

# Exercise for amputees post-physiotherapy: a new project leading to a paradigm shift?

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A patient-led exercise group for amputees has been established in the Manchester area. Manchester Amputee Fitness Initiative (MANFIT) was introduced by Manchester Prosthetic User Group (MPUG) in response to the closure of a hospital-based exercise group. MANFIT, the only fitness scheme of its kind formed exclusively for amputees, commenced gym sessions at MANCAT (Manchester College of Arts and Technology) recently. The scheme was initiated independently of the NHS but approved by staff at the Manchester Disablement Services Centre (DSC), Withington Hospital, South Manchester Hospitals Trust, Manchester.

## Background

To understand the basis for the introduction of MANFIT it is necessary to describe the origins of the group and the reasons for my enthusiasm to continue and to advance it.

The original physiotherapist-led exercise group based at the DSC, met every week. Regrettably, the physiotherapist was needed at Wythenshawe Hospital so eventually the group closed. Eleven of the group continued to meet every

week in a pub but were still keen to exercise. There was much discussion surrounding the closure of the class and the effects upon the group, hence the DSC manager asked if I with MPUG could establish an independently-administered exercise group.

I have a right Proximal Focal Femoral Deficiency (PFFD). After undergoing one of the first ever Van Ness Rotationplasties, a prosthesis was fitted which now has an ischeal containment socket. I have no hip joint and a Trendelenburg gait but have been doing aerobic and body conditioning classes 5 times a week for over 30 years and also maintain a daily exercise and stretching regime. This has enabled me to be optimally mobile with this type of prosthesis. I attempted to establish an amputee aerobic class several years ago and although patients showed considerable interest, I was unsure about how to initiate this as there were no patient-led groups at that time.

## Project Planning

Initially, I consulted with Darren Birch (English Federation for Disability Sport), and Natalie Teniola (Manchester Cultural Learning Officer, Spaces for

Sports and the Arts) to design the scheme. The prospective plan was then taken to the MPUG for discussion. A quick decision to apply for support from the Manchester Impact Fund meant that finances were soon available. The potential venue was changed from Total Fitness and a school gymnasium (because of lack of suitable staff-time) with independent caterers, to the Manchester College of Arts and Technology (MANCAT) fitness suite. This transpired to be fortuitous because MANCAT provides the venue, trained staff, refreshments, publicity and a dining area where people can socialise after the session.

The support of both the DSC staff and MPUG during this time has been unstinting and much appreciated. To attract new recruits, flyers were sent out in the Prosthetic User Group newsletter "Goal", posters were distributed around the DSC and members of staff were made aware of the initiative. Initially, 27 people showed interest (plus the 11 existing members). This has now stabilised at about 20 members with a proportion attending every week.

## Inclusion Criteria

To be eligible to attend MANFIT participants have to meet the following criteria:

- Having undergone an amputation and/or wearing a prosthesis
- 18 years of age or older
- Discharged from DSC physiotherapy
- Declare themselves fit (by signing a declaration)
- Carer to a participant

## MANFIT Sessions

The sessions are well attended (see photographs). Induction to MANCAT's brand new, high-tech fitness suite involves a basic fitness test (BP, BMI, percentage body fat, flexibility) that is periodically repeated and a demonstration of the machines and how they can be converted for any disability. The MANCAT suite is an exercise referral gymnasium and the staff (who include two dedicated trainers for each MANFIT session) are expert in helping people with disabilities and display great understanding of their needs.

Members' ages range from early 20's to over 70. Participants exhibit many different types of amputation: examples range from less serious upper digital to unilateral transhumeral, bilateral transtibial and hind-quarter amputation. All members, whether prosthesis wearers or wheelchair users, express their enjoyment and determination to carry on exercising.

The gym sessions are free, exclusive and take place weekly. Finance is supplied for those without cars (or lifts) for as long as funding lasts. Cohesion amongst members is soon established and logo tee shirts are worn as an expression of camaraderie. The one-hour gym sessions are followed by lunch in the friendly, integrated restaurant where tokens are accepted in exchange for a meal if desired.

