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**INVESTIGATING REQUIREMENTS FOR
TRUE INCLUSIVITY IN PLAYGROUNDS**

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Investigating requirements for true inclusivity on playgrounds

Hannah Moore, 2006

Abstract:

Context: Playgrounds form versatile physical training environments for children as well as providing valuable opportunities for social interaction and learning. Recent evidence suggests that playground use can also benefit older adults, improving functional fitness in areas such as balance and co-ordination as well as providing social interaction. However, playgrounds are not designed for adult use. In order to facilitate use and capitalize on the potential benefits, an understanding of what is required by older adults is needed.

Aims: This project aims to investigate how playgrounds can be made more inclusive, to support greater use and thus be of greater benefit to all potential users. It further seeks to formulate basic ergonomic guidelines to assist play providers and equipment manufacturers in creating truly inclusive playgrounds. As guidelines to aid inclusivity for children and adult carers with impairments have already published, this project will focus on inclusivity for older adults.

Method: A flexible, qualitative approach was used. Because there is scant published literature regarding playgrounds for older adults, a questionnaire was used to survey members of the International Play Association seeking existing knowledge and professional opinion on the issue. Opinion was also sought from other stake holders including those responsible for playground provision.

Initially, unstructured interviews with older adults were used to identify issues of importance. These were then used as an evolving framework for six discussion groups. An analysis of data gathered to this point led to the development of a series of questions on which to base semi-structured interviews. The combined data from discussion groups and interviews, together with existing anthropometric data was then used to generate a set of guidelines for creating inclusive playground provision for older adults.

Results: Semi-structured interview data showed that 72% of the older adult sample would be willing to use at least one item of playground equipment. Through discussion groups and interviews a number of important themes were identified regarding both equipment and social issues and from these a set of basic ergonomic guidelines was created. Key factors were knowing equipment was designed for adult sizes and weights, and being in a supervised and controlled environment. An audit of existing playgrounds within a one kilometre radius of a central residential point showed that current provision lacked inclusivity.

Conclusion: Though further investigation is required using techniques such as user trials and observation, there are a number of changes that could be made to playground provision in order to include older adults, and these changes would be likely to enhance playgrounds for all users. The costs associated with improved provision have the potential to be counterbalanced by benefits in terms of improved health and fitness.

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Chapter One: Introduction

The world's population is aging, with the number of people over the age of 60 worldwide expected to double over the next 20 years (World Health Organisation, 2002). Advanced age is commonly associated with a range of health problems, including increased incidence of cardiovascular disease, cancers, diabetes and musculo-skeletal disorders, as well as increasing functional impairments such as falling and cognitive decline. In a population with a growing proportion of older adults, the burden, in terms of financial, social and quality of life costs, has the potential to be enormous. However there is a wealth of evidence to suggest that practicing an assortment of activities to promote fitness, including strength, balance and co-ordination training, can reduce disease and disability levels and associated spending.

The importance of increasing levels of physical activity is recognised in the National Service Framework for Older People published by the Department of Health (2001a), which advocates the creation of policies to provide “age friendly environments and intergenerational solidarity”, and promote activity in those who are inactive through provision of “accessible, pleasant and affordable opportunities to be active”. Playgrounds may fulfill many of these requirements. Cheap or free to attend, a well designed and maintained playground should be accessible, pleasant and promote intergenerational solidarity. Further, the variety of physical activities involved in negotiating a playground promotes a range of exercise types. A study conducted at the University of Lapland has found that for a group of 65-81 year olds, balance, speed, co-ordination and reported mental health all improved after three months of using playground equipment. Participants also valued the social interaction this form of exercise involved, and said that they hoped to see playgrounds for people of all ages become widespread.

However, the potential benefits of older adults using playground equipment cannot be realized unless playground provision is appropriate to older people, and play providers are unlikely to consider playground provision for older people without evidence that it would prove worthwhile. The University of Lapland study provided evidence attesting to the health benefits of playground use. The purpose of this research was to determine the extent to which such provision would be used, and the components which would enable and encourage use.

The aim of the project was to investigate how playgrounds can be made more inclusive, to support greater use and thus be of greater benefit to all potential users, and to formulate

basic ergonomic guidelines to assist play providers and equipment manufacturers in creating truly inclusive playgrounds.

In light of the the Disability Discrimination Act, guidelines have already been issued by both the Royal Society for the Prevention of Accidents (RoSPA) and the National Playing Fields Association regarding inclusivity in playground provision for children and adult carers with disabilities. This project aimed to expand the understanding of inclusivity to encompass people throughout the lifespan.

Contact with RoSPA during the formulation of a research proposal revealed a common interest in the investigation of inclusion of older adults in playground design, and support for the project was offered by both RoSPA and the International Play Association (IPA).

Chapter Two: Literature Review

The World Health Organization (WHO, 2002) now estimates that there are 600 million people aged 60 and over worldwide. This number is expected to increase to 1.2 billion by 2025, with that figure rising to 2 billion by 2050. In the developed world, the eighty and over age group is the fastest growing population group and in Europe alone, within the next ten years it is estimated that one in five people will be aged over 65 (Disability Rights Commission, 2003).

For the purpose of delineating the life stages of adulthood and older adulthood, the United Nations defines “older people” as those over 60, though it must be acknowledged that chronological age is not an accurate marker of the effects of old age. Though the process of ageing is characterized by the British Standards Institute (British Standards Institute, 2005) as “the acquisition of progressive multiple minor impairments predominantly related to sight, hearing, dexterity, mobility and cognition”, these changes most often occur gradually over many years, and people experience advancing age in different ways and at different paces (WHO, 2002). Nevertheless, as age increases, so too does the incidence of non-communicable diseases (NCD’s) such as heart disease and cancer. As people age, these NCD’s become not only the principle cause of burden of disease, overtaking from communicable diseases and injury from midlife (age 45) and onwards, but also the principle cause of mortality. In the World Health Report “Life in the 21st Century: A Vision for All” (WHO, 1998), cardiovascular disease, hypertension, stroke, diabetes, cancer, chronic obstructive pulmonary disease, musculoskeletal conditions such as arthritis and osteoporosis, mental health conditions such as dementia and depression and blindness and visual impairment are listed as the major NCD’s experienced by older people. These diseases have a huge impact on the quality of life of those affected, including their families and communities and, in an increasingly aging population, the financial and social resource costs they create could prove unsustainable.

However, many of these conditions can be prevented, delayed or even reversed (Caldwell 1996). As well as improvements to the external and environmental conditions in which we live, lifestyle factors such as smoking, drinking, diet and physical activity can have a profound effect on the rate of functional decline as age increases, with positive changes serving to slow or even reverse this process at any age. Physical activity, defined as “any bodily movement produced by skeletal muscles which results in energy expenditure”

(Nieman 2003 *In*: Schutzer & Graves 2004), is widely recognized to have beneficial effects, including increased life expectancy and reduced risk of hypotension, coronary heart disease, cerebrovascular accidents, diabetes and hip fractures (Lawlor & Hanratty 2001 *In*: Thurston & Green 2004), the control of obesity (National Audit Office, 2001 *In*: Thurston & Green, 2004), and positive mental health (Biddle, Fox & Boutcher, 2000 *In*: Thurston & Green, 2004), with the Surgeon General's 1996 Report on Physical Activity and Health citing participation and maintenance of regular physical activity as one of the most important behaviours in preventing or reducing many chronic diseases (U.S. Department of Health and Human Services, 1996 *In*: Thurston & Green, 2004). This knowledge is reflected in government policy documents (Department of Health (DoH) 1995; DoH 1998; DoH 1999; DoH 2000a; DoH 2000b; DoH 2001a; DoH 2002a; all as quoted in Thurston and Green 2004).

These positive effects are not limited to those who improve their physical activity in youth or middle age, or indeed whilst still in good health. For example, several studies have shown that sufficient aerobic exercise started even at the age of 60 can increase life expectancy by 1 -2 years, improve functional independence and have other quality of life benefits (Department of Health 2001a, Rooney 1993, Health Education Authority 1999, Young 2001 *In*: Thurston & Green, 2004). Young (2001) saw improved mobility, balance and co-ordination in older people who complied with an exercise prescription, and Merz & Forrester (1997) found that even amongst people with established heart disease, regular moderate physical activity reduced the risk of cardiac death by 20 to 25 percent. Crombie, Irvine, Williams, McGonns, Slane, Alder & McMurdo (2004) report studies showing improved fitness and quality of life, prevention of osteoporosis, reduced risk of falling, reduced death from cardiovascular disease and improved cardiovascular risk profile in older people as a result of regular physical activity. Gaub, Prost, Bomar, Farid, Langland & Brown (2004) report a case study in which a balance and flexibility intervention was efficacious for a woman even at the age of 101 after illness, near death and prolonged inactivity. Obesity is an increasing health problem for all ages, including the elderly. According to the National Institute of Clinical Excellence (2004), rates of overweight and obesity in England have nearly trebled over the last 20 years, with obesity increasing with age, and carrying with it many increased health risks such as diabetes, heart disease, cancers and osteoarthritis. This rise in the levels of obesity is also being seen in children, highlighting the need to encourage increased physical activity for all ages. Mazzeo & Tanaka (2001) suggest that exercise programs, even for those who have not been active

for much of their lives, help older people to accumulate less fat and improve their blood-sugar regulation and blood pressure. Indeed Young & Dinan (2005) report that in percentage terms, the improvements seen in elderly people with increased activity are similar to those seen in young people. There is even evidence to suggest that physical activity can increase the effectiveness of flu vaccines in older people (Schuler, Leblanc & Marzilli 2003, Kohut, Arntson, Lee, Rozeboom, Yoon, Cunnick & McElhaney 2004). Yet the prevalence of inactivity is highest amongst those aged 65 and older (US Department of Health and Human Services 1996), which given the increasing risks of NCD's in older people, and the growth in the proportion of older adults in populations worldwide, is of some concern.

According to WHO data is increasingly indicating that it is the disability and poor health which often accompany old age, rather than old age itself, which is associated with increased medical and social care costs. Indeed Cutler (2001) suggests that the USA could reduce medical spending by 20% over the next fifty years by reducing disability rates, and WHO have found (WHO 1998) that medical costs for older people who are active are substantially lower than for those who are not. It should, then, be a priority when developing public policy to enable and encourage positive change in factors which can improve health throughout the lifespan, including physical activity. Indeed the National Service Framework for Older People (DoH 2001a) state an intention to provide more opportunities for older people to increase their levels of activity.

In 2002, The World Health Organization published "Active Aging: A Policy Framework" saying that "if aging is to be a positive experience, longer life must be accompanied by continuing opportunities for health, participation and security." The term "Active Aging", adopted by WHO in the late 1990's, reflects that there are many factors which affect the way people age, so that the concept of active aging refers not just to physical activity but to active participation in a range of aspects of society, the aim being to achieve "extended healthy life expectancy" and create gains in quality of life for an aging population. This recognizes older people as active participants in society, with rights to equality of treatment and opportunity, rather than passive targets of the policies which affect them. Active ageing policies, according to the Policy Framework, should "balance personal responsibility (self-care), age-friendly environments and intergenerational solidarity." In terms of physical activity, the aim is very simple – to encourage those who are inactive, in developed countries often those with low incomes and existing disabilities, to become

more active, and to provide them with the opportunities to do so, notably through the provision of “accessible, pleasant and affordable opportunities to be active”.

Much is already known about the types of activities which may benefit older people and help to counter some of the declines in performance commonly associated with age. According to WHO (WHO 2002) though there are cognitive declines in learning speed and memory associated with aging, declines may often be triggered by factors such as disuse, depression, lack of confidence, low expectations, loneliness and isolation, which might be avoided. Weuve, Kang, Manson, Breteler, Ware & Grodstein (2004) studied the cognition, memory and attention of 18766 women aged 70 – 81 over the long-term and found that those who were involved in long term regular physical activity had better cognitive function and less cognitive decline. Verghese et al (2003 *In: National Toy Council 2005*) found that increased leisure activity was associated with decreased risk of dementia, and Upton (2004) suggests that Tai Chi helps to combat age related declines in reaction time and the ability to focus on multiple tasks as well as improving self confidence, balance, flexibility, range of motion, gait, strength, posture, co-ordination, agility, arthritis related pain and stiffness, blood pressure and cardiovascular fitness. Yaffe et al (2001) followed nearly 6000 women over six to eight years and found that 24% of the women in the lowest quartile of physical activity developed cognitive decline (as including concentration, language and memory) compared to only 17% of women in the highest quartiles, with women who took a greater amount of exercise being 26 – 34% less likely to show decline than their inactive counterparts. Yaffe et al measured a 14% reduced risk of cognitive decline with every 1700 kcal expended in physical activity each week. Physical activity can also affect mental health, with a review of existing literature (Fine 2000) suggesting an inverse correlation between depression and leisure activity, whether that be physical or sedentary activity.

Ageing is associated with sarcopenia, or loss of muscle mass, and with it, a loss of maximal muscle strength (Lindle, Metter, Lynch, Flegg, Fozard, Tobin, Roy & Hurley 1997), which declines at a rate of about 1.5% per year (Skelton, Greig, Davies & Young 1994), with women in their 70's retaining only 40-50% of their handgrip strength (MacLennan, Hall, Timothy & Robinson 1980 *In: Skelton & Beyer 2003*). Young & Dinan (2005), report the findings of the English National Fitness Survey, which show that nearly half of women and 15% of men in the 70 to 74 age group do not have a sufficient strength to weight ratio to be confident of being able to mount a 30cm step without a hand

rail. Muscle power is also important as it is the ability to exert a high force quickly which helps us to rise from seated, climb stairs or rebalance to avoid falling. Skelton (2001) suggests that explosive power is crucial to correcting a movement error. Power was found by Skelton et al (1994) to decline at a rate of around 3.5% per year, and it is possible that healthy women in their 70s retain as little as 26% of the muscle power they had as young adults (Bosco & Komi 1980). That disuse of muscles produces reduction in muscle mass, strength and power in younger people (Appell 1990 *In: Skelton & Beyer 2003*, Bloomfield 1997 *In: Skelton & Beyer 2003*) suggests that sarcopenia in older people may in part be due to disuse, which would indicate physical activity is of crucial importance in reducing the extent to which muscle strength is lost. Studies show that muscle strength can be improved even in very elderly people by using high intensity resistance training (Fiatarone, Marks, Ryan, Meredith, Lipsitz & Evans 1990, Charette, McEvoy, Pyka, Snow-Harter, Guido, Wiswell & Marcus 1991, Skelton, Young, Greig & Malbut 1995) and strength training (Skelton et al 1995). However studies vary in training intensity used, training periods, frequency and volume of training, such that it is difficult to draw firm conclusions (Skelton & Beyer 2003) about the training required to produce an effect. Skelton & Beyer suggest also that strength training must be combined with more functional training in order to produce more functional gains in both non-frail elderly (Lord, Lloyd, Nirui, Raymond, Williams & Stewart 1996, Skelton & McLaughlin 1996) and frail elderly (Hauer, Rost, Rutschle, Opitz, Specht, Bartsch, Oster & Schlierf 2001).

Hip fractures are also a problem for older people, with almost 90% of hip fractures resulting from falls (Grisso, Kelsey, Strom, Chiu, Maislin, O'Brien, Hoffman & Kaplan 1997), yet wrist fractures are less common for older people with slowed reaction times, as they are less likely to extend an arm to break a fall. 14000 people die each year as a result of osteoporotic hip fractures (Department of Health 2001a). Skeletal problems like bone density loss and osteoarthritis are disorders associated with ageing which again, can be aided by physical activity. Penninx et al (2001) found that older adults with osteoarthritis in the knees had a 40% (resistance exercise condition) to 47% (aerobic exercise condition) reduced risk of activities of daily living disability when compared to a non-exercise control group. Bone loss can occur due to immobility (Frost 1990, *In: Skelton and Beyer 2003*) and again, exercise can help slow or even reverse the loss of bone in old age. Both weight bearing exercises such as jogging (Kohrt, Sneald, Slatopolsky & Birge 1995, cited in Skelton & Beyer 2003) or exercise classes (Welsh & Rutherford 1996) can help reverse bone density loss, however walking, a preferred method of exercise for older

people (Booth et al 1997), serves only to maintain bone density, rather than to improve it (Rutherford 1999). For this reason, older people would benefit from exercises that add weight bearing elements into activity. Sharp (1998) reports on work showing that astronauts in a weightless environment provided with equipment designed to create weight bearing exercise continued to lose bone density. However, he goes on to report evidence suggesting that when weight bearing is combined with sudden stressful movements such as jumping or running up and down stairs, bone density does increase. Evidently it is crucial to create exercise opportunities that encourage a range of different types of activity for maximal benefit.

Physical activity may also bring with it a fear of falling and injury for older people. Falling is a common problem for older adults, and tends to occur with activities of daily living (Tinetti, Speechley & Ginter 1988 *In: Schermer 2002*), with around 30% of people over the age of 65 who live independently falling each year (Simpson & Salkin 1993 cited in McQueen, 2003; Howland, Walker-Peterson, Levin, Fried, Pordon & Bak 1993) – about 20% of these falls require medical attention, and less than 10% lead to fractures (Gillespie, Gillespie, Robertson, Lamb, Cumming & Rowe 2003 cited in WHO 1994). Falls account for 29% of deaths from injury amongst people aged 65 and over (Centers for Disease Control and Prevention 2002) and in 2002, 77% of deaths from falls in the UK were in people over the age of 65, with over half of fall deaths occurring in those over the age of 80 (Accidental Deaths in the UK 2002). Falls amongst the over 65 age group account for 10% of the total London Ambulance Workload (Halter, Close, Elrick., Brain & Swift 2000 *In: Skelton & Beyer 2003*), though 40% of these people are simply picked up, with no requirement to be taken to hospital. Skelton (2001) suggests that for many people, it is not injury but lack of fitness which prevents them from getting up.

