

Physiotherapy and Exercise Interventions for People with Multiple Sclerosis

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O L L S C O I L L U I M N I G E

Outline of Presentation

- Why is exercise important for PwMS?
- What are the barriers to exercise?
- What is the outcome of exercise interventions?
 - Existing Evidence
 - Our study

Why is exercise important for PwMS?

- People with MS are less active than health individuals, and those with other chronic diseases (Motl et al 2005)
- Greater risk of cardiovascular disease if inactive (Slawta et al 2002)
- Cardiovascular risk decreased with resistance training (White et al 2006)
- Beneficial effect on quality of life (Motl & Gosney 2008)
- Positive effect on walking mobility (Snook & Motl 2009)

What are the barriers to exercise?

(Garrett, Rice & Coote 2008)

- Environmental
- Psychological
- Disease Specific

Environmental barriers

- **Time** –
 - *“It takes more time and energy, people don’t understand...sometimes you just won’t bother. It’s not worth it. You really have to plan” (R#1).*
- **Access** –
 - *“I used to like going swimming but unfortunately all the public pools...haven’t got steps or kind of a ramp” (R#7)*
- **Temperature** –
 - *“I like the level heat, not extremes” (R#5)*
- **Safety** –
 - *“If you’re hanging on to the countertop you can’t get the same grip on it as you can with the bar” (R#3);*

Psychological Barriers

- **Knowledge** –
 - *“And an exercise bike, would that be good in terms of your muscles?” (R#2)*
- **Motivation**
 - *“If the facilities are there you’ll try and come up with an excuse not to use them even if they’re there” (R#2).*
- **Embarrassment**
 - *“When you’re walking you kinda (sic) wobble and people nearly think you’re drunk” (R#2).*
- **Fear of falling**
 - *“Well, Lack of balance with me but then again it is a fear of falling. I’m fine around at home where I know my territory (participants agreeing and nodding) but if I go onto strange ground I see nobody because I’m watching my every move I take” (R#3).*

Disease Specific

- **Fatigue:**
 - *“I don’t do very much exercise at all really because I’m so tired really” (R#2);*
 - *“The thing is if I go so far, you know walking or whatever with the crutch, then I mightn’t be able to get back” (R#7).*
- **Incontinence**
 - *“Well you have to go the toilet before you go” (R#5);*
 - *“You have to rationalise” (R#1).*
- **Pain:**
 - *“Most people don’t have pain with MS-about 10%.. I’m very conscious of it when I’m walking - go half-way and turn back” (G2, R#5),*
- **Tone:**
 - *“It’s the invisible things like if you walk too long the legs go to into spasm” (G2, R#3).*

What is the effect of exercise?

- Cochrane Review (Reitberg et al 2004)
- Exercise Therapy for Multiple Sclerosis
 - 9 studies, n=260
 - Strong evidence in favour of exercise therapy compared to no exercise therapy in terms of muscle power function, exercise tolerance functions and mobility-related activities.
 - Moderate evidence was found for improving mood.
 - No evidence was observed for exercise therapy on fatigue and perception of handicap when compared to no exercise therapy.
 - No evidence was found that specific exercise therapy programmes were more successful in improving activities and participation than other exercise treatments.
 - No evidence of deleterious effects of exercise therapy was described in included studies.

Since the Cochrane review...

- Garrett & Coote (2009) 19 trials since 2004, EDSS ≤ 6
 - Aerobic exercise
 - 2 to 3 times a week, 55–85% heart rate max, 30 to 60 min, treadmill, static bike,
 - positively influenced fitness, walking speed, gait parameters, disability, fatigue and QoL, no deleterious effects
 - PRE
 - ACSM Guidelines - 2 times a week, 50–80% MVC, or weight increase by 2–5% when 12 reps achieved, 2-3 sets of 12 reps for major groups, 8 weeks > 4 weeks.
 - caused no harm, but no control groups or blinding
 - Combined Exercise
 - 3–4 times a week, 55–70% HRM, 50–70% 1RM, 10 classes over 3 weeks, then HEP
 - Improved strength and fitness, ? Compliance, no deleterious effects

People who use bilateral aids

- Hogan & Coote (2009) 12 studies, EDSS >6
 - Physiotherapy (balance & mobility)
 - Significant improvements in BBS, variability in mobility measures and results, generally no differences between treatments, but motor + sensory balance strategies best
 - Aerobic exercise (EDSS up to 6.5)
 - No improvement in fatigue (FSS), improved QOL, no change in mobility
 - Physio/Aerobic/Combined
 - Combined and physio improved EDSS, all three improved spirometry
 - Resistance training
 - Functional training increased strength but not mobility, ?
 - Yoga
 - No different to exercise, but low intensity of aerobic exercise
 - TTBS
 - $\frac{3}{4}$ improved balance & mobility

What don't we know?