When participants are fit and confident enough they will be encouraged to join integrated gym sessions at MANCAT or a sports centre of their choice. However, as some people may wish to stay in an exclusive group, an intermediate group will be initiated for those not wanting to move on. This would enable new people to join the first group.

The evaluatory period is now over and the project is very dynamic. Newspaper, internet articles and a website have been produced ([www.manfit.org](http://www.manfit.org)). Further funding is being sought with long-term funding being the aim. The project is evolving as people's requirements are revealed. One idea is to start a swimming group. An evaluatory survey is soon to be done to discover how the scheme can be improved.

## Discussion

It is well documented that exercise enables people to walk better and further by improving strength, stamina, flexibility and balance besides being good for general health and feeling of wellbeing though the release of endorphins and interaction with other people. MANFIT provides all these aspects and people confirm that they benefit from the sessions and enjoy the social side of the initiative. MANFIT's ultimate aim is to give the participants confidence to get/keep fit and ultimately to integrate into sports centres thus removing some of the barriers<sup>1,2</sup> that prevent people with disabilities from taking exercise. It has been shown that for full physical functioning to take place community participation is essential especially for the elderly<sup>3</sup> hence moving on is desirable and would address this need.

My ultimate aim is that schemes such as MANFIT will run alongside an NHS-prescribed daily exercise/stretching regime for each patient. I have found this to be essential to my mobility and wellbeing (as detailed above) but

its effectiveness is epitomised by Steve McNeice who is a bilateral transfemoral amputee and is able to walk unaided, strongly with a good gait. He has coined the phrase Lifelong Amputee Programme (LAP)<sup>4</sup> for this exercise/lifestyle regime.<sup>5</sup>

Steve and I both experience the life-changing/enhancing effects of a daily regime. My objective is to ensure that every patient, whatever their age and health, is given this chance to optimise the use of his or her prosthesis. This would involve the introduction of exercise regime tailored to each patient's age and fitness following routine physiotherapy.

There is copious evidence supporting this notion. Physical activity is essential, especially for elderly people, as it has been proved that mobility improves stability and prevents falling<sup>6</sup>. In mid-life physical activity leads to improved physical function<sup>7</sup> improves hip-fracture outcome in the elderly<sup>8</sup> (where it has been found that moderate to high intensity exercise can be used), prevents cognitive decline<sup>9</sup> and depression<sup>10</sup> and also decreases the risk of all-cause mortality in elderly people.<sup>11</sup>

The required level of fitness for successful prosthetic ambulation in the elderly is measurable<sup>12</sup> and age alone is not an important factor.<sup>13</sup> However, research has shown that amputees are usually less fit than their able-bodied counterparts<sup>14</sup> and that a year after prosthetic provision for unilateral transtibial and transfemoral amputees mobility worsens with increasing age at amputation and a higher level of amputation.<sup>15</sup> Nevertheless, it has been found that various types of exercise improve amputees' physical fitness.<sup>16-19</sup> Endurance training on a cycle ergometer upgraded unfit amputees' fitness levels to those of able-bodied equivalents<sup>14,16</sup> and strength can also be improved using adapted machines.<sup>16,17</sup> Excess body weight

is a problematic for amputees' efficient and comfortable prosthesis operation. A body mass index of less than 25 is desirable. It has been shown that obesity and metabolic disorders following amputation can be ameliorated using physical activities such as swimming and exercise machines.<sup>16,18</sup> The addition of a dietary regime may be advisable for some people, besides increased physical activity.

To put this evidence into practice it is suggested that each patient could be encouraged to follow a two part scheme: attend a MANFIT-type weekly exercise session and observe a daily exercise/stretching regime. The former complies with recommendations in an audit of the Clinical Guidelines for the Physiotherapy Management of Adults with Lower Limb Prostheses<sup>20</sup> for encouraging hobbies, sport and social activities (4.14) and both parts empower patients and carers to take control of their lives by keeping to the programme and applying their improved strength, mobility and confidence to everyday life (5). Expected levels of function and mobility, reduction in function compared with bipedal individuals and energy costs will all be improved (5.4.1-5.4.4). Both sections of the programme fit the recommended information available to amputees on support groups, health promotion and sporting and leisure activities (5.6.5).