Risk factors for falls are classified as intrinsic factors – factors intrinsic to the individual, and extrinsic factors, or environmental factors which increase the risk of falling. Falls among people under 75 are more likely to be due to extrinsic factors, while falls in the over 80 group are more likely to be due to intrinsic factors (Feder, Cryer, Donovan and Carter 2000). WHO (2004), suggest that key extrinsic risk factors are things like loose carpets, clutter and slippery surfaces – while these hazards are identified for the home, the principle of designing spaces for older people free of trip and slip hazards holds true for the design of public spaces. Rubenstein and Josephson (2002 *In: Kenny & O'Shea 2002*) reviewed sixteen studies looking at the risk factors involved in falling and found that

muscle weakness, history of falls, gait deficit, balance deficit, use of assistive devices, arthritis, impaired activities of daily living, depression, cognitive impairment, and being aged over 80 were the most important factors involved, with the risk increasing as the number of factors increases. Fear of falling can be a significant problem for older people and leads to increasingly restrictive activity behaviour, further reducing physical fitness (Walker & Howland 1991 *In: McQueen 2003*, Nevitt, Cummings, Kidd & Black 1989 *In: Howland et al 2003*).

Skelton & Beyer (2003) refer to a cross-sectional study which shows a close positive association between postural stability and the amount of physical activity reported (Brooke-Wavell, Athersmith, Jones & Masud 1998), suggesting that being active can reduce the risk of falling. Studies have shown that for younger community dwelling fallers, exercise programmes targeting balance, strength, power, gait, endurance, flexibility, co-ordination and reaction are effective in reducing the risk of falling, (Skelton & Beyer 2003), however the authors point to evidence that many general forms of exercise such as walking (Pereira, Kriska, Day, Cauley, LaPorte & Kuller 1998), seated exercise work, or exercise concentrating on strength and endurance rather than balance (Gillespie et al 2003, Kerschan, Alacamlioglu, Kollmitzer, Wober, Kaider, Hartard, Ghanem & Preisinger 1998) do not appear effective at reducing falls, although they may have other benefits. Instead, Skelton and Beyer suggest that balance exercise, focusing on strengthening ankle and leg muscles and practicing balance specific functional tasks and weight transfer skills is more effective (Campbell, Robertson, Gardner, Norton, Tilyard & Buchner 1997). Young & Dinan (2005) suggest that exercise sessions to improve functional independence should include such activities as moving from sitting to standing and from standing to lying, and crawling, all actions which are potentially used on a playground. In a study of the effects of exercise on balance, mobility and postural reflexes in patients with chronic stroke, Dawson, Eng, Gylfadottir, Harris, Inglis & Marigold (2005), found that older people in an agility exercise condition showed greater improvement on measures of postural reflex than those in a stretching and weight shifting group, though improvements were seen in both groups. Skelton & Beyer (2005) conclude that activity designed to reduce falls must target balance, strength, co-ordination and reaction times, with weight resisted exercise also necessary for reducing fractures. They also highlight opportunities for socialisation and fun as vital components of exercise programmes, features of exercise for older people which are also recommended by Young & Dinan (2005). Strength and balance training is now recommended by the National

Institute of Clinical Excellence (NICE 2004) as an part of an intervention for falls, suggesting that those most likely to benefit are community dwelling people with a history of recurrent falls or balance or gait problems. NICE do recommend that such a programme be individually prescribed. However, due to lack of evidence for its efficacy, and indeed suggestion of it creating increased risk, brisk walking is not recommended as an intervention for falls. Untargeted group exercise, though not to be discouraged, is also not recommended as falls intervention, lacking as it does the element of individual prescription.

Of course, much physical activity increases the risk of falling by requiring a displacement of the body's centre of gravity. According to Skelton (2001), evidence suggests that there is a U-shaped association between activity and falling, with the most and least active both being more prone to falls than the moderately active (O'Loughlin, Robitaille, Boivin & Suissa 1993, Gregg, Pereira & Caspersen 2000). Skelton suggests that the existing evidence for reducing the risk of falls through exercise is flawed and thus inconclusive, but points towards the necessity of targeting balance exercise itself. For example, one meta-analysis of a large series of trials (Province, Hadley, Hornbrook et al 1995) found an overall 10% reduction in fall risk, however trials concentrating on balance training achieved a 25% risk reduction, with a Tai Chi trial seeing a 47.5% delay in onset of falls, possibly due to its ability to raise confidence as well as offer a combination of controlled muscular movements together with head and eye position changes.

Pahtaja, Hämäläinen & Leppänen (2006), in their report of a recent study conducted at the Rovaniemi University of Applied Sciences in Finland, suggest that balance exercises can help reduce the risk of falling and the ramifications involved (Spiriduso 1995 *In: Pahtaja et al 2006*), but that the effect of strength exercises are more clear, and the results of balance and muscle exercises, involving dancing, walking at different speeds and in combination with head and body movements, and weight transfer exercises while sitting and standing, have yielded good results (Heikkinen 2002, Era 1997, both cited in Pahtaja et al 2006). They argue that exercising on a playground could provide this beneficial type of versatile training to increase control of the whole body.

It is widely accepted that play is a vital part of the development of children, supporting their physical, cognitive, social and emotional development (Rogers 1990, cited in Hämäläinen & Pahtaja 2006; Frost 1997 cited in Frost 2006), with playgrounds

encouraging a range of motor behaviours and development (Beckwith 1985, *In: Frost 2006*), and providing opportunities for physical activities such as climbing, sliding, balancing and swinging, which contribute to strength, flexibility and co-ordination (Frost, Brown, Sutterby & Thornton 2004, *In: Frost 2006*) but there is little current data about the use of playground facilities by older adults. Accident statistics held by the Royal Society for the Prevention of Accidents estimate that in 2002, 307 accidents to older people occurred on public playgrounds. When compared with 2234 accidents to people between the ages of 19 and 56, and 36081 to people aged 18 and under, it is not a large number, however it shows that both adults and older adults do use playground equipment.

The Smartus study at the Rovaniemi University of Applied Sciences is the only academic literature found on the specific topic of older adults and playground use. The research has not been formally published and the two English language descriptions of it contained some inconsistencies with regard numbers and ages of participants, though the results were consistent across the two papers. The research contains two strands, one dealing with collaborative playing and moving with seniors and children exercising together, and the other focusing on older people involved in an exercise programme in which use of playground equipment played a part. The participants in this exercise group were self-selected, responding to a newspaper advertisement, and this must be born in mind when assessing the findings of the study as it introduces a source of bias to the results. It is very possible that older people who were either not interested in the study, or indeed do not read a newspaper, would have different outcomes to those who first saw the advertisement and then elected to become involved. Two gave up after the first session – one due to back problems and one considered her physical condition too poor. Another later gave up due to transport problems. The playground was only one of a number of activities used, including ball games, musical chairs, leading each other blindfolded, and balance exercises utilising equipment such as walking blocks and trampolines, muscle strengthening exercises and stretching exercises.

Intermediate measurements for the exercise group taken after three months of weekly 75 minute exercise sessions, plus unsupervised home exercise, showed no changes in body composition (weight, fat mass, weight index and muscular mass), however there was some improvement in the sway score, most notably that part of the test which related to the vestibular system, as well as improvements in walking speed time, both the time taken for the functional balance test, and the resultant score, and personal assessment of balance. Ultimately, the study found significant improvements in overall balance, vestibular and

visual sensors and ability to function, as opposed to a control group who showed no significant changes in balance and ability to function tests. There was also significant improvement in performance time and lap time on the play track. The ten metre walking time did not show significant difference between initial and final times, with an improvement of only 0.13 seconds, however it is worth noting that the times for the control group worsened over the same period by 0.29 seconds, suggesting again that exercise is valuable as it may have a maintenance effect even where there is negligible improvement. The credibility of the playground as a useful environment for older adults to exercise in was further supported by the fact that scores on measures taken using the motor co-ordination track (i.e., the playground equipment used) correlated with almost all the conventional tests used to assess balance and ability to function. Pahtaja et al (2006) argue that if the playground serves to measure balance and ability to function, it must also exercise these characteristics, and thus the use of playgrounds by older adults could have a positive impact on health.

Written feedback from questionnaires given to the participants suggested that one of the most important factors of the exercise was the regular social interaction – people felt both that it was more fun to exercise together, and that the exercises were more effective. Belonging to a group, being accepted for what they were, and getting emotional and physical support from fellow exercisers were considered very important. They also felt that their physical and emotional experiences were positive. The participants thought that of all the exercise methods involved in the research, the playground best enabled them to safely test their personal limits, providing a “demanding and developing environment for the body”. Approval for the idea of playgrounds as environments in which older adults can exercise was also shown by the fact that participants hoped to see common playgrounds for people of all ages, citing the location, architecture, colours and designs as factors which add to the attraction of going there. Having instructions about how to use the equipment, and “permission” to go to the playground, were also important. This suggests that playgrounds suitable for use by older people may be both welcome and beneficial.

Moto+, as part of the Smartus project, also set out to examine the effects of collaborative playing and moving with children and older people exercising together and to clarify the possibilities of playgrounds serving as a “moving and playing arena for different age groups”. Seniors and children were interviewed before starting the practice, and

observation, including self-completed forms for the older people, continued throughout the study. A total of 66 older adults, aged between 56 and 81 years took part in the two studies, with 23 56 – 78 year olds involved in play groups, and 43 60 – 81 year olds involved in the exercising groups. The majority of participants across the two groups were under the age of 75, with only a little over ten (exact numbers not available) over this age. In the playgroup part of the study, 90% of participants were under 75. The vast majority were also female. Only 10 participants overall had no grand children. Around nine (again, numbers approximate as exact figures unavailable at this time) participants rated their health as very good, with the median rating being “quite good”, about 20 rating their health as average and only one or two saying it was quite bad. All participants rated their mental activity level as “good” (median response) or “average”. Most participants said they had no problem in walking, but approximately 20 said that they did have walking problems.

Of those older adults who took part in the playgroups study, around 85% said there had been no change in their leisure time activities and hobbies, whereas nearly half of the exercise group said there had been changes. Around three quarters of the playgroup group said there was no change in their social relationships, with a little under 10% feeling less lonely, and the rest reporting no change. Only two thirds of the exercise group saw no change in social relationships, suggesting that the same-age exercise group produces changes for more older people than playing with children on the equipment.

Approximately quarter of the playgroup participants, as opposed to a third of the exercise group felt that their personal health had improved with the programme, with only about 5% of the playgroup participants saying that it had worsened, the rest, across both groups, seeing no change, again suggesting that the exercise programme is more likely to have a positive impact than the collaborative play and movement programme. Around two thirds of both groups felt their mental activity level had become better, with the rest seeing no change. Nearly 40% of the play group saw improvements in walking speed, and nearly 30% saw changes in every day activities. This effect was very similar in the exercise group. Nearly 80% reported a feeling of increasing personal mental and physical resources during the exercise.

Around 95% of participants in the play group felt that there were no obstacles to playing with children, and for just under 45%, the playground was considered the favourite environment for playing with children, a little over 25% favouring free play, and the

remainder preferring to use both types of environment. Over 90% felt that the level of challenge of activity when playing with children was right for them, the remainder considering it too easy. In evaluating the value of playing with children, 40% of the older people felt the value was both physical and social, with 30% saying that there was social value alone, and 30% saying the value was just physical. Just over 80% preferred to exercise in a mixed age group, with the rest favouring a group of people of their own age. This suggests that despite more people feeling that their health and social relationships changed for the better in the exercise group, intergenerational activity may be preferred to single generational activity. Around 95% were willing to go and play with grandchildren in an environment with multiple functions. All participants felt there was a need for shared multi-generational activities.

Pahtaja et al (2006) suggest that the use of playgrounds as places for exercise for older adults requires a change in attitudes, familiarity with the subject and trained instructors.

Playgrounds are already used by children as places to exercise, test and expand limitations and interact with others. The introduction of the Disability Discrimination Act (1995) means that playgrounds should provide equal opportunities for people with sensory, cognitive and physical disabilities. This is of course extended to adults with disabilities who need to be able to access playgrounds and supervise children safely. As such, playground facilities ought to be usable for adults with impairments, including the kinds of impairment which may accompany ageing. Adjustments as recommended by the Royal Society for the Prevention of Accidents (RoSPA 2006) such as hand grips and handrails, angled ramps, roomier platforms and raised sand and water play items, as well as the removal of impediments such as raised surfacing edges or poor access to the area may all serve to make equipment easier to use for older adults as well as children with disabilities. RoSPA and The National Playing Field Association (n.d.) make a number of recommendations to increase inclusivity of playground design. These include creating designated parking spaces for disabled people, using surfacing for car parks and paths which are suitable for wheel chairs and don't exceed 1:12 (with paths being a minimum of 1.2m wide with passing spaces of at least 1.8m on longer paths), providing seats on longer paths. A dropped kerb close to the playground entrance can also aid access. Fencing and gates should be provided to keep animals out. Gates should have an open width of at least a metre, and there should be two – dog grids are not suitable barriers. Bright contrasting colours should be used to identify hazards, path edges and level

changes. There should be at least one bench seat with a backrest with easy access from the entrance. At least one seat should incorporate arm rests to aid people getting up. Surfaces inside the playground should include stable and wheelchair suitable access paths, and handrails and non-slip ramps provided at points where there is a level change. Changes in texture or tapping sound can be used to indicate different areas. Equipment itself should be designed with disabled children in mind but should encourage independence and challenge. There should be sufficient space between equipment to enable wheelchair access. Water features should have slip resistant surfaces and gentle slopes. Loose fill surfacing materials should only be used over short distances of 2-3metres.

The Disabled Living Foundation (2005) recommends a number of pieces of equipment for children with specific impairments which may also be of benefit to older adults with specific physical training requirements. For those who need to work on balance, vestibular boards, allowing side to side or forward/backward movement can be used whilst sitting, kneeling, standing or lying down. Vestibular swings such as hammock swings and inner tube swings, as well as balance beams, can also help develop balance. Rocking equipment may also be of benefit. Both water pools and ball pools, with larger sized balls for adults, can enable greater confidence and freedom of movement, as the fear of falling is reduced, although a sloped floor to enable people to get in and out easily may be required. Inflatable floors may also provide a challenge to balance. Larger combinations of modular play units can provide training in motor strength and co-ordination. Swings with harnesses can increase safety for those less certain of their ability to hold on reliably, and high backed swings can be helpful for those with poor muscle tone in the neck. Ramp access to slides and platform roundabouts can also be better used by less mobile people.

As well as the necessity to comply with the Disability Discrimination Act, playgrounds are also governed by British Standards. Under BS EN 1176-1:1998 (BSI 1998a) equipment must already be “designed to ensure that adults are able to gain access to assist children within the equipment”, and static test loads for swings, seesaws and rockers, agility equipment, rotating equipment, ladders, ramps, guardrails and handrails and platforms, according to Product Assessment Specification 018:1996 (BSI 1996), are all 100kg or over. The greatest 95th percentile weight is 107kg for a 55-64 year old UK male, with all other measurements falling below this (Smith, Norris and Peebles, 2000). Thus,

between the Disability Discrimination Act and BS EN 1176-1:1998 (BSI 1998a), many adults, including older adults and those with impairments, ought to be able to access playgrounds, though a few may be too heavy. However, this in itself is not sufficient to encourage older people to actually use playgrounds voluntarily. BS EN 1176 (BSI 1998a) and BS EN 1177 (BSI 1998b) state that hand rails and guard rails are also required for equipment where the access is over 500mm from ground level (except in the case of climbing frames). Hand rails must be between 600 and 850 mm above the standing surface. The standing grip height of older adults is between 610.14mm (5th Percentile UK) and 868mm (95th percentile Netherlands) (Smith et al 2000) suggesting that this height range would be acceptable to the majority of older adults. The internal diameter of tubes, in its smallest scenario, is just 400mm – as the 95th percentile shoulder width for a Netherlands male is 503mm, and the mean UK male has a shoulder breadth of 445mm, this could mean that many adults may not be able to use all tubes. No maximum ground clearance is required on swings, and indeed swings at different heights are not unusual in playgrounds. The seat width required varies depending on swing type, however the 95th percentile UK male hip width is 483mm, and for women, 471mm. As the narrowest type of swing seat must be no wider than 525mm (BSI 1996), choosing swings with sufficiently wide seats for adult use should be possible, however if swings at the lower end of what is permitted (455mm) are chosen, this will exclude many adults from using them. It is assumed in stipulating these dimensions that swings are loaded to 110kg – the 95th percentile older adult UK male weighs 100.9kg. Slides should be either less than 700mm or greater than 950mm – again, slides should be sufficiently wide for adults to use. For many of the dimensions of playgrounds then, there exists scope to make things “adult sized”.

The standards also cover safety. Playground surfacing is designed to reduce the risk of the most serious types of injury, i.e. serious head injury. It is not designed to reduce the risk of fractures to the limbs, and as fractures are common amongst the elderly, this could reduce the efficacy of safety surfacing.

Despite standards, guidelines and best intentions, playgrounds cannot be perfectly safe environments. Waltzman, Shannon, Bowen & Bailey (1999) report that according to the Consumer Product Safety Commission in the US, playground equipment resulted in over 200000 injuries between 1990 and 1994. 88% of these were attributable to climbing equipment, swings and slides. Waltzman et al (1999) identified fractures (61%), 90% of

which were in the arms, contusions (10%), neck and back strains (8%), lacerations (8%), closed head injuries (5%), abdominal trauma (3%) and genitourinary injuries (3%) as injuries experienced on playgrounds. They found no relationship between the type of surfacing used and the injury type. The Royal Society for the Prevention of Accidents (RoSPA) found that minor injuries accounted for 61% of playground injuries, with falls accounting for nearly 25%, with 90% of falls happening over impact attenuating surfaces. According to the Child Accident Prevention Trust (n.d.), in the UK in 1999 184847 children aged 15 and under went to hospital after having an accident in a playground, 34677 in public playgrounds, the remainder on school and nursery playgrounds. Climbing frames, followed by swings and then slides, were again the pieces of equipment most commonly involved in accidents, and falls account for at least 75% of playground accidents. Figures collected by The Royal Society for the Prevention of Accidents for 2002 also indicate that falls are a key cause of injury, with 61% of accidents being due to falls – an issue which raises particular concern when considering older adults, who are not only more likely to fall, but may also be more likely to fracture bones when they do. This is again of particular concern given that according to RoSPA's figures, over two thirds of injuries happen to the limbs. Collisions with other children or equipment, cuts and crush injuries, strangulation when clothes get caught on equipment and entrapment injuries are other less common types of playground accident. To help reduce these accidents, the Child Accident Prevention Trust recommends ensuring that activities in one area do not interfere with those in another, with older and younger children's areas separated and paths clear of equipment areas.

