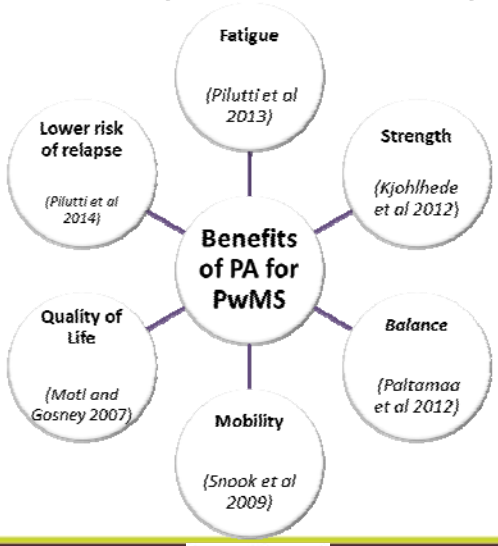
The effects of Yoga on impairments of body function, activity limitations and participation for people with MS: A review

Bláthín Casey
PhD Candidate
University of Limerick, Ireland.

MS and Physical Activity(PA)



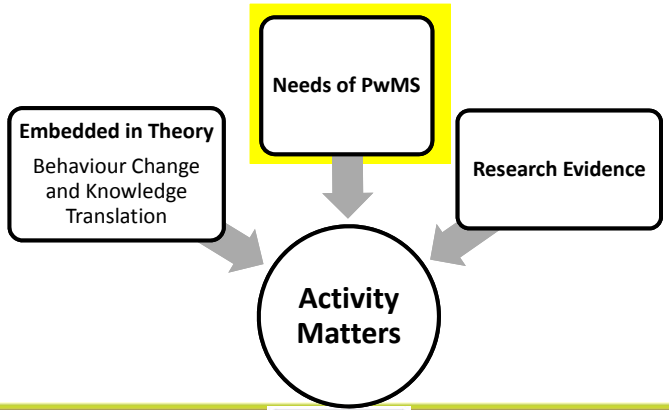
University of Limerick
THE SUNDAY TIMES UNIVERSITY OF THE YEAR 2015
www.clinicaltherapies.ul.ie

Physical Inactivity

- Subjective and objective findings of physical inactivity in people with MS (Sandroff et al 2012, Motl et al 2005).
- People with MS have a 2.4 fold increased risk of dying due to cardiovascular disease than the general population(Lalmohamed et al. 2012), this associated with decreased physical activity.
- Need to change PA behaviour

The Activity Matters Website

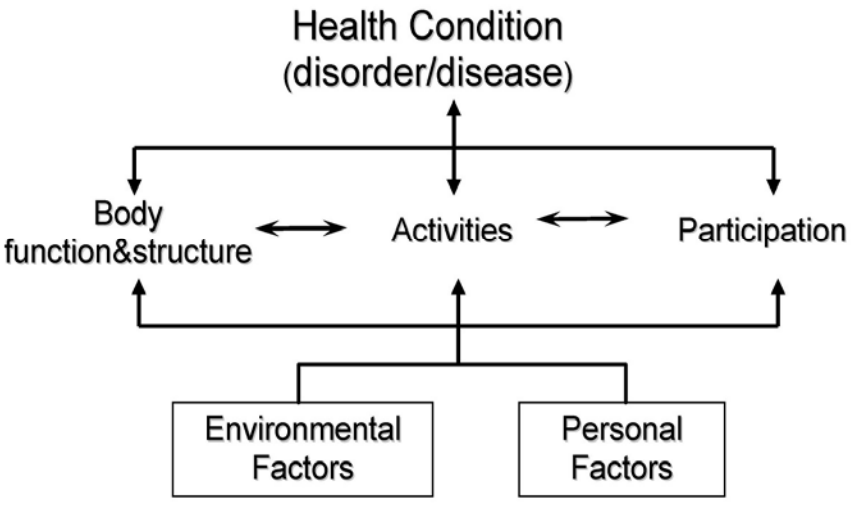
- Aims to develop a web based resource to enable pwMS to become more active.



Exercise Options

- PwMS want to be able to chose what exercise they do (Hale et al 2012)
- Our qualitative data supports this and suggests exercise options including **Yoga**, Walking and Swimming (Casey et al 2015).

Poster
RH 17



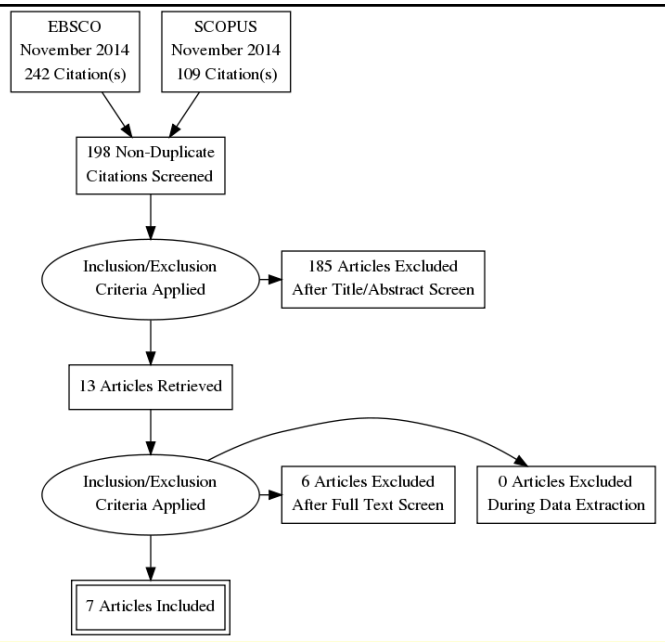
Methods

- **Systematic Search:**
  - EBSCO (AMED; Biomedical Reference Collection; CINHAL Plus Full Text; MEDLINE; PsychArticles; PyschINFO; SPORT Discus.)
  - SCOPUS
- **Inclusion Criteria:**

Population	Intervention	Comparison	Outcome
Definite diagnosis of MS.	One intervention group must be only Yoga	Randomised Control Design, comparing to control or other non-yoga intervention	Measure at least one outcome in any of the domains of the ICF, body function, activities or participation.

- **Quality Tools:**
  - PEDro Scale and Cochrane Tool for Risk of Bias

Prisma Flow Diagram



University of Limerick
THE SUNDAY TIMES UNIVERSITY OF THE YEAR 2015
www.clinicaltherapies.ul.ie

Author	Comparison	N=	EDSS	Yoga Type
Ahmadi et al 2010	Wait list control	21	1-4	Hatha
Ahmadi et al 2013	Usual care Treadmill walking	31	1-4	Hatha
Doulatabad et al 2013	No intervention	60	Not reported	"pain managing yoga"
Garrett et al 2012	Waiting list control Group Physio Group gym	242	1-6	Breathing exercises, Asanas, Relaxation
Hogan et al 2014	Group physio Individual physio	115	6.5	Relaxation, meditation, breathing, stretching
Oken et al 2004	Wait list control Exercise	57	1.5-6	Iyengar
Velikonjaa et al 2010	Sports climbing	20	≤6	Hatha

Study Description

- **P**articipants
  - 661 people with MS
  - 3 Female only studies
  - Inclusion of pwMS with EDSS </= 6.5
- **I**ntervention
  -Varying Frequency, Intensity, Type and Time for Yoga.

University of Limerick
THE SUNDAY TIMES UNIVERSITY OF THE YEAR 2015
www.clinicaltherapies.ul.ie

- **C**omparison
  - Yoga vs no intervention (n=3)
    - Ahmadi et al 2010, Ahmadi et al 2013, Doulatabad et al 2013
  - Yoga vs Intervention (n=5)
    - Ahmadi et al 2013, Garrett et al 2012, Hogan et al 2014, Oken et al 2004, Velikonjaa et al 2010
- **O**utcomes
  - Generally outcome measures not homogenous
  - 3 studies looked at BBS, 4 looked at MFIS

Results

Body Functions- Balance (BBS)

Study	Within Group Improvements	Between Group
Ahmadi et al 2010	Pre= 46.19 +/- 8.1, Post= 53.81 +/- 3.4 p=0.01	p<0.01
Ahmadi et al 2013	Pre=47.72 +/- 6.78 Post:=53.81 +/- 3.40 p<0.01	p= 0.001 yoga v control p=0.76 yoga v treadmill
Hogan et al 2014	Pre= 22.6 +/- 12.6 Post= 27.9 +/- 11.5 p<0.01	p=0.006 v control

Body Functions Continued.

- **Pain (Likert Scale 1-6)**

Study	Within Group Improvements	Between Group
Doulatabad et al 2013	Pre: 4.8 +/- 5.12 Post: 3.8 +/- 4.16 p=0.007	Not Reported

- **Spasticity**

Study	Within Group Improvements	Between Group
Velikonja et al 2010	Ashworth – non significant EDSS pyr – non significant	Not reported

- **Mood**

Study	Within Group Improvements	Between Group
Ahmadi et al 2013	BDI p=0.001 BAI p=0.001	BDI yoga v treadmill p=0.11 Yoga v control p=0.001 BAI yoga v treadmill p=0.01 Yoga v control 0.001
Velikonja et al 2010	CES-D p=0.212	Not reported

Limitations in Activities – Walking Endurance

Study	Within Group Improvements	Between Group
Ahmadi et al 2010 2min Walk	p<0.01	p<0.01
Ahmadi et al 2013 2min Walk	p<0.01	p= 0.01 yoga v control p=0.26 yoga v treadmill
Garrett et al 2013 6min walk	p=0.26	p=0.73
Hogan et al 2014 6min walk	p=0.553	Not significant

Limitations in Activities

- **Walking Speed (10 meter walk)**

Study	Within Group Improvements	Between Group
Ahmadi et al 2010	Pre= 8.96 +/- 1.8 Post= 8.13 +/- 1.87, p=0.13	p=0.04
Ahmadi et al 2013	Pre=8.78+/-1.79 Post=8.13+/-1.87 p=0.13	p=0.12 yoga v treadmill p=0.11 yoga v control

QOL/IMPACT	Within Group Improvements	Between Group
Ahmadi et al 2010	**MSQOL-54** 7 domains increased significantly	6 domains all p>0.05
Doulatabad et al 2013	**MSQOL-54** p=0.001	Not Reported
Garrett et al 2013	**MSIS** phys p=0.03 **MSIS** psych p=0.01	**MSIS** phys p=0.12 **MSIS** psych p=0.04
Hogan et al 2014	**MSIS** phys p=0.645 **MSIS** psych p=0.281	Not significant
Oken et al 2004	**SF-36** Energy p<0.001 **SF-36** Health p<0.001	**SF-36** Vitality yoga v control p<0.001

University of Limerick
THE SUNDAY TIMES UNIVERSITY OF THE YEAR 2015
www.clinicaltherapies.ul.ie

FATIGUE	Within Group Improvements	Between Group
Ahmadi et al 2010	FSS p=0.01	p=0.01
Ahmadi et al 2013	FSS P=0.01	p=0.99 yoga v treadmill p=0.03 yoga v control
Garrett et al 2012	MFIS p< 0.01	P=0.05
Hogan et al 2014	MFIS p=0.374	Non significant
Oken et al 2004	p<0.01	Reported significantly better (no p values/mean diff)
Velikonja et al 2010	MFIS p=0.057	Not reported

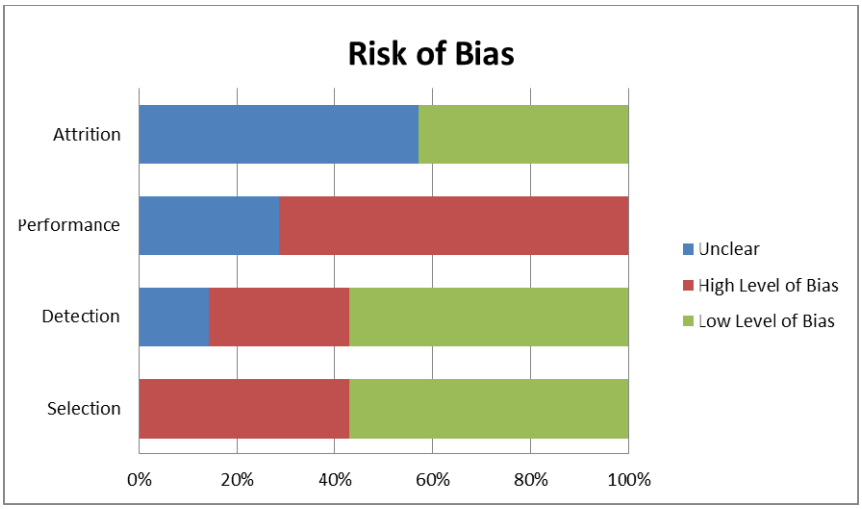
Quality of Studies

	Random Allocation	Concealed Allocation	Baseline Comparability	Blind Subjects	Blind Th	Blind ssessors	Adequate Follow-Up	Intention to Treat Analysis	Between Group Comparisons	Point Estimates	Score
Ahmadi et al 2010	Yes	No	Yes	No			Yes	No	Yes	No	4/10
Ahmadi et al 2013	Yes									Yes	4/10
Oken et al 2004	Yes	No								No	4/10
Doulatabad et al 2013	Yes	No							Yes	Yes	4/10
Garrett et al 2012	Yes	Yes	Ye						Yes	Yes	6/10
Hogan et al 2014	Yes	Yes							Yes	Yes	5/10
Velikonja et al 2010	Yes	No								Yes	3/10

Lack of <u>blinding</u> of subjects and therapists and no <u>intention to treat analysis</u> carried out.

PEDro Scale

Quality of Studies



Discussion

- Small number of studies
- Methodological quality poor
- Variety of measures and intervention parameters
- Positive effect for balance
- Mixed results for other measures
- No reporting of adverse events

- Preference and Qualitative data
  - (Ploughman et al 2012, Casey et al 2015)

Future Work

- Continued development of the Activity Matters project.
- Investigate evidence for other exercise options for pwMS (water-based exercises, walking, etc.)

Acknowledgements


Dr Susan Coote


Dr Sara Hayes


Aidan Larkin

MSIreland
THE MULTIPLE SCLEROSIS SOCIETY OF IRELAND

DEPARTMENT OF CLINICAL THERAPIES

University of Limerick
The Sunday Times University of the Year 2015
www.clinicaltherapies.ul.ie

Contact me

- Email: Blathin.casey@ul.ie
- Twitter: @BlathinCasey
- MS Research team @UL: http://www.msresearch.ie/

University of Limerick
THE SUNDAY TIMES UNIVERSITY OF THE YEAR 2015
www.clinicaltherapies.ul.ie

Key References

- Sandroff, B., Dlugonski, D., Weikert, M., Suh, Y., Balantrapu, S. and Motl, R. (2012) 'Physical activity and multiple sclerosis: new insights regarding inactivity', *Acta Neurologica Scandinavica,* 126(4), 256-262.
- Lalmohamed, A., Bazelier, M., Van Staa, T., Uitdehaag, B., Leufkens, H., De Boer, A. and De Vries, F. (2012) 'Causes of death in patients with multiple sclerosis and matched referent subjects: a population-based cohort study', *European Journal of Neurology,* 19(7), 1007-1014.
- Ploughman, Michelle, et al. "Factors influencing healthy aging with multiple sclerosis: a qualitative study." *Disability and rehabilitation* 34.1 (2012): 26-33.
- Oken, B. S., et al. "Randomized controlled trial of yoga and exercise in multiple sclerosis." *Neurology* 62.11 (2004): 2058-2064.
- Hale, Leigh A., et al. ""“Tell me what you want, what you really really want….”: asking people with multiple sclerosis about enhancing their participation in physical activity." *Disability and rehabilitation* 34.22 (2012): 1887-1893.