The programme could involve, for example, stretching in the morning and exercises and stretching at night primarily aimed at maximising core stability<sup>5</sup> but also increasing muscle power surrounding the amputated limb. Assessment at the end of a specified time (which has been recommended through research<sup>21</sup>) would indicate whether the patient should be encouraged to take up further gym sessions, attempt other

sports, or simply maintain a gentle exercise regime at home. This would take place concurrently with the prescribed daily schedule. Hence, the person would be supplied with a prosthesis together with a regimen prescription which should not be changed if they want optimum use from their prosthesis.

Evidence shows that following a lower limb amputation people want to take advantage of new opportunities such as participation in new sports and hobbies<sup>22</sup> and that self-esteem is enhanced by discovering physical abilities. This study<sup>22</sup> also demonstrated that amputees unanimously valued the social support of meeting other amputees particularly those demonstrating that rehabilitation is possible and for exchange of information and positive modelling.<sup>22</sup> Moreover, it was felt that there was a lack of ongoing rehabilitation services and detachment from longer-term needs.<sup>22</sup> Negative feelings were felt about body image following amputation among this cohort.<sup>22</sup> A MANFIT-type programme would address all these findings. The gym sessions address the need for new sports and physical abilities, meeting other participants for social support and both sections of the programme tackle the longer-term needs for rehabilitation and improved body image that accompanies fitness.

### Conclusion

MANFIT, a patient-led exercise group, has been established to enable amputees to get and keep fit. Sessions are well-attended and participants report physical, psychological and social benefits which are supported by documented evidence. A suggested development is that in conjunction with gym sessions a daily exercise regime may be supplied prescriptively for all patients alongside prosthesis supply and fitting.

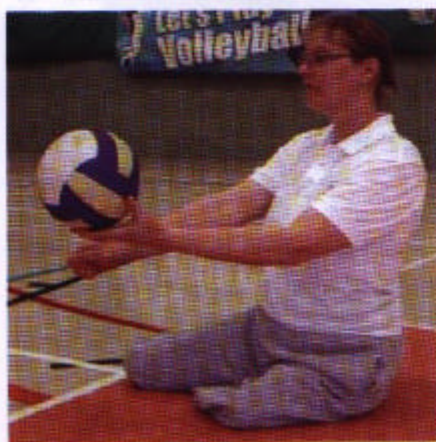
If anybody is interested in joining MANFIT please call Margaret Tyson on 01457 854604/07776 181180 or email [info@manfit.org](mailto:info@manfit.org).

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## Sitting Volleyball



After a 12yr absence, Sitting Volleyball is making a comeback to the UK thanks to a hard working group of enthusiasts, support from the British Volleyball Federation and funding from UK Sport.

Sitting volleyball is similar to standing volleyball, and only differs in that the participants sit directly on the floor, the court is smaller and made of specialist matting, and the net is lower. Absolutely anyone can play, but the sport is ideal for people with a lower limb amputation or deformity, and individuals recovering from leg injuries or undergoing rehab. For these people, one the benefits of the sport provides an opportunity to exercise without the risks associated with 'wear-and-tear' on the stump from prosthesis, especially for those with sensitive wounds. Other benefits include; increased core stability, and reduces the risks of playing sport for those with poor balance.

In today's society, we are all too aware of the importance of keeping fit and

staying active, and Sitting Volleyball does provide an alternative for all ages. The sport is suitable for recreational training to increase general strength and mobility, through to competition, where the advice from the experts is "sitting is not resting" as the game proves to be a fast and furious one.

Current areas of activity around the country are in; Kent, London, Cambridge, Suffolk and Essex. If you would like more information, please contact Kent's Disability Sports Officer, Sarah Philpott on 01303 277539 or email [sarah.philpott@pent-valley.kent.sch.uk](mailto:sarah.philpott@pent-valley.kent.sch.uk) or Kent's Volleyball Development Officer, Tom Middleton on 07710 772533.