Any program of physical activity for older people carries risk of injury. Hootman, Macera, Ainsworth, Addy, Martin & Blair (2002 *In: Gerson & Stevens 2004*) found that 17% of over 60 year olds involved in an exercise programme reported activity related lower extremity injuries. Gerson & Stevens (2004), though they excluded injuries related to "grand parenting activities" (eg, being struck by a child falling off a swing), found that fractures were the most common form of activity related injury to the over 65s, accounting for 27% of injuries, followed by strains and sprains, the extremities being the most common location for injury. Playground flooring which aims to reduce injury to the head is not designed to reduce injury to the extremities, and this could add risk to older users of playgrounds, especially if the perception of safe flooring leads to additional risk taking.

In creating opportunities for older people to be active, planners must be aware of the kinds of barriers faced. Attempts to create behavior change must focus not only on factors related to the individual, but also on factors to do with the environment in which an individual is behaving.

Crombie et al (2004) found that though levels of knowledge about the benefits of physical activity were high amongst older people, actual levels of activity were low, with 53% of their sample doing less than 2 hours of leisure time physical activity per week, and 36% doing none at all, though most (94% did some light housework, or purposeful walking, such as to the shops. However, 79% of participants believed they were doing enough physical exercise to remain healthy, suggesting that greater awareness of what level of activity is sufficient to see health gains should be encouraged. Principle factors which discourage people from participation in physical activity were found to be lack of interest in physical activity, shortness of breath and embarrassment at joining in group activities. Lack of energy, joint pain, problems gaining access to facilities due to a dislike of going out alone or in the evening, lack of daily access to a car, perceived lack of physical fitness and lack of positive beliefs and attitudes towards physical activity (including lack of interest), reluctance to meet new people and not belonging to a group also emerged as major deterrents to physical activity. Godin, Desharnais, Valois, Lepage, Jobin & Bradet (1994) found five key barriers to participation in physical activity – finding time, finding a partner to exercise with, physical health problems, financial cost and lack of access to appropriate facilities. The importance of these barriers is supported by other studies with similar findings, (Yoshida, Allison & Osborn 1988; Johnson, Corrigan, Dubert & Gramling 1990) though being 55 years and older was not associated with having no time (Owen & Bauman 1992 *In*: Booth, Owen, Bauman & Gore 1997). Indeed Booth, Owen, Bauman, Clavisi & Leslie (2000 *In*: Schutzer & Graves 2004) found large differences in perceived barriers between age groups, with only 20% of 60 to 78 year olds feeling time to be a barrier, and only 16% (as opposed to 35% of 18 to 39 year olds) feeling unmotivated to become active. However injury was a barrier for nearly 40% of the older age group, and poor health was cited by 27%, with health problems and pain cited as the most common barrier to exercise in older adults (Cohen-Mansfield, Marx & Guralnik 2003). Only 20% felt that they were too old to be active however.

Use of playground facilities could to some extent overcome many of these barriers. For adults who attend with children, time spent in inactive supervision could become active

time, with the children themselves becoming the exercise partner. For others, organised group use could be an option. Physical health problems may be less of a barrier to using playground equipment which is intrinsically versatile and can be used in different ways by people with different needs, however this may remain a barrier, real or perceived, to many. Public playgrounds however, are free to use, and this could provide an advantage over other forms of activity which must be paid for. Whether or not facilities are appropriate is the subject of this investigation.

The physical environment is also a potential barrier to exercise for older people. Bedimo-Rung, Mowen & Cohen (2005) suggest that there are increasing calls to include environmental approaches in promoting physical activity as behaviour change approaches alone are not providing sufficient gains (Centers for Disease Control and Prevention 2001 and 1997, Pate, Pratt, Blair et al 1995). According to Bedimo-Rung et al (2005), parks which are conveniently located (Sallis, Johnson, Calfas, Caparosa & Nicholas, 1997, Sallis, Bauman & Pratt 1998) are associated with physical activity, as is enjoyable scenery, the frequency of seeing others exercise and access to and satisfaction with recreational facilities. Perceived safety of neighbourhoods affects physical activity, especially walking (Centers for Disease Control and Prevention 1999 *In*: Schutzer & Graves 2004), and geographical proximity to recreational facilities also affects activity level (Booth et al 2000). Lockett, Willis and Edwards (2005) in an investigation of environmental barriers to and facilitators of walking, found that traffic and the risk of falls serves as barriers to walking for older people, while benches and washrooms may facilitate walking for older adults. Wilson, Kirland, Ainsworth & Addy (2004) found that people from lower socio economic status areas, who tend to engage in less physical activity than those from areas with a higher socio economic status, have a greater perception of neighbourhood crime, unattended dogs, unpleasantness of neighbourhoods, untrustworthy neighbours and less access to public recreation facilities, despite the fact that data regarding recreational facilities and crime did not support these perceptions, suggesting that it is not only the environment itself creating a barrier, but the perception of the environment which needs to change.

Motivation can also be a barrier to activity. WHO (1988) estimates that adherence to long term therapy in developed countries is only around 50% on average, with even lower rates in developing countries. The maintenance of a range of behavioral changes, from taking medication to physical activity programs are all affected by poor adherence, reducing the

efficacy of any health program. Promotion of physical activity, then, must be informed by an understanding of what people want, and what they are more likely to engage with. For example, activity levels are strongly influenced by levels of enjoyment and this is particularly so for older people (Finch 1997 *In: Thurston & Green 2004*). Young & Dinan (2005) recommend that exercise must be fun, and include variety and opportunities for socialising, as well as information about the benefits of each type of activity. Research also suggests that the very inactive are less keen to attend structured or group based programs (King *In: Booth et al 1997*) and may be more interested in self-help or home-based programs (King, Haskell, Taylor, Kraemer & DeBusk 1991 *In: Booth et al 1997*). Wagstaff (2005) found that older adults identified the improvement to physical and mental health, as well as increased abilities in activities of daily living as reasons for participating in regular exercise, suggesting older people are motivated by the benefits to be gained from exercise.

Promoting or incorporating activities which older people favour is also important, though it would be unrealistic to expect a homogenised activity preference. Booth et al (1997) found that the 60 to 78 years age group, 68% chose walking as their preferred method of exercise, with 13% preferring swimming. Only 20% in this age group wanted to exercise with a group, and over 50% wanted advice on exercising from a doctor or other health professional. This suggests that playground equipment might be more likely to be used if incorporated into walking trails. Also, it is clear that medical professionals have a role in promoting all types of activity.

The benefits of a scheme to promote playground use amongst older people are not limited to the health of the user. Making public parks more attractive and usable for older adults may have implications for the community as a whole. One study (Kweon, Sullivan & Wiley, 1998) found that the use of outdoor green spaces predicted both the strength of neighbourhood social ties and the sense of community. And designing for older adults need not exclude children. Westphal (2001) found that while children were the most frequent visitors to the Michigan 4-H Children's Garden, older adults were the second most frequent visitors. An investigation of the site design suggests that the principles which had been used to create a space for children also served older adults.

Bedimo-Rung et al (2005) cite studies suggesting that natural elements promote opportunity for social interaction, with natural landscaping attracting larger groups of

people (Coley, Kuo & Sullivan 1997), but that crowded, dangerous and noisy environments can inhibit the formation of neighbourhood social ties (Kuo, Sullivan, Coley & Brunson 1998). Among infrequent park users, preferred strategies which would encourage more frequent use of parks were making the park safer, providing more information, providing more activities in the park and building parks closer to home (Scott and Jackson 1996 *In: Bedimo-Rung et al 2005*).

Many older adults are grandparents, and the grandparents association (Grandparents Association 2006) say that 60% of childcare is provided by grandparents, with one in every hundred children in the UK living with a grandparent. As such, environments such as playgrounds designed for children must also be designed with older adults in mind. Dellmann-Jenkins, Hollis & Gordon (2005) found that both parents and grandparents identified a number of key roles associated with being a grandparent, including being a playmate, as well as a friend, teacher and role model.

WHO also stresses, in their policy framework for active aging that the process of aging occurs in the context of a social environment, and that intergenerational factors, the “giving and receiving between...older and younger generations” are important. Support for intergenerational contact, with interdependence between young and old is highlighted as a recommendation, amongst support for the encouragement of other forms of social interaction. Social contact in itself is a positive factor for healthy ageing, with older people in Japan who reported a lack of social contact being 1.5 times more likely to die within the following three years than those who reported strong social support (Sugiswawa, Liang & Liu 1994). Social isolation then, becomes a risk factor for poor health and quality of life. Stronger social networks also benefit self reported health in older people (Zunzinegui, Kone, Johri, Beland, Wolfson & Bergman 2004), including both friendship and family and children networks.

Intergenerational programs, as well as other community programs can help create vital social interaction and support. In “Active Ageing: A Policy Framework” (WHO 2002), one of WHO’s policy proposals is to create a “society for all ages”, encouraged by providing intergenerational activities in schools and communities, and strengthening intergenerational links is highlighted as an important feature of the WHO “Ageing and Health Programme”. The benefits of intergenerational play are of course, two way. The National Toy Council, in their leaflet “Intergenerational Play” (National Toy Council n.d.), assert that children display higher levels of language and problem solving skills

when playing with adults than when playing with peers, while for grandparents, play promotes relaxation and reduces stress, helps maintain cognitive skills, and when active, increases muscle tone, co-ordination and reaction time. And of course, play is also fun.

In 2002, a review of intergenerational practice in the UK was produced (Granville 2002) which concluded that there is not yet sufficient evidence to confirm whether intergenerational practice meets the claims being made for it, however the review also identified intergenerational practice as a means to address social exclusion and inequality. Though focused on organized intergenerational schemes as opposed to the casual intergenerational play that might be seen on a playground, and indeed cautious of the reduction of impact of schemes when a grand parenting relationship is involved, the review argues that intergenerational practice, has the potential to be used as a model for community action and development.

The diverse range of physical activity required by playgrounds then, could serve as a valuable source of exercise for an increasing population of older adults, having the potential to benefit not only the physical and mental health of their users, but also to strengthen communities, intergenerational learning and social ties. Though much current play equipment may well be suitable for adult use, injury statistics suggest that either older adults are very careful, or that very few of them are using playground equipment. To be of benefit, or even used, any such scheme must take into account what older adults do and do not want.

By talking to older people about playground use, this study aims to investigate how playgrounds could be made more inclusive such that all people, including older people, could use them, and to generate guidelines to assist in the creation of such playgrounds.

Chapter Three: Methods

A flexible, largely qualitative design was used as the research area was new and opinions, ideas and suggestions were being sought to gain an understanding of what should be the key concerns when considering playground use by older adults. Several methods and sources of information were used with the aim of triangulating the data. Triangulation in this way can help reduce uncertainty about results as it creates the opportunity for comparing data gained with different constraints operating upon it and to see where conflicts or corroborations occur. Theoretically, at least some of the methodological issues effecting one set of data gained in a certain way should be cancelled out by additionally collecting data in another way. Thus, if this data corroborates the first, then the results obtained are less likely to be due to the effects of the methods used to obtain them.

3.1: Literature Search

An initial literature search was conducted in order to establish what knowledge already existed regarding older adults and playground use, as well as older adults and health and fitness. Both academic literature and non-academic literature was sought using library and internet search facilities.

3.2: Talking to Stake-holders

Stake holders, including council members, playground manufacturers, people with a professional interest in play and people involved in intergenerational schemes were contacted in person, by telephone, by email and via internet discussion forums in order to gain insights into their perspectives on the issue of older people using playgrounds, as well as any undocumented experiential knowledge they may have.

3.3: IPA Questionnaire

A questionnaire was chosen as a means of eliciting knowledge regarding usage of playgrounds by older adults around the world from members of the International Play Association (IPA). This was considered an appropriate method as individual knowledge and opinion was being sought and could not be easily obtained through other means. The

IPA was felt to be a valuable organisation to target due to its global membership, allowing a good coverage of the international play community. However, because of the geographical spread of prospective respondents, face to face interviews were not feasible, and the numbers involved meant that telephone interviews would have been both time consuming and costly even without the problem of trying to contact people at appropriate times when they were able to take time out of their day to speak. The global distribution of respondents would have made different time zones and languages another factor to be negotiated. A questionnaire, then, was considered the most appropriate means of obtaining data from IPA members.

The questionnaire had a dual purpose – to solicit local information not revealed in literature searches, and to gauge the opinions of people with an interest in play regarding the use of playgrounds by older people. A questionnaire was considered especially useful for the latter purpose as it is a good means of obtaining standardised information across numerous participants. However, the motivations of the respondents cannot be known and may affect their responses, or responses may not accurately reflect reality. Additionally, a bias in the data is created when only some of the targeted sample respond – those who do not respond may have different characteristics and opinions to those who do, such that the results obtained are not representative of the results that would have been obtained from the population in its entirety. This may be a particular problem where techniques such as postal surveys are used. Indeed the sampling strategy itself may undermine the validity of survey data of any sort, if the people surveyed are not representative of all the people in whom the researcher ought to be interested. It may also be the case in a survey that useful or pertinent information is not gathered because the right questions to elicit it are not asked.

While this questionnaire was originally to be distributed by contacts at the Royal Society for the Prevention of Accidents (RoSPA) and the IPA by established avenues for internal survey distribution, this arrangement did not come to fruition and the questionnaire was distributed independently via email and post. This was appropriate as the questionnaire had been designed for remote application. A flaw of questionnaires designed to be self administered is that it is difficult to rectify and possibly even detect where misunderstandings have occurred, or to clarify ambiguities. The advantage that anonymity encourages honesty in responses, something which can be lacking in surveys conducted in person, was in part negated by the fact that each recipient was not only

contacted by personal and identifiable means, but was asked to indicate their name, position and contact details in order that any information they provided could be followed up.

3.4: Unstructured Interviews

In order to gain some initial data with which to inform the development of an agenda for later discussion groups, ten informal, unstructured interviews with older people were conducted. Though the interviews were intended to be unstructured, a rough topic list was compiled to provide prompts where necessary. Though this means that there was little standardisation, in the absence of a body of previous work, these initial interviews were designed as an exploration of the types of issues that were likely to arise for older people around the idea of using playgrounds, and so it was not considered appropriate to create a constrained agenda. Though the output from unstructured interviews is likely to be difficult to analyse, the flexibility they afforded was considered important. An alternative method for gaining an understanding of the field under scrutiny may have been observation, however observations at three playgrounds at different venues and times yielded very scant information. Even if observation had proved a useful avenue of exploration, it would not have been sufficient in its own right to infer meaning regarding playground use, and additional interviews would have been necessary to gain an understanding of the issues of relevance to older people.

Interviews are, like any other method, subject to the limitations of the sampling strategy used to obtain interviewees. This, along with being unable to collect data from those potential participants who decline to participate, can create a bias in the data obtained due to the type of respondent it was obtained from. The integrity of interview data is also affected by the expertise of the interviewer, and their own biases, which may affect what is recorded, and indeed what information is followed up.

3.5: Discussion Groups

Discussion groups were chosen as a principle means of generating information regarding playground use by older adults. The notion of playground use by older people is for many people a new one, with all of the interviewees spoken to in the first round of data collection saying that they hadn't thought about using the equipment before. As such, the

use of discussion groups was considered ideal, as they carry the advantage of cross-pollination of ideas, with group members serving to stimulate each other's thinking, perhaps even encouraging those who believed they had nothing at all to say to generate and express their thoughts. This same mechanism to some extent also creates an inbuilt and immediate peer evaluation of ideas and thoughts – those which are agreed with unanimously, or indeed not at all, become rapidly obvious, though this cannot necessarily be generalised to the population as a whole as, again, sampling issues, this time potentially interacting with complex within group relationships, may create a bias in the information gained which means it is not a reflection of reality. For this reason, several discussion groups were planned partly as a means of checking the validity of data gained in each one. Because playground use was not anticipated to be a sensitive topic, issues of reticence to talk publicly, or indeed over heated debate, were not thought likely to cause an undue problem, although while some participants are likely to find a group situation facilitates voicing of ideas, others will be less likely to express themselves in a large group due to shyness. The over dominance of individual group members has the potential to limit the data which can be gained from discussion groups as less dominant members are overshadowed, and this situation, if it occurs, needs skilled management by the researcher in order to draw out the full range of opinions and ideas.

Discussion groups can be more enjoyable for many participants than individual interviews. They also carry the advantage of being able to survey a large number of people at one time, making them resource efficient to carry out. However they require careful management in order to maximise their advantages, and the number of topic areas that can be covered can be more limited than in an individual interview.

3.6: Semi-Structured Interviews

Semi-structured interviews were chosen as a means of both gaining a more individual perspective from older adults on the research area, and establishing how reliable findings gained through earlier interviews and discussion groups were. A semi-structured format was used with a pre-ordained set of questions, some with fixed responses, in order to better fulfil this second purpose of checking the results obtained thus far in the study. However most questions also had the facility for more open ended additional responses in order to gain information that may not have come out of a group setting, and elaborations were encouraged. An interview was chosen instead of a questionnaire because it allowed

for extra flexibility in this aspect of the data gathering, creating a situation where participants could be prompted to provide additional thoughts or comments, which could then be explored if warranted. Previous interviews and discussion groups had revealed that participants often needed help in terms of prompting when providing answers, and it was felt that any self administered form of data gathering may be inefficient in gaining information. Additionally, because there was some requirement for the concept of what constitutes a playground to remain flexible so that respondents could think freely about it and stipulate what their requirements would be, a form of data gathering able to respond to that variability and indeed re-iterate that “playground” was to be defined by the respondent (something which discussion group participants had often asked about before being willing to make suggestions) was considered appropriate. The ability to clarify answers which were confusing or not properly understood was also considered an advantage. Finally, frequent problems with regard reading and writing during discussion groups suggested that verbal communication might be more appropriate for the population.

Chapter Four: Design and Results:

4.1: Literature Search

Searches of Ante, Article First, ASSIA, BHI, Biological Sciences, Biology Digest, Biotechnology and Bioengineering Abstracts, Ergonomics Abstracts, Health and Safety Science Abstracts, MEDLINE, PsychINFO, SOSIG, Sociological Abstracts, Web of Science and Zetoc were made through Metalib, as well as additional searches of Google and Google Scholar. Search terms were play, playground, older adult, senior citizen, elder, elderly, grandparent, grandmother, grandfather, health, exercise, balance, fitness and fall. Operators were added to search terms to permit plurals and other variations. Little was found that pertained directly to older adults and playground use. The only study regarding playground use by older adults was identified through a BBC news article published on the 8th of February 2006. The researchers involved were contacted and were able to provide two research summaries in English, one of which included a set of basic bar graphs. The playground manufacturer involved in the study was also contacted but was only able to supply the same material in English.

4.2: Talking to Stake-holders

During initial enquiries to councils and bodies with an interest in play whilst generating a research topic, contact was made with The Royal Society for the Prevention of Accidents (RoSPA). John Yearley of the Play Safety division expressed an interest in the inclusion of older adults in playgrounds. An initial meeting was arranged to establish a mutually interesting line of research, and attendance at the International Play Safety Conference 2006 was organised.

Contact was made with a number of people with an interest in play at the conference. These included David Yearley, of the International Play Association and the Royal Society for Prevention of Accidents, Roger Hampshire, of the Thames Valley Police, Antoneaneta Yoveva, from the Sustainable World Foundation and deputy Mayor of Sofia, Dr David Eager, senior lecturer at the University of Technology, Sydney, Karena Scowen, marketing manager of Kompan Limited (play equipment manufacturer), and Chris Dodd, managing director of Rhino Ramps (play equipment manufacturer). The project was discussed in a casual capacity, and contacts were followed up by email in order to pursue

any additional information.

Playground manufacturers, and people involved in intergenerational schemes, as well as nearby councils in Charnwood, Leicester and Birmingham were contacted by telephone and email, and asked for their opinions regarding the use of playgrounds by older adults. Successful contact was made with five playground manufacturers, one person involved in intergenerational play and three people with responsibility for playgrounds at Charnwood and Leicester councils. An invitation to share knowledge or opinions was also posted on an internet forum for UK play workers after a suggestion from a questionnaire respondent.

Of the people spoken to at the conference, none had any existing thoughts on the use of playgrounds by older adults, and it was evidently not an issue on a mainstream agenda for people with an interest in play. As such, comments came very much from personal thinking rather than knowledge. Comments included the importance of having other facilities designed more for older adults at the site, such as coffee, seating and social facilities, and the importance of natural planting and landscaping. Another issue raised was the additional risk from falls due to osteoporosis, with flooring being designed to protect the head, not the long bones which are more likely to be fractured by older people, and floor types such as sand and bark which permit a larger penetration over longer time being better for long bone injury than flooring types which create bounce (Eager, David, 2006 – personal communication). The practice of using playgrounds as dual use spaces for old and young in Hong Kong, where space is at a premium, was also mentioned anecdotally, leading me to contact Kathy Wong, Executive Director of the Playright Children's Play Association in Hong Kong to ask about this practice and the research area in general. I was referred on to Mary Wong Wai-king, a play environment and safety manager, who said that dual space use was common, with older adults using play areas for Tai Chi and other exercises when children are not in the playground in the early mornings, at night and during school hours. Older people also commonly care for grandchildren and attend playgrounds with them. There was no data available on whether they used the existing equipment, however suppliers have apparently introduced outdoor equipment designed for use by older adults. Unfortunately, no data about this was available, and further requests for details of who the supplier was, or for any information about the equipment itself were not fruitful.

Of the playground manufactures contacted, four people were available to speak to. One manufacturer said that their equipment was made big enough for adult use so that adults and large children would be able to use it. One playground manufacturer also sold a line of equipment designed for older adults which is placed along walking trails to add exercise value, called “life trail”, as well as other equipment such as climbing boulders and social gathering facilities which are designed for adult use, although no data was available about it. The contact did say that she had been trying to do some research on older adults and play herself but had been unable to find any information beyond what has already been discussed in the literature review section of this report. Others did not wish to be identified. One said that they recommended height restrictions in order to discourage youths from using equipment. Two manufacturers of indoor equipment contacted later in the research both said that they did not create playgrounds for adult use or recommend adult use of their playground equipment as the materials were not robust enough to withstand frequent adult use.

Only one person involved in intergenerational schemes replied with information. Suggestions had been sought from other members of her team. These were pursued, though again no additional information regarding playgrounds and older adults was found, and no opinion about the issue was expressed. As a result of this contact, one person with an interest in adult play was also contacted. He again had no information regarding it, but as an older adult and grandparent himself suggested that the position of benches to allow enjoyment of watching grandchildren play would be very important to him, and that rocking or swinging chairs and benches might be a good idea.

Conversations with three Council employees with some responsibility for playgrounds took place. Two felt that providing equipment for older people was in theory a good idea, but one would want to know how it was going to benefit older adults, and the other would want to know what people actually wanted to do before he considered any such provision. Insurance and financial limitations were of key concern. One felt that to some extent, multi-use games areas such as ball courts already served older adults, but that playgrounds themselves should not be provided for adults due to both concerns about “inappropriate contact” and insurance. All respondents felt that with limited funds, children’s play must be prioritised however, and for that reason it is unlikely any adult playground equipment would become main-stream, particularly without any pressure to provide it. Supervised public play areas were discussed with two people, who said that

they thought it was a good idea, but again subject to financial restraints. One respondent said that the idea of centralised supervised play areas had been considered, and he felt that there was a possibility, given the cost of vandalism to numerous small local playgrounds, that closing some of these and creating a number of larger supervised playgrounds could potentially not be that much more expensive than the cost of repairing the vandalism which occurs currently. The addition of family activities such as barbeques and picnic areas, as well as appropriately located fitness trails with fitness equipment such as pull up bars were suggested.

A message was also posted on an internet forum for UK play workers outlining the topic area and requesting opinions about what people thought of the idea, what they thought the issues involved in older people using playgrounds would be, whether they would consider becoming involved in any scheme to promote older adult use of playgrounds, and whether they had any information about the topic. Only two responses were received. One respondent felt that playgrounds were likely to be boring for adults, especially considering the short duration of stays of children, whilst other felt that adult adventure playgrounds would be a very good idea with benefits for adults. However, the shared use of facilities was best avoided in order to preserve playgrounds as spaces where children could play with limited interventions from adults. Concerns about dimensions were also voiced, and the issue of societal fear of child abuse aroused by adults attending playgrounds without children was raised. This was thought by the respondent to be more likely to be a problem in English culture than in Finnish, where the original research was conducted.

Summary:

- Little is currently known about playground use by older adults, and it is not an idea which has been given consideration by many people
- Providers of outdoor play equipment see value in providing equipment for adult activity, though not necessarily in the form of conventional playground equipment
- Children need to be prioritised in play equipment provision, both in terms of allocation of finances and protection of their space in which to play
- Providers of indoor play equipment do not consider adult use viable due to materials used not being sufficiently robust
- Secondary equipment such as social areas and other facilities may be important for older adults

- There is caution regarding the risks of “inappropriate conduct” of adults towards children

4.3: IPA questionnaire

In order to gain an overview of the international position regarding playground use and older adults, a questionnaire was circulated to the 48 members of the board and council of the International Play Association (IPA). A questionnaire was considered appropriate as it permitted comparable data to be collected from every member surveyed, with the potential (determined on the questionnaire itself) to follow up enquiries regarding data obtained via the respondent’s preferred method (i.e. email or telephone). Because the majority of the members had email addresses listed, sending questionnaires via email was considered both time and cost effective. It was originally the intention that the questionnaire be approved and distributed by contacts who had expressed an interest in the research at the Royal Society for the Prevention of Accidents (RoSPA), according to an established method of doing so, and possibly to a wider sample of IPA members. However, this did not transpire and thus only those members who had contact details listed on the website were contacted. Telephone interviews were considered, but the potential language barriers that may have been experienced, especially with a novel line of enquiry, were considered better negotiated in writing, with the option to contact myself via email or telephone for clarification of any points.

The questionnaire was piloted on fellow students and professional friends. Though not the target recipients, it was felt that with only 48 prospective respondents, each of whom may have had unique information to give, it would potentially have been a waste of those sources of information to use them in a pilot study. The questionnaire was sent to contacts at the IPA and RoSPA once adjustments were made from the pilot study, for additional feedback and approval before being distributed. This was sent on two occasions and the offices phoned, however due to lengthy annual and paternal leave, neither contact was available to comment on the questionnaire or initiate its distribution.

The questionnaire (see Appendix A) was distributed together with a covering letter outlining the purpose of the study, and giving instructions regarding how the questionnaire could be filled in and returned (see Appendix B). This letter also included contact details for any queries, and a deadline by which completed questionnaires should

be returned. Reminders were sent to those who had not returned the questionnaire two days after the first deadline, and then again the day after the second deadline. A fresh copy of the questionnaire was sent with each of these reminders. According to Robson (2002) a better response rate to postal surveys sent to businesses is found on a Monday or a Tuesday than later in the week. Due to time restraints, the original questionnaire was sent on a Wednesday, and each prompt was sent on a Monday evening (GMT) in order to arrive either Monday or Tuesday, depending on time zone. Because of the time scales involved, reminders were not sent to the five recipients who were contacted by international mail. During the time over which the questionnaire was being circulated, one of these countries suffered a war and another suffered a suspension of international mail delivery which was not restored until the end of July.

The questionnaire had a dual purpose in that it aimed to gather both data regarding local knowledge from people with an interest in play worldwide, as well as a picture of international opinion regarding use of playgrounds by older people. As such it contained a mix of questions. Because the literature search revealed little existing data on the topic, it was considered that individuals were unlikely to have very much relevant data themselves. To avoid making the questionnaire overly long, recipients were asked what data they did have and invited to either attach the data or use the space provided to describe it. They were also asked if they were willing to be contacted regarding the data and what their preferred contact details were. Data regarding the existing use of playgrounds by older adults, playground related accident statistics for older adults (which may have served to a limited extent to indicate whether and what equipment was being used), relevant schemes that had been considered or were in place, and policies regarding playground access for older adults or people with impairments was solicited in this manner. To gain additional data on any existing initiatives, a second questionnaire was appended containing open ended questions for anyone for whom this was relevant. In effect, the question regarding the existence of initiatives served as a filter question for the additional questions contained in the second questionnaire. However, in order to keep the main questionnaire to an acceptable length, and avoid length becoming a more likely deterrent to completing it, these questions were not incorporated but became Questionnaire B.

Questions were also asked about people's opinions. It was assumed that members of the IPA had expertise or considerable interest in play and would thus be well placed to offer informed or considered opinion. Playgrounds were not defined at any point in the study,

as it was felt this would limit the freedom of thought about what a playground could offer. Instead of standardising what a playground could be, participants were required to consider playgrounds as being more open to variation, hopefully encouraging a greater range of thought. However a list of equipment types was taken from RoSPA's website (RoSPA 2006) in order to jog people's memory and stimulate some response. These 20 categories of equipment were included as options to tick when considering what equipment was used as the first questionnaires piloted, which did not have this feature, failed to yield a response to this question.

Although playgrounds were not defined, each respondent was asked to define the age at which they considered people to be elderly – this was felt to be important in ensuring that questions were answered consistently, with respondents crystallising in their own minds the demographic they were talking about through the rest of the questionnaire. Fixed categorical response questions regarding whether respondents considered the use of playgrounds by older adults to be a good idea or not were presented, as well as open ended questions exploring why that was, and what the barriers, advantages, disadvantages and specific safety concerns were likely to be, as well as what factors would encourage the consideration of playground use by older people. Though open ended questions are not ideal for self-administered questionnaires as there is no means of prompting participants to make a response, because so little was already known about the area, it was not considered appropriate to attempt to pre-define the range of possible answers respondents could give. These latter, less standardised questions would require qualitative analysis, but the former, standardised questions would permit a qualitative appraisal of opinion on the issue.

9 participants completed the questionnaire (with only two completing the additional questions), giving a return rate of 19%. Additionally, 2 out of office auto replies were received, two emails declining to take part for personal reasons, two communications excusing the participants from completing the questionnaire, but containing information which has been incorporated into the analysis, and one email containing pictures but nothing more. The low response rate experienced may in part have been due to the summer holidays, however it is possible that the people targeted simply did not have the information being requested and so ignored the questionnaire, in which case a briefer questionnaire focusing on opinion should have been considered, while questions regarding initiatives may have been best directed elsewhere. There was also no option for

anonymity which may have put some people off responding. Additionally, there could have been language barriers, which may have served to exacerbate a general tendency not to like open ended questions. The dual questionnaire format may also have been confusing. Again, more fixed response tick box style questions may have increased response rate by making the questionnaire more user friendly.

Between the nine respondents to the questionnaire (see Appendix C for raw data), the range of ages at which people were considered old ranged from 50 to 70 years, with six out of the nine respondents considering 65 to be the local chronological definition of old age. Two thirds of respondents thought that it was a good idea for people over this age to participate with children on playgrounds, with 22% saying they didn't know and 11% (1 participant) not giving an answer to this question. Reasons why this type of playground use was considered a good idea were that play is good for everyone, not just children, and can have health benefits for older people, and that it would promote intergenerational involvement, keeping the elderly involved and giving the child guidance and engagement with a playmate, as well as aiding child development and forming bonds in the community, potentially generating better relationships between the old and the young. That older people may not use equipment on their own, but might do so with children who would encourage laughing and positive feelings was also viewed as a benefit. However people also felt that there is a lack of environments which are just for children, in which they can play independently without adult intervention, and those spaces should not be compromised too much. The person who did not give an answer for this question felt that it wasn't a bad idea but that the roles, expectations and physical fitness of elderly people may not lend themselves to using playground equipment.

Only 56% of respondents thought that older people using playground equipment without children was a good idea, with a third thinking it was a bad idea, and 11% ticking "don't know". Those who thought that this type of use was a good idea again suggest that this was because play is good for older people, and that engaging people of all ages in physical activity and fun activities should be encouraged. On the other hand, the suitability of equipment, the potential for accidents on unsuitable equipment, the expected reticence of older adults themselves, the potentially limited exercise value of playground use and the suspicion that may be felt about an adult loitering on playground equipment were all reasons why the use of playgrounds by older adults when not with children might be considered a bad idea. Trim trails and other sports facilities were suggested as better

alternatives for older adult use.

Three people said that they did have some data regarding the use of playground equipment by older adults, however only one attached any information. Follow up with one of the others revealed that a mistake had been made in saying that there was information about this topic, and the third person had stated that he did not wish to be contacted any further regarding the questionnaire. The information obtained regarding playground use by older adults referred to a scheme in Hong Kong where there is a “separate playground with equipment which is mainly designed for elderly” people. This was information which had already been discussed with Mary Wong Wai-king as mentioned in the previous section, and no feedback regarding the initiative was available. However, one apparent problem with the playground was that equipment designed to be used without children was being used by both children and adults. Again, further information regarding this was sought but none was supplied.

Overall, respondents thought that older people did make use of many types of equipment (swings, slides, nets, aerial runways, bridges, sand and soil, water, spring items, multi-person equipment, loose equipment and seating areas) when accompanying children, though it was pointed out that this was generally when interacting with children on the equipment and not when actually using the equipment for themselves. Without children, it was thought that only seating, agility bars, spring items and swings were used by older adults, as well as purpose built equipment and walking and jogging areas. No data was held regarding playground accidents or injuries organised by age.

Two respondents said that the idea of encouraging older people to join in with children on playground equipment had been considered in their area, but no further data was given. One person said that encouraging older people to make use of playground equipment while not accompanied by children had been considered, this being the project previously mentioned by Mary Wong Wai-king. Three people said that encouraging older people to make use of playground areas when not accompanying children had been considered. Intergenerational sharing of public space was encouraged, but apart from seating, equipment was for children and young adults. Additionally, one respondent said that walking trails often weave in and around playgrounds. Two people reported that purchasing playground equipment designed to be suitable for use by adults as well as children had been considered. The only additional information provided about this was

that there was a general increase in interest for equipment for all ages, and that many authorities are increasingly interested in developing a natural environment for play. Two people said that consideration had been given to integrating equipment designed specifically for adults into playground design. Again, one instance of this was the equipment for older people being designed in Hong Kong, though the equipment is not to be integrated into the children's playground but located separately. Issues to do with expectations of behaviour of elderly people, as well as perceived "stranger danger" were reasons why older people were not encouraged to use playground facilities or areas. The idea of the availability of playground equipment to children being compromised due to its use by adults was also considered a deterrent to any such notions. Demand, needs assessment and monetary backing were catalysts which would need to be present before people would consider any scheme to involve older adults in playgrounds.

The advantages of older people using playground equipment were thought to be improved fitness, improved intergenerational and within generational relationships and support, a greater perception of safety on playgrounds due to the presence of adults, and possible reduction of vandalism for the same reason, reduction of injuries to children due to modifying influence of adults, reduction of social fear that "old people in playgrounds without children are wierdos", and increased fun for everyone. Increased exercise was suggested by four people and intergenerational involvement, increased safety for children and fun suggested by two people each.

The disadvantages suggested were that adults had individual injury risk, could dominate the space and get in the way of children, that with shared playground space adults would not be able to enjoy themselves and exercise properly because they are acting as caregivers, and that older people would not be welcomed by children. One suggestion was to encourage older people to become involved as trained play workers, thus gaining benefit for both themselves and children. Likely barriers to use were thought to be cultural expectations and the perception that playground use is a childish activity, not having a role or reason for being there that could be accepted by adults and children alike and the lack of suitable equipment, activities or social areas.

67% of respondents thought that purpose built equipment and availability of refreshments would encourage older people to use playgrounds, with 78% thinking that publicity and information regarding playground use, provision of rest areas and the appropriate location

of the playground would serve to encourage use by older adults. 56% thought that organised group use would encourage use, and 44% felt that transport services would help. Other suggestions were access from parking lots, provision of shaded areas, walking areas and better maintenance of activities, though their desire to use playgrounds at all if they did not have children to look after was questioned. It was also pointed out by one respondent that purpose built equipment should be unnecessary as equipment must be built to allow access to adults for supervision. 56% of respondents thought there were likely to be safety concerns specific to older people when using playgrounds, with the remaining 44% saying that there were not. Increased prevalence of disorders such as osteoporosis was cited as a reason for increased injury risk, as well as the possibility of larger adults getting stuck in equipment designed for children. Location of the equipment, with sufficient spacing to allow for more limited mobility in older people as well as any mobility aids, as well as the avoidance of bright colours attractive to children were suggested as safety measures to be used in playgrounds designed for older adults. One respondent acknowledged that injuries will occur on playgrounds across all ages, and if older people were going to be using playgrounds, playground monitors should have the medical knowledge and training to encompass that age group. It was also suggested that “showing off to lady friends may give old guys a fracture or two”.

With the exception of two respondents, one of which didn't know what policies were in place, everyone already had policies in existence regarding the accessibility of playground areas to people with physical and sensory impairments, though one of these said that there were not policies to cover the accessibility of the equipment itself. Three respondents said that there were policies regarding the accessibility of playground areas to older people. Respondents suggested that play equipment which is suitable for big children must also be suitable for adults, and accessibility policies regarding people with impairments also serve to make equipment more usable for older adults, and thus policies regarding accessibility for people with disabilities exist, and while there is no specific policy regarding older people, equipment should be accessible to them.

One person reported an initiative designed to encourage older people to make use of playgrounds when not accompanying children and to integrate equipment suitable for adult use into playground design – this was the Hong Kong initiative already described. Three people knew of initiatives to encourage multi-generational play and involve older people in play activities. Though one provided no additional details, one said that they

were working with the Grandparents Association to promote intergenerational play, and one worked at an adventure playground where parents and grandparents do play with children, largely with sand, water, art, construction and communication play, focusing on interpersonal relationships, but never on the climbing structures.

Overall, the trend was for respondents to think use of playgrounds by older people is a good idea, however little information is already available about this. A key factor mentioned by many of the respondents was the importance of the child's right to play taking priority over any scheme to involve adults, with the focus remaining on children of principle importance. This is not surprising given that central to the IPA's remit is the promotion of the child's right to play.

Summary:

- Playground use by older adults with children is considered a good idea
- Both health and social benefits are seen as possible for adults and children
- Playground use by older adults without children is considered a good idea by only half of respondents
- Little is already known or being done about older adults using playgrounds
- The importance or retaining prioritisation for children's play was again raised
- Secondary facilities such as rest areas are thought to be important
- People feel that purpose built equipment would be required
- Location and publicity regarding use are important
- Organised group activities may encourage use

It is worth noting that a language barrier may have been an impediment to a good response rate on this questionnaire as only two respondents – from India and Hong Kong – came from non-English speaking countries. The IPA member contacted in Israel did respond in a letter form to apologise for not having the time to fill out the questionnaire in full, but did say that while older people using playgrounds seemed like a good idea, he was not aware of any schemes in Israel, although anecdotally, he had heard of a suggestion to place playground equipment at a senior citizens home which had not been met with enthusiasm.

4.4: Unstructured Interviews

Eleven preliminary unstructured interviews were conducted in order to help determine what kinds of questions needed to be asked in more formal data gathering. A convenience sample was used as this was considered sufficient to gain some degree of insight into the issues surrounding playground use by older adults. Older adults seen in the neighbourhood, attending a swimming pool, and attending a visitor attraction which included a playground were approached, the purpose of the study was explained and they were asked if they would be willing to participate. Only one person declined outright. Because of the informal and opportunistic nature of the interviews, no audio recording was made, and all notes were made on paper. Interviews varied in length from just two or three minutes to over an hour. Data recorded during the interviews was used to inform prompts for later interviews if appropriate. All the data was collated and divided into sub-topics which emerged from the types of things people had talked about. Common, repeated themes and issues were extracted, together with areas where contradiction existed between participants for particular examination. There were also a number of comments which were unique, and with the small sample size, these were also considered potentially important. Data from the questionnaire was compiled to form a list of topic areas for discussion groups.

As for all self-report measures such as interviews, a potential flaw in the data is that there is no certainty that what is being said is an accurate reflection of what people actually do – how they behave or what they believe. It is particularly the case with face to face data elicitation techniques in which some degree of social relationship is inherent, that people may wish to cast themselves in a certain light, in order to gain approval, please (or indeed displease) the interviewer, or any number of unanticipated motivations. It is also possible that people's perception of themselves and their guesses as to how they would behave in an imagined situation, are not accurate. Though retrospective questions were asked in both interviews and discussion groups in this study, much of the time, the discussion relied on a degree of imagination from participants, and what people said about their behaviour cannot necessarily be generalised to what they would actually do. Observational study could have supported or offered counter evidence for what people said, however three playgrounds were observed and only two older adults were seen on the sites. It was not considered appropriate to ask older people to use playgrounds due to the potential risk of injury. The two people who were observed (on two different

playgrounds) were supervising grandchildren – one on her own, and one as part of a larger family group. Conversation with the former revealed that she only felt safe coming to play areas which were well overlooked due to the fear of anti-social behaviour and that she would appreciate access to refreshments and toilets, as well as a shelter from the weather. These observations took place on a casual basis during early planning of the project area, and as such, no formal data gathering procedure was in place.

The age range for interviewees was 58 – 85 (mean 66.4 years), and there were 3 men (average age 63.3) and 8 women (average age 67.6). It had been intended to only interview people of 60 years old and above, according to the United Nations chronological definition of elderly (WHO 2002), however two people approached transpired to be 58 years old, and as old age is not something which arrives at 60 but is a progressive life stage, their data was accepted as useful. One of the 58 year olds said she wouldn't use playgrounds at all as she didn't like children, and the other said that he tried to use some equipment with his grandchildren but knee problems, including a recent operation, prevented him from being able to use much.

In total, three of the eleven people were categorically unwilling to consider using playground equipment – two (age 58 and 70) because they didn't like children, and one (aged 85) because she had a knee problem she considered too prohibitive. The remaining eight people found at least one piece of equipment they would be willing to try. Only one (age 58) currently made any attempt to use equipment with his grandchildren.

Data was arranged into categories representing the different attributes of a playground.

Social Factors:

Four people said they would be happy to try using the facilities with a partner without children present, with only one saying she wouldn't use the facilities without children. While one said she would feel silly without children, or indeed exercising in public at all, another said that she no longer felt anxious about what people thought of her.

The chance to socialise with others at the playground was mentioned as an incentive to attend by three of those who said they would go to a playground, with two suggesting that organising social groups and organised activities for older adults would be a nice idea. All three also said that getting used to seeing other adults using the equipment would

encourage them to have a go, and that “if the facilities were there, and people got used to it, they’d use it”.

Four people said that “youths” and “hooligans” were a deterrent to taking children to a playground, let alone using the equipment. Vandalism was also mentioned four times, partly as a deterrent again, and partly as a limiting factor for what could realistically be provided in a playground. In all, six of the eight people who would consider using the playground said they were put off by youths or vandalism. Two said that they wouldn’t consider going after school hours when older children would be about.

One person also felt that carers at the playground were not always responsible and she resented having to be “looking out for other people’s children” as well as her own grandchildren.

Location:

Location was mentioned as important by three people, who all said that they would be more likely to use facilities if they were within walking distance. One person said she only took her grandchildren to playgrounds which were overlooked, as she did not feel safe in more isolated areas.

Equipment:

Only seven people made any suggestions regarding equipment.

All seven said they would like to go down slides, with three adding that slides need to be wider. 6 People said they would like to go on swings with five of these saying the seats needed to be wider or to be designed for adults. One person also said that they didn’t think that rope swings were suitable for older people. One person said they would like to use a seesaw, but would find it difficult due to knee problems

Four people said they would try balance beams, but one said they would only do this if there was a grab rail. One also suggested that balance beams would have to be quite close to the ground. Two participants explicitly said they would not try a balance beam, as they were fearful of falling. One participant also suggested using wobble boards as used to promote balance in his physiotherapy sessions. These can offer different degrees of difficulty and would also require grab rails.

The inclusion of exercise bikes on playgrounds was suggested by one person, and this was then extended to gym type equipment such as rowing machines. A second person also suggested placing gym type equipment outdoors. Both participants raised the issue of vandalism, with one suggesting equipment could be taken in at night and supervised during the day.

Two people said they would like to use a flying fox, one said they would not. Two people said they would like to use chain or rope bridges. One said that they would not, even if they were low to the ground. Two people said they would not go on anything high – including ladders up to slides.

Two people mentioned that they would not go on roundabouts due to vertigo and nausea. A desire to use a climbing frame was expressed by one lady, but she said she wouldn't use it as she was fearful of falling when she had responsibility for grandchildren. Another lady said that she would not use climbing frames.

Rocking/spring toys were suggested by one person. Tubes were mentioned by one person, who said she would not use them due to claustrophobia. One lady considered a scramble net but was not able to decide whether she would use it or not. An obstacle course was suggested by two people

Other physical features:

Flooring – two people said that the padded flooring used in playgrounds made them feel safe. One said they would like to see crash mats used, but these would be vandalised and would need to be taken in at night. Given this restriction, and limiting himself to existing flooring types, he preferred bark flooring to rubber flooring as it seemed likely to offer better protection, though he was cautious about finding things like needles in the bark. Another lady said that she preferred rubber or sponge flooring because it was cleaner and she could see what was on it.

Three people said they would like to see some nice planting. A desire to see things being better maintained was expressed by three people. For one it was an existing deterrent, for the others it was an attraction where it was done well.

Floodlighting parks was suggested as something that might make their use more likely and places to ride a bike (including skate/bike ramps) was also suggested by one man.

Other incentives:

One person said she was quite interested in keep fit and that could encourage her to go and use a playground

Other deterrents:

Everyone spoken to included in what they said some reference to playground equipment being for children, and that perception seemed to be an inhibiting factor for everyone who did want to use the equipment. Notices telling playground users that equipment was designed for young children only (by placing an age limit on use) was seen as a deterrent for one person, and one lady said she would “feel guilty sitting on the equipment” as it was not designed to take an adult sized person and she did not want to break it. “If it was suitable for adults” was a phrase often applied to equipment people said they would have a go on.

Three people said that they were afraid of falling. One lady who looked after two small grandchildren five days a week was particularly concerned about injuring herself when she had that responsibility and indicated that she would be more willing to take risks if she was not needed as a carer by the family. Poor weather was only mentioned by one person as a deterrent. It may be worth noting that all of the interviews took place on hot, sunny days.

As could be expected, in many areas the opinions of the older adults surveyed were as heterogeneous as those that could be anticipated from any age group. People have different likes and dislikes – some people fear heights, for others, it is not an issue that even crosses their mind. Some people are drawn to the possibility of wider social contact, for others it is could even be a deterrent. However, there were areas of consistency.

Swings and slides were popular amongst those who would be willing to use equipment – this may in part be because they are the pieces of equipment most closely associated with the word “playground” and thus everyone mentioned them. More mixed opinions were held of other equipment, however that equipment is intended for children was mentioned by everyone, and the size of equipment, and the perception that it was too small was mentioned by five people. This was a deterrent to use by adults, however there was also the deterrent to attending in the first place (mentioned by six people), of “youths” and

vandalism, and that these issues recurred as much as they did suggests they may be amongst the most important to overcome in encouraging adults to use playgrounds.

That 8 people (72.7% of those interviewed and 67% of all those approached) said that they would consider using playgrounds themselves is a positive sign and suggests that looking into how that can best be facilitated is a worthwhile endeavour.

Summary:

- Very few people currently use playground equipment
- The majority of people would be willing to try using at least one piece of playground equipment
- The social aspect of using playground facilities is important to people
- Fear of youths and vandalism are deterrents to using existing public facilities
- Being able to walk to facilities was preferred by those who mentioned location
- Swings and slides were the most popular equipment, but need to be wider
- Balance beams were reasonably popular. Being close to the ground or having grab rails may encourage use
- Gym like exercise equipment integrated into a playground facility may be welcomed
- There were not homogenised views on most pieces of equipment
- Pleasant planting and improved maintenance could encourage attendance
- There is a strong perception that playgrounds are for children and adults are not allowed to use facilities
- Equipment needs to be designed with adult use in mind and this needs to be publicised

4.5: Discussion Groups

Contact was made with older adult groups using several avenues. First of all Leicestershire Age Concern headquarters were contacted and asked if they had any groups who would be willing to take part. Only one group was suggested, and on contacting the group leader, it was found that the group was on holiday for the summer. The headquarters were contacted once again the following working day, but it was found that the staff member with the authority to suggest groups was also now on holiday. Local branches of the University of the Third Age were contacted, and all declined to participate, citing previous bad experiences with participation in student projects, disinterest and holidays as reasons. Several local bowls clubs were contacted but did not want to

participate. Groups, including individual age concern groups, were then contacted directly using Leicestershire County Council's online Community Information Network (Leicestershire County Council 2006), where a search for local organisations to do with elderly people was made under the category of "community". Of the organisations this yielded, those with telephone numbers listed which were suitable (groups for carers of the elderly and other non-elderly groups, and services such as cleaning for the elderly were not contacted) were contacted. These included fitness groups, social groups, church groups, drop-in centres, luncheon clubs, day centres and other activity groups. Where an individual or telephone number was listed multiple times as a contact for different groups, only one contact was made.

On making contact, the background and purpose of the study was explained, as well as the function of the discussion groups, what would be required, and issues to do with consent. Where additional information was requested, a background article was sent, together with participant information sheets and consent forms, and a written summary of what had been discussed on the telephone.

In all, 52 people were contacted, including some onward referrals from people from the original list. This process proved extremely time consuming, as all were contacted several times, either because there was no answer, in order to speak to someone else who had not been available initially, or to follow up those who said they would talk to their group or give it some consideration. Of the groups contacted, fourteen were on holiday for the summer, 20 declined to participate, 11 either never answered the phone, or failed to return calls on more than one occasion. Six agreed to participate. These were two church social groups, two fitness classes, a day centre group for the frail elderly and an art group. It had originally been intended to be selective in the sampling in order to gain a perspective from both active and passive elderly groups, however due to the high refusal rate, every group who agreed was used. Fortunately, these did fall fairly neatly by chance into representing both purposefully physically active older adults and those involved in more passive activity. However, because participants were taken from pre-existing groups who were willing to participate rather than from a stratified sample designed to be representative of the population, it cannot be assumed that results can be extrapolated to the population as a whole. Most obviously, people who do not engage in group activity at all were not represented, and may have a very different approach to those who are.

A debate in arranging discussion groups is whether to use homogenous groups, in which commonalities between group members can assist in facilitating communication and generation of ideas, or heterogeneous groups, in which differing perspectives can help stimulate the discussion. The former, though it can result in an unrealistically homogenised view being generated by the group as a whole, can serve to make it easier to see differences between groups, and in conducting these groups, a very different attitude was observed between the more activity orientated and the more socially orientated groups which suggests that playground use by older adults may be something where individual differences in inclinations as well as other features such as age and ability could have a strong effect. As such, results from non-probability based samples which are not likely to be complete reflections of the target population as a whole must be viewed with caution, as their generalisability may be questionable.

Some of the groups were quite large (29, 22, 15, 11, 10 and 8 participants respectively, total of 96 participants), making it difficult to gain individual opinion and control small clusters of non-centralised conversation, as well as amplifying many of the problems which can occur in discussion groups, such as a few individuals dominating conversation. It was also, in all but the art group, not feasible in the time allocated to gain individual demographic data. A particular problem experienced in the two larger church social groups and the frail elderly group was that some participants struggled to hear. In the two large church groups, a microphone and hearing loop system was used, however a small number of individuals still complained that they couldn't hear very well, and this almost definitely limited their involvement. Because many smaller conversations broke out in these two groups, as well as the larger of the fitness groups, it was difficult to hear individuals speaking, and despite assistance from the usual group co-ordinator to ask for quiet, the problem occurred regularly throughout the session.

Notes were made by the researcher and assistant, and sessions were recorded on audio tape, though only two recordings were useful. The assistant also provided feedback regarding the researcher's performance in managing the process. Groups lasted around three quarters of an hour. At the outset, the researcher was introduced by the group leader, and that introduction was expanded upon by the researcher, with the details of what the study was for being explained. The context and purpose of the study was explained, participant information and consent forms were circulated (see Appendix D and E), and visual stimuli were also distributed, these being pictures published of the equipment in

use in the Finnish study (Appendix F) and the play equipment catalogue from the manufacturer involved in the Finnish study, with those pages showing older adults using equipment marked. The company had agreed to supply a video taken and used by the BBC in reporting the study which showed older adults using playground equipment, but despite three further requests, this was ultimately not forthcoming. The content of the participant information sheets and consent forms was explained verbally to ensure that everyone was aware of the nature of the study, and in particular, their right not to participate.

Based on the outcomes from the initial exploratory interviews, a loose list of topic areas was used to direct and prompt conversation (see Appendix G). To initiate conversation, a discussion about who currently used playgrounds, with or without grandchildren, or indeed who had used them in the past was opened. People were then asked whether they would use playgrounds and what they thought of the idea of older people using playground facilities. Factors that put people off going were discussed, as well as factors which might encourage people to go. The existing equipment was discussed and ideas regarding what could be added or changed were sought. A list of equipment was used to prompt thought when conversation dried up. How people would prefer to use playgrounds (eg, independently, with children etc) was also talked about. Because social factors identified during unstructured interviews tended to emerge from conversation regarding deterrents and encouragements to use, they were not asked about specifically. Topic areas were broad in order to maximise the generative capacity of the exercise, though as discussion groups progressed, information which came out of earlier groups was also discussed if it didn't emerge of its own accord.

Notes were again transcribed and organised according to themes (see Appendix H for raw data), with recurring comments across groups and those that met with a lot of support being drawn out. The way in which all ideas and comments appeared to be received was looked at, and both differences within the group and between the groups was noted. One danger in analysing such qualitative data obtained in this way is that the biases and expectations of the researcher may influence what is seen as significant, and when a number of people are talking at once, potentially what is listened to in the first place. By being aware that this could be a problem and also by cross referencing notes with those of an assistant, it is hoped that these effects were reduced to a minimum. By using a more structured approach to the final phase of the research, the validity of the findings made in

this phase was tested.

All discussion groups took place during or immediately after normal group sessions such that the venue and times used were those which would ordinarily be attended by the older people in the group. No special arrangements on their part were necessary with the exception of the fitness groups who stayed behind after their classes ended.

The first group to be run was an informal church social group. There were 29 participants, ranging in age between 61 – 86, with four men and twenty five women. This group necessitated the use of a microphone and hearing loop system however despite these measures, and perhaps because of its size, participation did not seem to be complete, with many members contributing a great deal, and some not at all. Advice from the assistant present helped to improve aspects of subsequent discussion groups – this included clarifying the expected duration of the session with everyone involved before beginning, speaking more slowly, asking for questions and encouraging interruptions, and perhaps modifying the language used to be less academic. Extra pictorial stimuli were also provided in future groups as the pictures handed out did not circulate between tables, and so there were some people in the group who did not get to see them.

The initial response of this group to the suggestion of using playgrounds was one of laughter, and while ultimately ideas were generated, people were not keen to use playground facilities, and those who said they would consider it restricted this to using playgrounds with children. Group use did win some support once it was suggested, but there were many people who were not lending their support to the notion. While the absence of overt dissent may make it easy to assume that those who remained silent agreed with those who were vocalising their support of the idea, as in any discussion group situation, it must be born in mind that such silence does not necessarily constitute agreement.

Fear of using playground facilities due to “youths” was particularly pronounced in this group, and it is possible that this was due to the nature of the community which the group served. At the other end of the spectrum, in more rural groups, while youths were mentioned, their presence was viewed more as an irritant or something that may result in vandalism rather than a prohibitive threat.

The second group was a “frail elderly” day centre group. There were 11 participants, 4 men and 7 women, ranging in age from 70 – 100. While this group seemed to think that there were for them far too many personal physical barriers to independent use, using playground facilities under medical advice and as a means of assisted physical therapy were considered circumstances under which they might give playground use a try. However this group felt strongly that the facility would need to be renamed to create the impression of a more adult activity, and found it difficult to entertain the notion of using the equipment at all prior to discussion regarding this renaming. A follow up conversation with the group leader revealed that further discussion had taken place in the ambulance home, and people had come to the conclusion that such a scheme would not really be suitable for them.

The third group was a keep fit for the over 60’s class. 1 man and 14 women (15 participants) ranging in age from 64 to 80 participated. Some members of the class declined to participate and left or formed separate social groups. This group again seemed particularly concerned about unsavoury activities at playgrounds and public parks, and this may have been due to the proximity of the group to a large city centre. Of all the groups spoken to however, this group was the most enthusiastic about the idea, and while they did not consider attending alone to be an option, they were quite keen to go as a group and indeed at the following week’s session, some had asked the instructor to look into doing so. This was of particular interest as like other groups, this group had suggested that an indoor controlled environment might be beneficial, however they seemed to be genuinely interested in using outdoor public facilities in a group context and under the supervision of their trusted instructor. As also proved to be the case in the fourth (social) and fifth (fitness) group, this group clearly thought highly of their leader and the confidence they had in her specifically seemed to aid their willingness to try out playground use under her tutelage.

Group four was another church social group for senior citizens. 20 women and 2 men ranging in age from 73 to 94 were present though again, there were some members who did not contribute, and a minority who contributed a lot. This group, like the frail elderly group, felt that any encouragement to use playground facilities was not really appropriate for them and should be targeted at younger adults. The consensus seemed to be that seventy years old was a cut off point after which such activity would not be viable for people. However some said that they would consider attending and trying some of the

equipment if the group leader organised a trip. For this group, provision of transport was considered essential, though some said they did like to walk. Fear of falling also seemed to be prevalent amongst members of this group, and living alone with no one to look after them if they did injure themselves was cited as a reason for this.

One member of this fourth group said that she felt that the group were being treated like children and it was not appropriate to consider them to be a homogenised group of people with the same needs. It was explained that the opinions from people with differing needs were being sought and that differing needs were expected and that was one of the reasons for seeking input from a mix of people. However, it must be acknowledged that, given the reluctance of so many members of the group to contribute, the discussion may have become over simplistic and possibly patronising, with people being asked whether they agreed or disagreed with ideas which had been generated through previous work as few were being generated within the group. It is possible that this in itself was a reflection of the group's absolute disinterest in the idea.

The fifth group, another fitness class, was comprised of ten participants – four men and six women – ranging in age from 58 to 78. This group seemed to feel very physically able to use equipment, and did not consider their physical limitations or fear of injury to be prohibitive. However, they also felt that there were many other forms of physical activity already available to them which they would rather spend their limited time on. Like the previous fitness group, this group did say that if their instructor arranged use of playground type equipment as a circuit type class, they would give it a try. Perhaps because of their generally higher level of physical ability and current participation in gym activities, this group suggested more energetic apparatus, such as trampolines.

The final group was an art class with 8 participants – five women and three men – aged between 60 and 77. This group had quite a high level of internal disagreement, perhaps avoiding the adoption of group thinking more than other groups, though they did seem more concerned by the potential embarrassment of using equipments than other groups, suggesting that perhaps the feeling was amplified in individuals due to the presence of a group in agreement about its importance.

These latter two groups were the only groups in which every member made at least one contribution to the discussion. It is possible that this could be to do with group dynamics

such as the absence of any very dominant characters, familiarity with each other or even familiarity with having discussions with one another, however it is also likely that the size of the group had an effect, with these two groups smaller and more contained than others. It was possible in both these groups to identify where people were not participating as much and encourage contribution, there was very little sub-conversation springing up between members but not being shared with the group, everyone could hear, and speaking out was not as intimidating. They were also both run with the assistance of experience gained in four previous groups, which may have contributed to their smoother running.

What was interesting when looking at the information yielded from all of the groups was that regardless of standpoint, with some groups being more open to the ideas than others, very similar issues and suggestions were raised. Information from all the groups was categorised according to the topic areas used in the groups. The results for each of these are outlined separately. Individual questions and prompts used in groups varied as each one built upon the content of the last.

Would people use playground equipment?

Very few participants currently took children to playgrounds, though a few more had done so in the past. Those who have used playground equipment said they had not experienced any difficulties in doing so. In response to the question of whether people would be willing to use equipment there was a very mixed reaction. While some members of some groups thought it was a good idea and would be willing to give playground use a go, for many, this was limited to group use or use with children. Many people were unenthusiastic, saying things like “not at my age, that doesn’t appeal to me”. People in one fitness group and the art group felt that there were many other things they would sooner do in order to be physically active, such as swimming, dance classes, gym based classes, gardening or walking. One person who was particularly scornful of the idea said that he “would rather dig potatoes for activity”. Those who said that they would give it a try expressed caution, but seemed to want to gain the possible health benefits.

What equipment do people want?

Just as there were differences in whether people were willing to use playground facilities at all or not, the equipment people suggested varied widely. Participants did seem to

struggle to suggest what pieces of equipment they would want initially, and the prompt list had to be used in four of the groups. Overriding any problems with individual pieces of equipment was the issue of vandalism, and this was raised by most of the groups. The idea of making playgrounds supervised or placing equipment in indoor, controlled environments was suggested as the preferred means of overcoming this.

Equipment was also perceived to have been made for children and thus not suitable for adult sizes and weights, and designing equipment which was larger and more robust was a prerequisite to using it. "Equipment must be purpose built" was a sentiment echoed by everyone, and knowledge that equipment was definitely safe for adult use was important. Two groups suggested placing adult sized equipment and child sized equipment such as swings side by side.

Specific issues with equipment that were raised were that many people didn't like heights or spinning equipment, due to fear, vertigo and nausea. Opinion was very split on these issues, as for some people it simply wasn't a problem. Crawling tubes were something that most people did not want to use. Decreased flexibility, fragile skin and claustrophobia were cited as reasons – one lady said that they would be "reminiscent of having a scan". For those who would use the tubes, larger tubes as padding for the knees was desired. Sand play was also generally not desired, though a few people would like raised sand pits in which they could play with children.

Single point swings, such as tyre swings, were universally rejected, and in the social groups, aerial runways, monkey bars or chinning bars, climbing frames and climbing nets were also not considered feasible. In the fitness groups, some people said they would try climbing apparatus and chinning bars, but would want a surface that provided better grip than just metal. The art group also had members willing to try climbing frames, but they were not willing to use structures made from rope, preferring solid structures of metal or wood. Climbing nets were considered by one fitness group, who also suggested that nets could be used protectively to arrest falls and create more of a feeling of being safe, for example, by enclosing bridges in corridors of netting rather than providing hand rails. When suggested in another group, this was not considered a good idea.

Some items, such as spring items which require straddling, were considered too high to easily mount. On the other hand, other items, such as seesaws and swings, were

sometimes considered too low to get on an off easily – seesaws in particular, it was suggested, needed to be higher from the ground so that the knees did not need to be so bent at the point where the legs were required to deliver force to lift the body. On a similar theme, members of one of the social groups did not want to “tackle steps”, and indeed both social groups liked the idea of embedding a slide into a hill side such that the top could be accessed via a slope rather than a ladder. For some however, sitting down at the top of the slide, and rising again at the bottom meant that they could not envisage using a slide, though one person suggested creating a seat which slides down a runway and deposits the user back in a standing position at the bottom.

Water play, such as paddling, wading, and even swimming pools, was popular, though again, the general feeling seemed to be that bodies of water open to misuse in parks would not be used. Suitable non-slip surfaces and entrance and exit points were important. Several people in one group agreed that they found ladders indented into the pool wall too difficult to use and needed either proper steps or a slope. Two groups wanted water slides.

Though many in the social, art and frail elderly group said that they would not go on balance beams, the two fitness groups said that they would consider using them, but most people wanted grab rails available on any balance equipment. One of the social groups, whose members seemed on the whole to be less physically active and certainly less confident of their capacity to be active, suggested providing a couple of steps with rails as used in physiotherapy training to promote balance practice. Balance balls/half balls of varying degrees of difficulty were suggested by one fitness group as an additional or alternative activity though this was considered more likely to be feasible in the context of an indoor or supervised use scenario. This too would benefit from grab rails, as would stepping stones which were suggested by one group. Balance equipment such as beams and stepping stones also needed to be lower to the ground, however there were some that said they wouldn't use them even if they were flush to the ground. Moving platforms such as non-solid bridges were also something that some people would try, but again, grab rails were a necessity. One person said that the numbers on a moving bridge at any one time would need to be limited too. Rope or chain bridges were only considered by one group. Whereas there were some people who would use balance beams close to the ground with no grab rails, no one was prepared to use anything that moved without something to hold onto for support. Bridges that do not move were considered usable by most people.

Treadmills requiring force to move a rotating floor were also suggested as an option (requiring rails) which people might use, and the idea of integrating playground like equipment with gym like equipment was reasonably popular amongst those more willing to give playground use a try. A member of one group suggested equipment such as vaulting horses and ropes to climb as well as beams in the manner of a traditional school gym might be beneficial. On this note, floor mats were also suggested to permit floor based exercise and play.

Slides were reasonably popular amongst those who would use equipment. As well as the idea of embedding slides into hills to make a sloped rather than a stepped approach, having a long gentle slope to the descent was suggested, with some people being uncomfortable with a steep slide. The guarantee of a soft landing was an issue for some, with one person suggesting a ball pool at the bottom. Additionally, people felt that slides needed to be wider to accommodate adult sizes.

As with slides, swings were popular across all groups, perhaps being the piece of equipment people seemed most willing to try, but again, many people said they needed to be wider. Making swing seats higher from the ground was also suggested by some.

Although not popular in most groups, in one of the social groups, many people were willing to try springing items, although bigger footrests were suggested. Multi-person, co-operative equipment that could be shared with grandchildren was popular for many. Seesaws were mentioned by every group, but it was suggested that end stops were necessary to make use less jarring, and to add height so that people did not have to get so close to the floor to get on and off, with the equipment only dropping to “chair height” – something that may prove difficult for smaller children to use. One person suggested seesaws could have sideways facing seats such that they did not have to be straddled, though this was not met with enormous enthusiasm from the rest of the group. Double swings with two seats side by side, and swinging boats were also suggested, this latter being a popular idea amongst all groups.

Loose equipment (which would necessitate a controlled environment) suggested included balls, Frisbees, and skipping ropes. Oversized board games such as chess and Jenga were also suggested, and most groups agreed they would like to use them. Though not so overtly active, these still encourage some gentle activity and serve a social function, and

were considered a good option for chair bound people too. Provision for other types of games was also suggested, such as markings for hopscotch. Another suggestion was trampolines placed at floor level over a pit so they could be used without climbing on and off, though it was also pointed out that good high contrast markings would be necessary to reduce the chances of people getting on them by mistake.

Rubber flooring was generally preferred as it's easier to walk on, is less slippery than bark, won't give you splinters, and doesn't conceal litter, animal faeces or needles. Padded flooring for soft landings was considered important for many people, though some said it didn't make them feel any safer. One group debated the merits of deep foam, suggesting that that could encourage a feeling of safety, however some felt that it was more likely to be too bouncy or soft to be able to walk safely.

Though one of the fitness groups felt they encouraged "youths" to hang around, seating areas were desired by almost everyone. However some felt that seats provided could be more comfortable, and making sure they are the right height to be easy to stand from was important. One social group suggested that providing a simple swinging or rocking seat could be a good start to encouraging some degree of activity and perhaps creating more of an inclination to join in with other things.

Deterrents:

The most significant issue mentioned extremely early on in the discussions for four groups was that of youths hanging around on playgrounds putting people off going. As well as expressing a fear of abuse from youths, and other forms of antisocial behaviour, vandalism was also a deterrent to using public playgrounds. This was less a problem for more rural groups. The hygiene of public parks also put people off, with concerns about dog faeces and the like. Men were also nervous of being seen as potential paedophiles if they were to attend playgrounds alone.

The perception that the equipment was for children, not adults, was also a commonly cited deterrent to use, with signs specifying age, weight or height restrictions preventing adults from using equipment. Even in the absence of signs, it was understood that the equipment was made for children, not adults, and the rules prohibit adult use, with someone in one group saying that it was "forbidden by the park authority", and in another

group, someone anticipating that “council people tell you off if they see you on the equipment”. Both equipment made for adults and overt permission to use it are required.

For most people there was also an increased risk of hurting themselves. People felt that they were more fragile than in the past, with thinner skin and brittle bones. For some, principally those in the fitness groups, this risk was viewed as something to inspire caution but not as a preventative issue, however for others, the risk of using equipment was seen as too great. In two of the groups, people were particularly concerned as many of them lived alone and the ramifications of being injured, possibly leading to long term loss of independence, were not acceptable. For many in these groups, limited existing ability seemed to also be a deterrent, despite the argument that the physical activity might serve to increase ability. In one group, one lady said that “balance programs don’t work anyway” and thus she did not believe that playground use would be of benefit. Another lady said that while she had wanted to join an aqua aerobics class, medical advice had prevented her. Someone in most groups raised the issue of insurance and liability, and this was considered something that would need to be clarified. Though far more of an issue for some than others, impact attenuating flooring was not seen to offer a great deal of protection from injury. There was also concern in one group that the flooring itself wasn’t designed for adult weights.

Another deterrent mentioned in half of the groups was embarrassment, self-consciousness and “feeling silly”. Some people said they would not want to use the equipment in public, and another group felt that use by older people would need to become more mainstream before they would join in. Time constraints were mentioned by two groups, both of whom said that they had other activities they would value more. Only one group suggested that the cost of a pay to use supervised facility would put them off using it.

What would encourage use?

Concerns about anti-social behaviour, intimidation from youths, the limitations vandalism imposed on what could be provided in a playground, and reticence to use equipment due to physical limitations and embarrassment combined to make placing playgrounds in a controlled, supervised environment the single most popular change that could be made to encourage use. Most groups suggested an indoor facility could overcome many of the barriers preventing them using existing playgrounds, including poor weather, with most

people being willing to pay to use such a facility rather than an outdoor public playground. The apparent majority in all groups were more willing to use playground facilities as an organised group activity, reducing embarrassment and fear of youths, whilst also providing both social contact and motivation. Information and guidance about what equipment was suitable for adults and how to use it was favoured, however, a motivational leader was something pinpointed as needed in order to inspire people to actually be active on the playground equipment. Several groups pointed out that the Finnish study suggesting that there were health benefits to playground use did itself take place in a controlled, supervised and directed environment. The idea of placing equipment in a gym like environment was also popular. A few people suggested that along with purpose built equipment and information about how to use it, the supervision of a park warden would suffice, however this was not enormously popular. Transport was also an issue. Those with more limited mobility felt that transport had to be provided as part of an organised group activity, with those more mobile saying that the playground would need to be within walking distance or accessible by bus.

It was also suggested that medical advice could serve to increase the likelihood of people using the equipment, with some people wanting advice on what they should and shouldn't use from a medical practitioner, and several saying that they already didn't do certain things on medical advice. One group suggested that the media could also play a role in promoting activity including playground use amongst older people. Giving playgrounds a new name such as activity centre, adventure park or community park could also help de-stigmatise their use by older people.

The addition of toilets was not something mentioned by many people, however when it was suggested, groups tended to think that it would encourage attendance by older people, however one group pointed out that some toilets may actually put them off going, thus this feature would depend very much on location, maintenance, and again, supervision and the feeling of safety.

Two groups suggested that targeting younger adults and even teenagers to maintain usage of playgrounds so that by the time the next generation reached old age they would be familiar with using playground facilities, would be more effective than looking at the current older population. However all did feel that before retirement, they would not have

had time or inclination to use playground facilities.

In what circumstances would people be most likely to use playgrounds?

The consensus in five out of six groups was that they would go to playgrounds when accompanying children in their care. However, in two groups there was the opinion that people would only consider going with children, and not without. One almost unanimously supported suggestion was that of having playground activities supervised – by a guide, a group organiser, or even just a warden. For many people, this was taken one step further, and equipment in indoor, controlled environments was preferred. Obviously the viability of this would depend on creating a facility which people wanted to use in the first place. For some people, placing equipment in a controlled indoor environment also removed a degree of embarrassment regarding use of playground equipment. In two groups there were dissenters who felt that using equipment out in the fresh air would be preferable, though they did not disagree that “youths” would deter them from actually doing so. Affixing the equipment to a gym, or situating it in a gym like setting was suggested.

Again, where people were willing to use equipment (without accompanying children) at all, there seemed to be a reasonable degree of consensus that organised group use would be preferred, though in most groups, someone was quick to point out that this might pose insurance questions. Some groups seemed to feel that by making playground use an organised group activity, some of the reticence to use facilities due to fear of youths and embarrassment would be overcome. Organised groups also had the added bonus of negating concerns some of the male participants had about being perceived as “dirty old men”. Members of one group who, though of reasonably mixed ability, contained many members with difficulties walking far, also pointed out that organised activities would need to provide transport in order to be useful and used. For groups who had more mobile members, there was a requirement for the facility to be within walking distance from home or on a bus route. Car parking was not mentioned by anybody.

Many people felt that organised activities would promote confidence in what to use and how to use it. Though descriptive signs were also suggested for this purpose, mentions of “company” and “like-minded people” suggested that the social aspect involved in the activity was of importance. Motivating leadership was considered important, and on more

than one occasion, when the group was asked whether they would participate in an organised activity and the answer tended towards no, changing the question and asking whether they would go if their group leader suggested they do it next week instead of what they were currently doing, there was a far more positive response. While the presence of the leaders may have had an influence on the social compulsion to answer in this way, a follow up conversation with one of the fitness group leaders revealed that her group had actually asked her to look into attending a playground one week.

