**Reference:**


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**continued overhead**
### Taste dysfunction in multiple sclerosis

Problems with taste and smell are thought to be extremely rare symptoms in MS. As they are interconnected it can be difficult to study them individually.

In this study researchers investigated taste in people with MS to try and determine how common and severe problems are, if MS only affected particular types of taste and if problems with taste could be matched with the locations of brain lesions.

73 people with MS were matched, for age, gender ethnicity and education level, with 73 controls. Testing included sweet, salty, bitter and sour elements with participants asked to identify the taste and how strong it was.

#### Findings

This study demonstrated that more people with MS could have problems with taste than previously thought. Of the participants with MS, 15% had difficulty identifying the bitter taste, 22% the sour taste, 25% the sweet taste and 32% the salty taste. Those participants who had more trouble identifying tastes also had a larger volume of lesions as seen on MRI brain scans.

The authors highlighted the importance of being able to taste. If you can’t taste food properly you could potentially eat something unsafe and you may not enjoy your food if it doesn’t taste ‘right’. This could potentially lead to people cutting out certain foods which could lead to malnutrition, a common condition that occurs when the diet does not contain the right amount or balance of nutrients for health.

Doty RL, Tourbier IA, Pham DL et al.

### Science Daily

#### Exercising Impacts on Fatigue, Depression, and Paresthesia in Female Patients with Multiple Sclerosis

A study conducted jointly by researchers at the University of Basel and Kermashan (Iran) showed that exercise can have a positive influence on certain MS symptoms. Fifty-four women with MS, average age of 34, were assigned to one of three groups: yoga, aquatic exercise or no exercise. Patients who did yoga and aquatic exercise suffered less from fatigue, depression and paresthesia reported researchers.

#### Breakthrough may stop multiple sclerosis in its tracks

An international research team has demonstrated that a new plant-derived drug can block the progression of an MS-like illness in animals. The experimental drug is a new approach to treating autoimmune disorders, and could be another oral method to treat MS. The plant-based compound is active even when ingested orally rather than requiring injections. The research team expects that they may be able to begin testing the drug in clinical trials in 2018.

**Source:** Science Daily, 2016; 48 (5): 796 DOI: