

Long Term Individual Fitness Enablement

LIFE

Improving physical activity in Long Term conditions and
determining the effectiveness of a Physical Activity
Support System -PASS

LIFE PASS

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6 Buckinghamshire Neurological Alliance

7 Scope

LIFE AIMS

- To encourage and facilitate increased participation in exercise.
- Does providing appropriate support make a difference in attendance?
- 3 Assessments at 0, 3 and 6 months
 - Mobility, questionnaires, strength and power.
- All participants receive – full access to a range of IFI gyms throughout Oxfordshire, supported by IFI fitness instructor and physiotherapist.

- Darzi report 2008
- Prevention
- Greater emphasis will be placed on prevention and the responsibility individuals have themselves.
-‘working with their local partners, every primary care trust will commission comprehensive wellbeing and prevention services’. This continues the change in emphasis over recent times of improving the health and wellbeing of individuals by trying to prevent health episodes occurring and, should they occur, minimising their impact.

Common beliefs on exercise?

- Exercise might make you worse
- Nothing we can do to help

Development of PASS – User Led

- 4 User focus groups and questionnaires
 - Multiple Sclerosis,
 - Muscular Dystrophy,
 - Parkinson's Disease,
 - Motor Neurone Disease
- Themes that emerged from the User groups were categorised into three areas;
 - ‘opinions of physical activity’,
 - ‘barriers to physical activity’,
 - ‘factors that would encourage increased physical activity participation’.

Results

- “Opinions of Physical Activity”
- Helps to focus on positive aspects of disability.
- Social aspect
- Enhances feeling of “normality”
- Condition specific negative aspects of exercising

- “Barriers to Physical Activity”
- Cost - travel/membership
- Access – changing rooms, parking
- Support – confidence in fitness professionals

- “Factors that would increase PA participation”
- Addressing barriers

User Questionnaire Results

Main barriers were:

- staff lack of knowledge of neurological disability,
- staff lack of knowledge of suitable exercises for their condition
- cost,
- suitability of the environment,
- time constraints and lack of personal care support. Half the responders wanted to exercise with people either with their condition or another disability.

•43 of the 80 individuals reported they would like a physiotherapist to support them.

•25 they would like a specially trained fitness professional who had support from a physiotherapist, 9 a fitness professional and,

•8 a trained carer.

What is PASS?

- PASS is a Physical Activity Support System that empowers 'users'.
- What you can expect/want from exercise
- It gives detailed information about exercise and its benefits.
- Information on transport and the gym.
- The role of Physiotherapy and the Fitness Instructor are defined but gym programmes are self determined.

Each participant is measured on the following:

- Walking tests
 - 10 metre walk test
 - 2 minute walk test
 - Xsens – community walking tool validation
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- Muscle tests
 - Hand-held dynamometry – hip flexors
 - Torque transducer for knees flexors, extensors, dorsiflexors and PF
 - Leg extensor power measurement - Leg push.

Continued:

- Questionnaires
- Barthel ADL Index
- SOMC
- Physical Activity Scale for the Elderly – PASE
- PDQ39
- Fatigue Severity Scale
- SF-36

- Physical Activity - Step Activity Monitor
- Worn for 8 days all day and night and tells us how many steps individuals take and when.