Summary:

- Many say they would try playground use under certain circumstances
- Youths are a deterrent to using playgrounds
- A lot of people would be embarrassed to use playgrounds without children
- Perception that the equipment is for children and not adults
- People feel they are forbidden to use the playgrounds
- Renaming the playground to de-stigmatise adult use might help
- Many people would respond to medical advice
- Purpose built equipment, and information telling people what to use and how is required
- Indoor, controlled environment preferred
- Group activities with motivating leader and professional advice/direction favoured
- Social aspect of group use is important
- Must be located within walking distance or on a bus route
- Seats on slides/swings etc need to be wider
- Gentle slopes rather than steps are preferred by some people
- Tubes not suitable for the majority, but would need to be big and padded
- Seated equipment needs to be higher so that it is easier to get on and off
- Good grips are needed on bars of agility equipment (eg climbing frame)
- Cooperative equipment involving play with children is valued
- Roundabouts are overall not a popular item
- Grab rails needed where balance is required
- Other types of play – giant board games, hopscotch, ball games are valued
- Paddling pools are popular
- Solid fill flooring is preferred

These findings must of course be considered together with their limitations. Data gathered from a group setting yields group information subject to the pressures, persuasions and limitations of any social situation. There are things some people will not be happy to say, things people agree with in the group setting but wouldn't if interviewed individually, and things people feel obliged to agree with. In this data, there was a common desire to use playgrounds as a group activity, and it is possible that people interviewed alone would not feel the same. That across all the discussion groups there was a high level of agreement on a number of factors suggests that these are likely to be things that are important to most people. The next stage of data collection involved talking to people individually to assess how valid findings from the discussion groups were for individuals.

4.6: Semi-Structured Interviews

Eighteen semi-structured interviews were conducted with older adults. At this juncture, access was offered to a database of participants used by the Ergonomics and Safety Research Institute, however as this database is compiled of volunteers recruited through advertisements in the press or personal contact, it was considered that the type of person volunteering would tend towards being motivated to participate in things and see change and advancement. Because a difference in attitude had been seen between different types of group in the discussion group stage of the data collection, this attitudinal difference between self-selected frequent participants on the data base, and those who were not on the database, may have created undue bias in the results. Additionally, many participants have come to expect some recompense for participating in studies. As no funding was available for this study, and it would not have been appropriate to offer personal funds, this may also have been a limiting factor in recruitment.

A convenience snowball sampling strategy was used, and while this has flaws in its own right, and cannot be said to be representative of the population as a whole, it was felt that it was more likely to produce a mixture of different types of people on what appeared to be a fairly crucial factor – interest in being involved in external activities. Initial contacts were neighbours of people known to the researcher in different areas (both socio-economically and geographically) and further interviews were conducted with people suggested by these initial contacts. Because pilots of the interview found the process tended to last half an hour or more, it was not considered appropriate to approach people in the street.

Interviews were conducted over the telephone. An initial contact was made by telephone to explain the context of the research, what the study was about, seek consent, inform people of the likely duration and arrange an appropriate time to call. This also had the advantage of overcoming the initial incredulity regarding the research topic which had perhaps hampered thinking in earlier interviews and discussion groups where participants had not been forewarned of the topic, giving participants some time to think about the issues before having to articulate their thoughts. Due to technological constraints, phone calls were not recorded.

The information gained from research to this point was used to generate a form on which to base the interviews (see Appendix I). The aim of the interviews was both to check and quantify data gained so far and to allow fresh data from individuals to emerge, as well as enabling associations between factors to be sought where they could not during discussion groups as it is difficult to consistently attribute data to individuals. A mixture of questions with fixed alternatives and questions with sample answers generated from previous data, as well as more open ended questions was used. As interviews were to be conducted by telephone, the form included check boxes for anticipated responses and space to write novel responses to allow more rapid data recording. This was considered necessary when conducting telephone interviews as breaks in conversation to allow recording would be more disruptive than in a face to face interview where interviewees are more aware of the reasons for any pauses.

The form was compiled to serve as a guide for the interview. Though designed to be used verbatim and in sequence, on a number of occasions respondents raised issues which occurred later on in the question list, in which case they were discussed at the time and touched upon again when they were reached in order to make any revisions and ensure completeness. If issues which fell outside of the question list were raised, these were explored and recorded, taking advantage of the flexibility of the interview format as opposed to a rigidly delivered questionnaire. This was piloted initially on peers and latterly on two older adults and modified before use. Demographic data of age and gender was collected, along with an assessment of how fit participants considered themselves and what kind of exercise they currently took (including whether it was group based or individual – an issue that seemed of importance to discussion groups). The mode of preferred playground use (i.e., with children or with an organised group etc) was also

asked about, as it was considered possible that there was an association between current group activity and the desire for group activity. Finding out whether such an association existed was important as this could have influenced the data given by discussion groups, whose members were already involved in group activity. Because discussion groups had indicated a preference for using equipment as an organised group, and to use facilities in a controlled environment, this was expanded in interviews to include questions on whether a facility designed solely for adult use would be used. Preferences for existing types of equipment and ideas for additional facilities were asked about and fresh ideas solicited. Preferred means of access and location were queried. Additional facilities such as toilets or pleasant planting were asked about. One question which was not generated from discussion group data however, was preferred colours. This was an issue raised in the pilot of the semi-structured interview as something which should be asked about.

As with all interviews, the skill of the interviewer may have influenced the results obtained, however this is less problematic than in earlier unstructured interviews, as the more rigid use of a list of questions with pre-defined responses creates a more standardised data gathering tool.

Frequency counts and percentages of standardised data were used to assess general preferences and popularity of ideas. Though some data was collected such as age and exercise preferences, which might be anticipated to have a potential impact on other preferences, the small sample size and the convenience and snowballing means of obtaining it meant that the data could not be presumed to be representative of that of the population, and so it was not appropriate or meaningful to try to establish association between different factors. These limitations of the sample must be considered when assessing all the conclusions drawn from the interviews.

Where data was gained for more open ended questions, this was also analysed, and in some cases led to the creation of further categorical items of data due to the narrow range of answers given.

Seven men and eleven women were interviewed, eight between the ages of 60 and 69, four in the 70 – 79 bracket, and 6 between 80 and 89. Seven participants saw themselves as very fit or quite fit, with 6 considering themselves to be fairly fit, four not very fit, and only one very unfit. Only three participants took no exercise, with thirteen exercising at home doing things such as gardening, walking and cycling, 6 attending a facility for

independent exercise such as a gym, swimming pool or golf, and just five going to group exercise sessions or classes.

67% of respondents thought that the idea of older people using playground equipment was a good idea, with only 11% thinking that it was a bad idea. Designing equipment to be suitable for adults was for many people a condition of it being a good idea. 78% of respondents thought that designing playgrounds so that they could be used by both adults and children was a good idea, with 22% thinking it was a bad idea – those who thought it was a bad idea felt that playgrounds are for children and could not understand why adults would want to use them, given that they could go to the gym for activity. 61% of people would like to see more adult sized equipment along side children's equipment. Larger equipment catering for restricted mobility, weights, bikes, swimming facilities, gymnasium equipment and trampolines were suggested, but no one suggested adult sized conventional playground equipment that they would like to see at this stage. Only 39% of people thought that a playground facility designed solely for adult use was a good idea, with 39% thinking it was a bad idea and 17% being unsure. Four people mentioned that having a mixed facility was more fun and sociable, suggesting that this would be an important element to use, however two people said that equipment would be more usable for adults without children on it – one person felt this was in part because children make fun of older people. 56% of people said that they would use such a facility, with only 22% saying that they wouldn't. Equipment suggested for such a facility included bikes, swings, roller-skating, water features, a flower garden, picnic tables, purposeful games such as boules or pitch and putt, swing boats, trampolines, a climbing wall and a flying fox. Swings and trampolines were each mentioned twice. Only 33% of respondents felt that renaming a playground would encourage adult use. Suggestions were "leisure grounds" and "activity park".

A third of participants said that they did currently attend playgrounds – all of these attended with children, however 2 also attended with a partner or friend. One person said that he doesn't attend playgrounds, but had used one on holiday with his wife for fun. Of those who do currently attend playgrounds, half (3) use the equipment - all use the swings, two use the roundabouts with slides and multi-person equipment such as seesaws used by just one person each. The only problem experienced by those that use equipment was stepping down from it.

72% of participants said that they would consider using playground equipment (Fig. 1) – of these, 77% said they would consider doing so with children, 46% with a group, 38% with a partner or friend and only 23% alone- one person added that they would only use it alone if there were no children present because they would feel silly otherwise. Those who would not consider using playground equipment said that they had no time or were not interested. When asked which of the usage options would be their preferred option, 44% of people said they would prefer to use facilities with children, a third as part of a group, 11% with a partner or friend and just 6% alone (Fig. 2). 60% of those who already attend group exercise sessions would prefer to use facilities as a group, as opposed to 20% of those who don't go to group exercise, 50% of those who use independent exercise

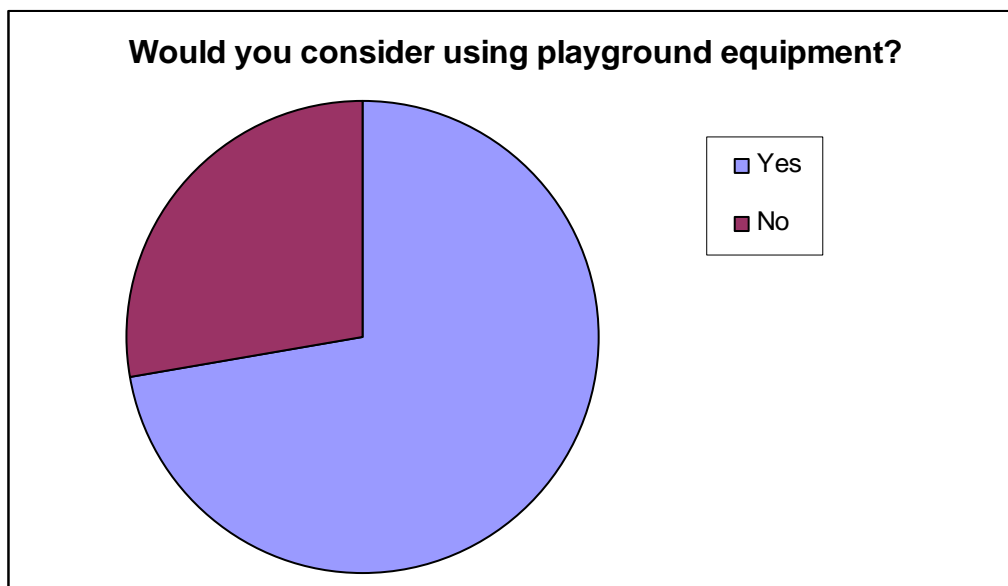


Fig. 1 – number of people who would use playground equipment.

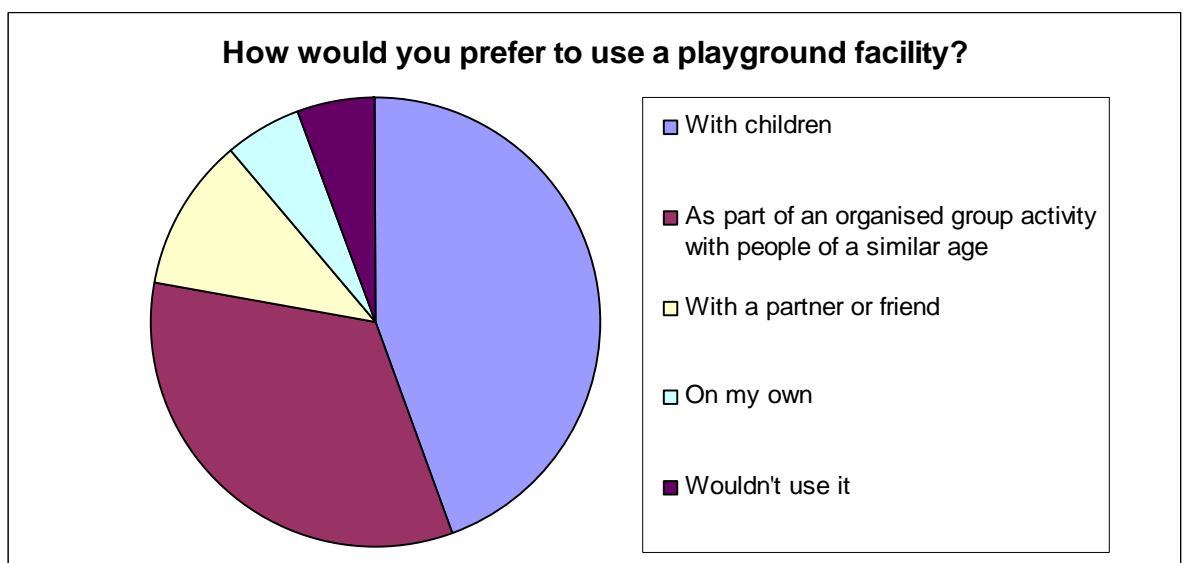


Fig. 2. - Preferred types of playground usage

facilities and just 38% of those who exercise at home. Although the sample size is too small to draw conclusions from this, it may be that those involved in group exercise (and conceivably other group based activities, though this was not investigated) are more likely to want to make use of new facilities in a group capacity. This may have skewed the preferences expressed in discussion groups for group use, as all discussion groups were pre-formed from members of existing group activity. However, group use remains more popular across the board than individual use or use with a partner or friend. Two reasons cited for preferring group use were the avoidance of embarrassment and the addition of companionship. Using facilities with children was the most popular option.

In terms of equipment people would be willing to use, slides were most popular, with 44% of those interviewed saying they would use them. A third said that they would use swings, 28% would like to use climbing frames and seating areas, 22% would use balancing beams; roundabouts, chinning bars, aerial runways and bridges were desired by just 17% each, and agility bars, multi-person equipment, nets and water play items by only 11% each. Single point swings such as tyre swings, spring items and loose equipment were chosen by just one person (6%) each (Fig. 3). Hula hoops and trampolines were also suggested. Despite discussion groups suggesting that co-operative equipment was popular, 78% of respondents said that they did not want to use more of this type of equipment, though this could be because they felt that there was sufficient provision of that sort already.

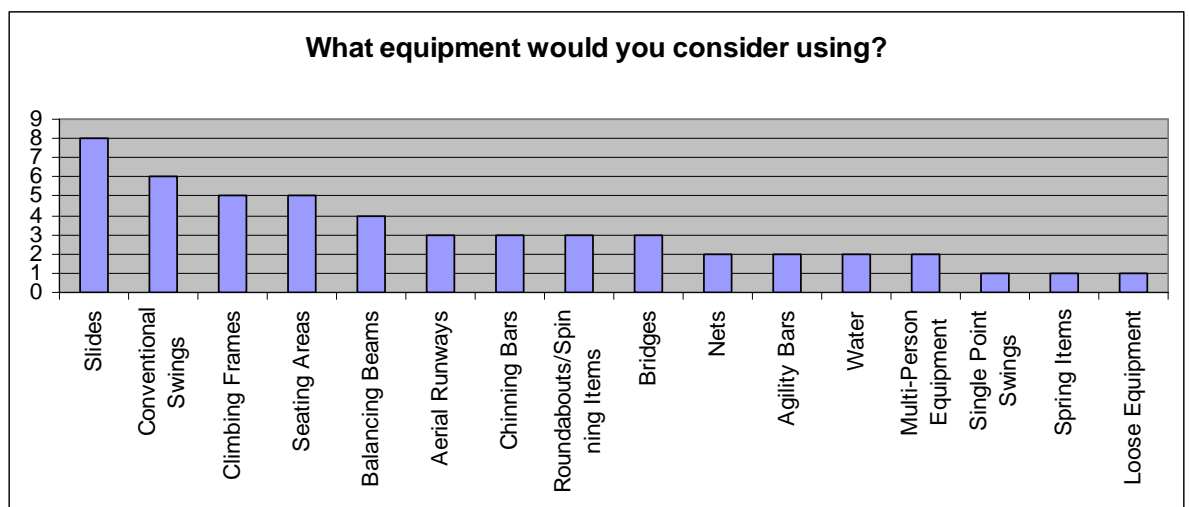


Fig. 3. – number of participants who would use equipment items

When asked what discouraged interviewees from using playgrounds, a wide variety of factors were cited, however physical problems such as a fear of falling or a feeling of lacking strength or capability were mentioned by three people, and signs giving an age limit was a factor mentioned by two. Feeling silly was one social problem mentioned, however there was also the issue of being labelled a paedophile which prevented people from using equipment. This was mentioned by five out of the seven male participants. Equipment not being designed for adults was actually only mentioned by one person, suggesting the equipment itself may be of secondary importance as a preventative factor. Leaving playgrounds for children, fear of children being over boisterous and having responsibility for children were also mentioned.

Despite the consensus from the discussion groups seeming to be that having indoor playgrounds would be preferable, only 17% said they would prefer to use indoor facilities. 33% preferred outdoor playgrounds, with another 33% saying that there should be both indoor and outdoor available, the key reason given for this being the unreliability of the English weather. 11% said they would use neither, and just 6% said they didn't know. Three people preferred the fresh air of being outdoors, and one felt being indoors could be too noisy, however two said that indoors would be preferable for the weather and one said that it would be safer indoors. Two thirds of participants said that they would be willing to pay to use indoor facilities. Despite safety being mentioned as a reason for preferring indoor facilities by only one person, 78% of participants thought that youths are a problem on playgrounds. This question was asked after the question regarding indoor/outdoor preference, such that the issue of youths on playgrounds which had been so prevalent during discussion groups was not planted in the minds of interviewees. The fact that youths did not seem to be a motivating factor for placing playgrounds indoors or discouraging use of playgrounds in these interviews may suggest that the fear of youths was amplified in discussion groups by the social dynamic of the group situation.

72% of interviewees thought that a sign inviting playground use by older people would encourage them to use equipment, with 67% thinking that signs explaining how to use equipment and what the benefits to them would be would also serve as encouragement. 61% of people said they would prefer to use a playground which was supervised, but only 33% preferred supervision from a training instructor, the rest being indifferent to what type of supervision they received or preferring just a general warden. One person wanted

both as he felt that they fulfilled different roles. People felt that a training instructor might improve safety, and that supervision in general might reduce not only vandalism problems, but also the problem of being seen as potential paedophiles. 72% said that they would be encouraged to go if their doctor or health care practitioner recommended playground use.