- Outcome of blind, controlled, low bias trials
- Tx specific to mobility levels
- Which tx is best?
- Which tx is best for what symptoms?

- What should the MS Society be providing for its members?

Getting the Balance Right



Tesco Charity of the year 2006

Pobal, Dormant Accounts, Flagship Fund, 2007



Getting the Balance Right

- Stratified by mobility
 - Strand A – at most a stick to walk outside
 - GNDS 0,1,2
 - Strand B – bilateral support, may use wheelchair for longer distances
 - GNDS 3,4
 - (Strand C – non-ambulatory)
 - GNDS 5
 - Block randomised by strand and geographical location
 - Exclusion – relapse or steroids within 3 months, pregnancy, <18

Strand A – Use at most a stick outdoors

Maria Garrett

- Physiotherapy Led Programme for 10 weeks
 - PRE weekly, (increased to bi weekly in week 6),
 - Aerobic exercise, twice weekly (increased to three times in week 6)
- Fitness Instructor Programme
- Yoga Classes
- Control

Conclusions

- Physio and FI programmes have large effect on MSIS Physical score, Yoga has moderate effect
 - Change in physio group is nearly statistically significantly greater than the control group
- All three programmes have moderate effect on MSIS Psychological score,
 - Change in physiotherapy group is statistically greater than that of the control group
- All three programmes have a large effect on fatigue impact
 - Change in physio group is nearly statistically significantly greater than control
- Only Physio and FI programmes had moderate effect on 6MWT distance
 - Approaching significance when compared to control and significantly different to yoga

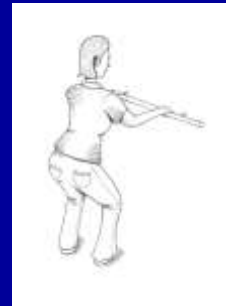
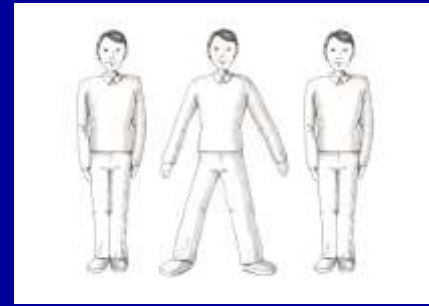
Clinical Implications

- A combined aerobic and PRE programme does not increase risk of relapse
- Being physically active reduces impact of MS and fatigue
- Do people with MS need to be “treated” in a medical model of care?
- Role of peer group???
- Who does best from what?

Strand B – Use bilateral device, may use wheelchair for longer distances

Neasa Hogan

- Group Physiotherapy



- Tailored for individuals level
 - Progressed
- 1:1 Physiotherapy
 - As per assessment
- Yoga
- Control

Conclusions

- People with MS want physiotherapy!
- Physiotherapy exercise, in groups or 1:1 significantly reduces physical impact of MS and fatigue,
 - Only group programmes significantly affected psychological impact of MS
 - There is no significant difference between the methods of delivery
- Physiotherapy and yoga programmes have a significant effect on balance
 - This leads to a reduction in both risk and number of falls
- Physiotherapy interventions increase walking distance in 6 minutes
- Need for comparison of results to a control group

Clinical Implications

- Group v 1:1
- Reduction in falls
 - Cost to person and healthcare system
- Specificity of treatment
- Improvements at impairment, activity and participation levels

- Who does best from what?

Summary

- Exercise for PwMS important due to risk of 2^o cardiovascular risk
- Exercise programmes do not increase risk of relapse
- Barriers exist and should be considered in developing both services and interventions
- Strong evidence base for exercise
- Aerobic and PRE for mild gait impairment
- Strength and Balance for those using walking aids

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Toolkits Available at

<http://www.ms-society.ie/pages/getting-the-balance-right>

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