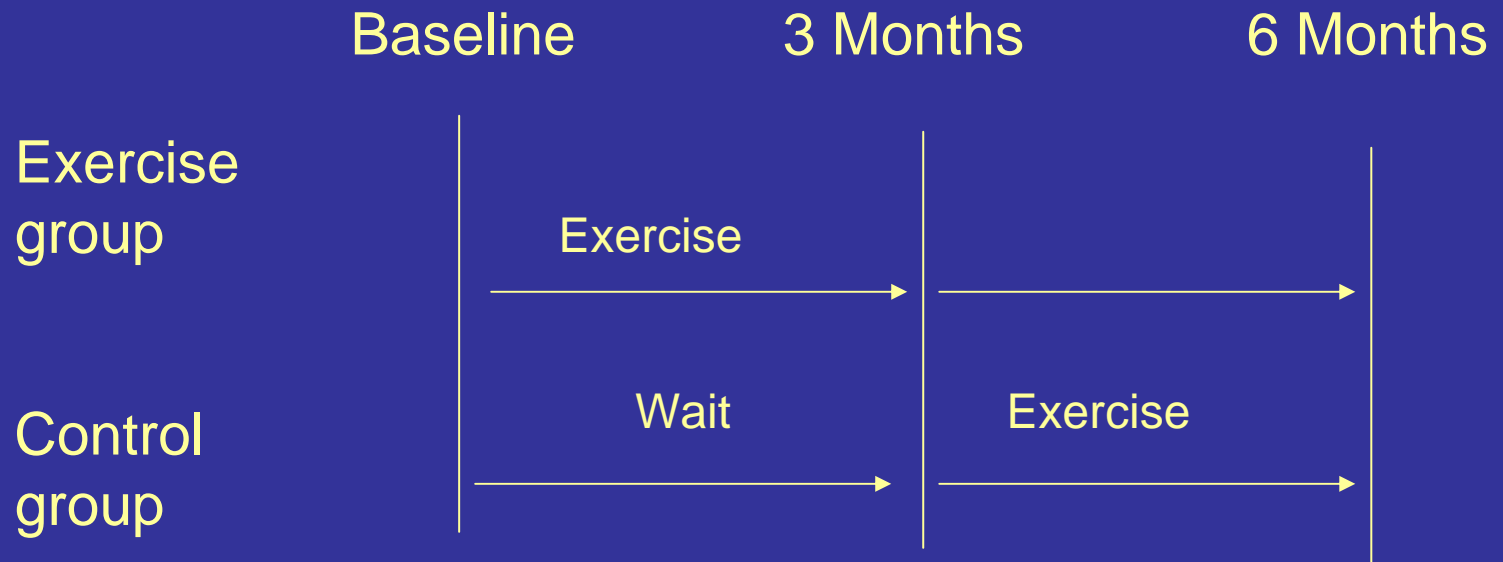
Measures



Methods

Participants randomised into exercise or control group after baseline assessment.

Participants seen for 3 assessments; 0,3 months and 6.



**88 participants recruited through
Consultant neurologists in Oxfordshire and Birmingham**

Assessment 1 Week 0

Randomisation

**N= Group A
Exercise Group
47**

**N= Group B
Control Group
41**

Assessment 2 at 3 months

N= Group A

N= Group B Exercise

**Assessment 3
Week 6 months**

Recruitment

- Recruitment to date: 88
- Pilot MS: 17
- PD-Bham: 12
- PD-Oxf: 21
- MS: 7
- CP: 1
- MND: 7
- MD: 15
- Other: 8 (Leigh's syndrome, Traumatic BI, Transverse Myelitis)

Issues

- Anecdotally participants often continue where the gym cost is affordable and transport is not restricted. PASS is providing an appropriate structure.
- Gym costs are relatively low from £1.90- £3.90 per session in 2 gyms (Carterton and WHLC) to Oxford and Banbury which are £10/week.
- Transport: Taxi's necessary for participants in rural areas or where Octabus or Dial-a-ride not possible.
- Volunteer car services will often only transport to a Doctor or hospital appointment.
- Taxi's can range from £30-£55 per journey in some cases.

Future direction

- Roll out the programme to more people, in a larger area
- The Physical Activity Support System – publication and validation in line with cardiac rehabilitation models.
- Compliance and Efficacy of delivery
 - User views & IFI initiative – community delivery
- Walking and mobility – community walking tool
- Reporting to local government – PCT.
- Physiotherapy Consultant role – support and advice

Inertial Sensing Centre of Mass

- Optical motion camera system
 - Relatively expensive and time consuming
 - Restricted measurement volume
 - Gold standard
- Accelerometer (IMU)
 - Micro Electric-Mechanical System (MEMS)
 - Tri axial Accelerometer, Gyroscope, Magnetometer
 - Lightweight ($\pm 30g$)
 - Wireless
- Gait analysis tool
 - Acceleration, speed and distance
 - Step count and analysis