89% of participants said that the provision of toilets would encourage them to attend playground facilities, with 83% saying that seating areas would serve as encouragement. 78% said shelter would encourage attendance, 72% chose natural planted areas, 61% said a café would be encouraging (see Fig. 4), and other suggestions were a drinking fountain, bikes, car and bike parks and a model in a bikini. Walking was by far the most popular means to get to the playground, with two thirds saying they would like to be able to walk to the facility, while a third would like to be able to go by car and 22% by bus. One person wanted to cycle. A mini-bus was suggested.

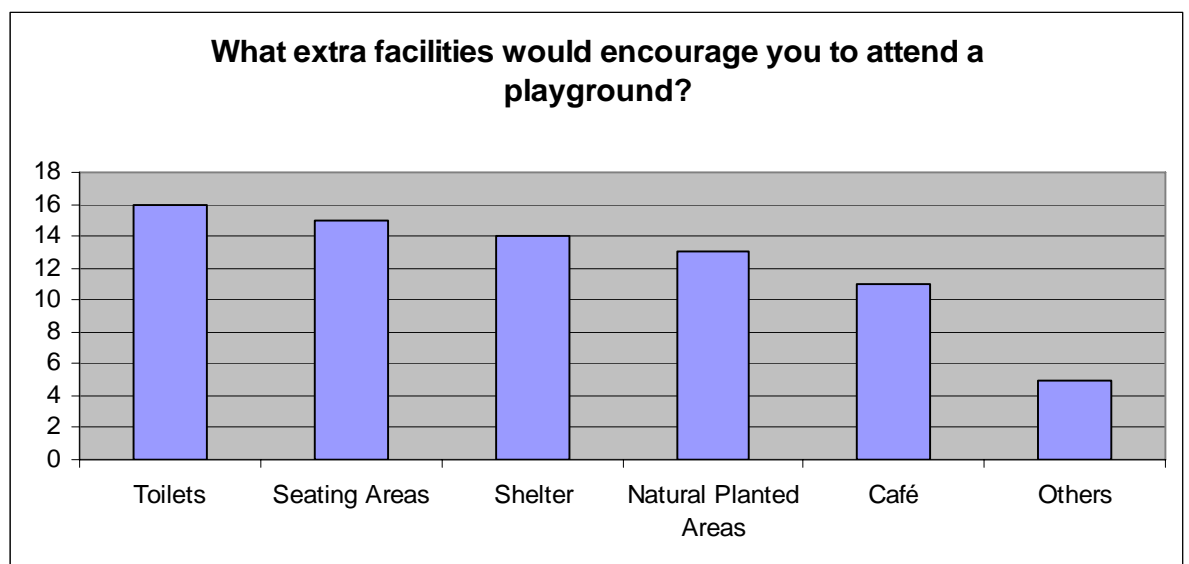


Fig. 4. - Popularity of extra facilities

In terms of making things easier to use, ideas generated from discussion groups were asked about. Grab rails on balance items was the most popular suggestion with 83% thinking that this would make use easier. 72% thought better grips on climbing bars and ropes would help, 56% said making items such as seesaws and swings higher from the group would be beneficial, 50% wanted wider seats and slides, 39% said bigger crawl tubes, 28% gently sloping slides, 22% a hill slope approach to slides as opposed to steps, though one person felt you were more likely to slip on a slope than on steps, and 17% said padding inside crawl tubes would help (Fig. 5). Suggestions for things that would encourage use from the interviewees themselves were minibus pick up services, provision

of knee and elbow pads, convenient location, stronger apparatus, changing the rules to permit adult use and also changing the accepted mindset regarding adult use.

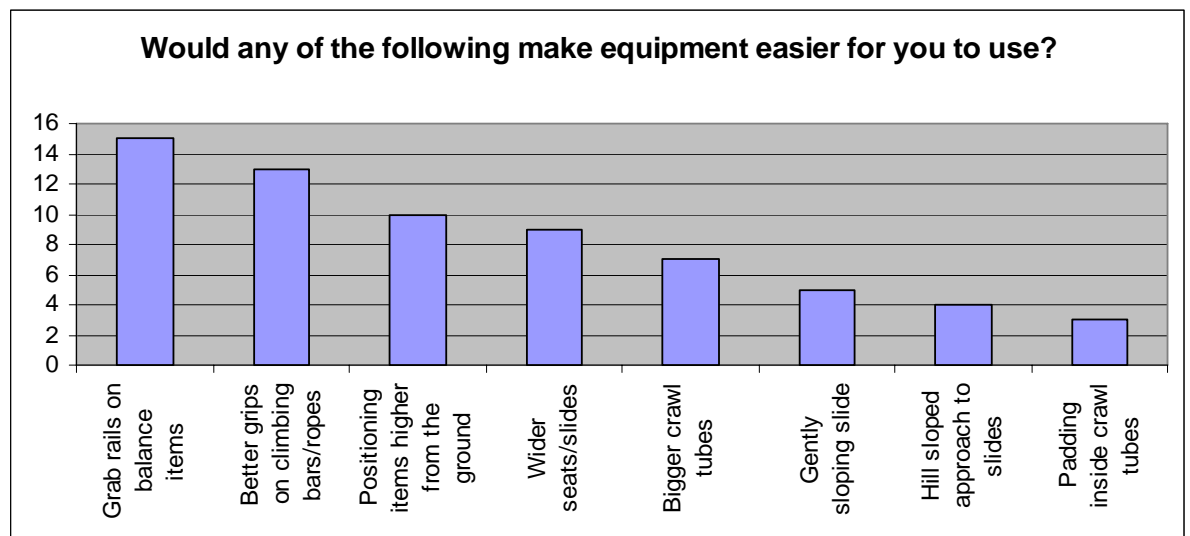


Fig. 5 - Frequency count of popularity of modifications

Rubber seemed to be the most popular flooring choice in the discussion groups and again, rubber seemed most popular amongst interviewees, with 61% saying that they would prefer it. Bark was suggested by three people (17%), and grass and Astroturf by one person each. Four people did not have any thoughts about flooring material. The apparent cleanliness of rubber flooring and the issue of safety were equally important with six people mentioning each.

Though no one in the discussion groups or informal interviews had mentioned the colour of equipment, a question on colour preference was included to see if this might be a factor. 44% of respondents liked bright colours and 28% preferred natural colours. One person suggested pastel colours, one said it depended on the location, with parks being better in natural colours and city playgrounds better in bright colours, and three did not have an opinion. While some people found bright colours cheerful and uplifting, two people felt negatively about them finding them childish and gaudy. One person pointed out the necessity of choosing colours to give good contrast between objects and levels.

A number of suggestions for equipment or facilities that people might want to use were offered in line with suggestions generated from previous data gathering (Fig. 6). Fitness and walking trails, rocking benches and oversized games such as chess were the most popular of these, with 56% of respondents saying they would like to use these. 50% of

people wanted cycle trails and line mazes to be followed on the floor, 39% wanted a paddling or wading pool, and 33% thought floor level trampolines and provision for ball games was a good idea. 28% would like to use climbing walls. Additional suggestions, all of which came from just three people, were croquet, a quiet garden area, trampolines with harnesses, boules, skipping, basketball nets, automatic tennis ball shooters, skittles and an undercover supervised carousel for adults and children. See Appendix J for raw data.

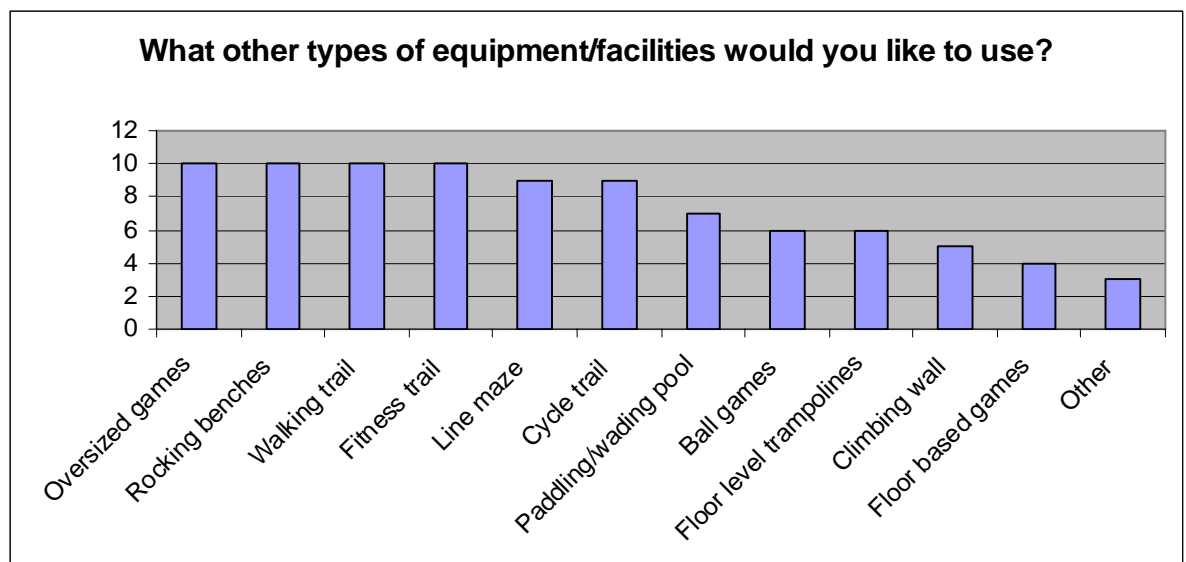


Fig. 6. - Popularity of additional equipment/facilities

The number of participants was too small to enable meaningful conclusions to be drawn regarding associations between variables, with expected frequencies below five in many categories when the data was cross tabulated, rendering the chi-square test invalid. Out of interest, the data was assumed to be representative of what would be found in a far larger sample and replicated to give 144 (fictitious) participants. Chi-squared tests run on this data suggested that there would be a significant (at the 0.05 level) association between gender and whether people think older adult playground use is a good idea, with females more likely to think that it is (82% as opposed to 43% of males), but there would be no association between gender and whether people say they would actually use the equipment, with 71% of men and 73% of women saying they would do so. There would be significant ($p < 0.05$) association between age and both whether people thought playground use for older people was a good idea and whether they said they would use it. 87% of those aged between 60 and 69, but only 50% of those aged between 70 and 79, and 80 and 89 thought that it was a good idea. 87% of this first age group (60 – 69) said that they would consider using equipment, but this was true of only 75% of 70 – 79 year olds and 50% of 80 – 89 year olds (see Appendix K for SPSS output). Because these

results are unreliable, they will not be discussed any further, however if the proportions yielded by data gathered so far, as described above, proved to be a trend in a larger sample then it may be that targeting younger age brackets of older adults is more appropriate than targeting older age brackets. Further research would be recommended to establish the validity of this.

Summary

- The majority feel that older people using playgrounds, and designing equipment so it could be used by adults and children is a good idea
- Renaming playgrounds was only considered important by a third of people
- A minority of older people attend playgrounds with grandchildren, and of those, only half use any equipment
- The majority of people would use playgrounds with children. A little under half would do so as a group activity. Using playground facilities alone was not popular
- Slides and swings were the most popular equipment items, but less than half said they would use any single piece of equipment
- For men, there is anxiety about being seen as a paedophile
- There is no consensus on preference for outdoor or indoor facilities
- Youths are a problem on playgrounds
- Informative signs inviting use and explaining how to use facilities may encourage use
- Medical advice regarding playground use would also encourage use
- Facilities such as toilets, shelter, planting and café facilities would encourage attendance
- Walking is the preferred means of getting to facilities
- Grab rails, grips, and changes of proportion to be more adult friendly would all encourage equipment use
- Rubber flooring is preferred
- Bright colours are preferred
- Additional equipment such as fitness trails and oversized games would also be used

Chapter Five: Discussion

A literature review showed that there is little already known about the use of playgrounds by older people, with the exception of the study at the Rovaniemi University, which showed positive health benefits for older adults who used playgrounds. Surveying people with a professional interest in play and intergenerational activity, including playground manufacturers and providers, also revealed that little was known or being done in this area, however a very low response rate to the questionnaire circulated to the IPA board members, as well as to a message posted on a forum for play workers, meant that many views were not obtained. With so little published literature, it is very possible that there are incidences of older adults becoming involved with or being designed for in playgrounds, but that accounts of what is happening are anecdotal and accessing them depends upon speaking to the right person. Though there was a feeling that playground use by older adults is an idea which has its benefits, the chief concerns of those involved in play were that to open playgrounds to adults could disadvantage children, and that children must be the priority when planning provision. Financial constraints and fears regarding paedophilia were also issues which superseded concern about the equipment itself.

The Rovaniemi University study emphasised the benefits of balance and agility equipment, and evidence suggests that falls reduction training should include balance, strength, co-ordination and reaction time training (Pahtaja, Hämäläinen & Leppänen 2006). Additionally, feedback from participants in the Finnish study suggested that the social support element of the playground programme had been important. The possibility of social factors being of key importance was also raised in the literature regarding barriers to activity for older people, in which issues such as embarrassment and not being part of a group emerged as barriers for many. Information gained from talking to stakeholders again suggested that social factors may be more important than physical factors in the provision of playgrounds for older adults. However little was determined in this stage of the research regarding what elderly people themselves considered important with regard to playgrounds. For this reason, prior to conducting discussion groups, it was decided to use informal unstructured interviews to help gain some insight into what key topics should be addressed.

These interviews made use of an opportunistic convenience sample, and though the only exclusion criteria used was age, no one who was not self-ambulatory or who had any significant sensory impairment was spoken to. This meant that the different perspectives of potential users were not comprehensively represented. This lack may be present throughout the study, as although people who used mobility aids including wheelchairs, as well as people with significant visual and hearing impairments, were included in discussion groups, it is difficult to determine how much they contributed to the group, though the group who were least mobile did say that they simply couldn't use the facilities without a helper at all.

Data gained from initial informal interviews was used to generate the key topic areas for discussion groups, and the prompts to be used should conversation dry up. An iterative approach to data collection was taken, in that the information and experience gained in each discussion group was used in those that followed. In this way not only was consistency sought between discussion groups, with recurring topics focused on as of particular importance, but the later groups served as a forum for some degree of validation (or discreditation) for those ideas which were not voluntarily repeated across groups.

Results from discussion groups suggested that while very little use of playgrounds was being made by older adults, there was a willingness to try equipment. Fear of antisocial behaviour, the importance of the social aspect of use, and the need to know equipment was suitable for use by older adults and that such use was encouraged was in line with what had been learnt in previous methods. There were not homogenous views on equipment, but ideas for how equipment could be improved or what extra facilities could be added, as well as about the situation and type of use preferred did emerge.

Data from discussion groups relates to collective phenomena due to the influences of the collective circumstance in which it is obtained (Sim, 1998 *In*: Robson, 2002). For this reason it cannot be assumed that data obtained is reflective of data obtained from individuals. Individual interviews were chosen as a means to discover the extent to which data obtained from discussion groups was reliable both in general terms, and when applied to individuals. By using semi-structured interviews, this also permitted a greater degree of quantification of information, allowing a more accurate understanding of what was considered important by the majority of people and what had appeared to be

important in a group setting due to the absence of dissent or the presence of misleading agreement. It is also possible in discussion groups that those who are disinterested in the ideas being discussed will contribute less, and thus there is the potential to overlook their views.

The information gained from discussion groups served as the building blocks for the semi-structured interviews, combining fixed response and open ended questions. Though the quantitative data could have been more useful by virtue of the sample being potentially more numerous if questionnaires had been used, discussion groups had required considerable prompting at times, and so interviews were considered more likely to encourage engagement with the subject matter than self administered questionnaires.

Results from the semi-structured interviews were largely in accord with those from discussion groups, with perhaps less people interested in organised group use, and less preference for indoor facilities than had been expected as a result of the group data. However, 72% of interview respondents said that they would consider using playground equipment, suggesting that creating playground facilities which older adults would both be able to use and would like to use may have benefits for a huge number of people. As of 2001 there were around 13 million (Census 2001) people over the age of 60 in the UK. If 72% of those people were to use playgrounds, then that would amount to 9.36 million people benefiting from a more inclusive approach to playground design. With the number of older people both in the UK and worldwide forecast to continue to rise in the future, this number will only continue to grow.

Data collected at each stage of the process, together with anthropometric data regarding older adults, was combined to create a set of basic guidelines which might aid designers in creating playgrounds which are suitable for use by older people, and contain facilities which older people would like to use.

Most anthropometric data was taken from two volumes published by the Department of Trade and Industry - Older Adult Data (Smith, Norris & Peebles 2000) and Adult Data (Peebles & Norris 1998). These books form compendiums of data from a variety of sources, some of which are estimates and some of which are drawn from small samples of healthy older adults. Thus their accuracy for all potential users cannot be assured, and user trials of equipment would help to refine required dimensions. Where clearance, reach

or performance was required, such as for free space or step height, the anthropometric data used was the largest or smallest value available. Both adult and older adult data was used in order to maximise inclusively for existing adults and also to take account of the possible dimensions of the older adults of the future. Where comfort was required, a mean measurement was used in order to create the greatest compromise. Anthropometric data, while providing useful parameters for design, cannot reflect human preferences. For example, it may be that older people prefer a higher seat height than one which allows them to sit with their feet flat on the floor, as ease of getting up from the seat is considered more important. For this reason all measurements given are tentative and should be refined through user trials.

Many guidelines remain vague, with further research required to define parameters – for example, hill embedded slides are only likely to be preferred if the hill isn't too steep, however data collected at this stage does not extend to defining the desired gradient. One factor which was not addressed and was not raised by respondents at all was material preferences. That is was not mentioned may indicate that it was not considered an important factor for older people, however further research should seek to clarify this issue. That there is a likely gap between what people say they would do and what they would actually do when faced with the opportunity to use a playground designed to be suitable for older adults is also an issue. Further observation work would be of benefit to determine how popular such playgrounds would be likely to be.

The guidelines proposed here attempt to harmonise with existing standards regarding playgrounds for children, and no additional physical risks due to sharing equipment are apparent, however a monitored assessment period would be required to ensure that children are not endangered nor their play experience compromised by sharing equipment with older people. The issue of entrapment has not been dealt with in these guidelines as no information was found regarding the source of the dimensions used in developing the probes used to test for entrapment hazards. It is possible that these probes would require re-designing in order to prevent entrapment for adults as some spaces which are large enough for children with small dimensions to pass through may pose a hazard for adults. In doing this, care must be taken not to create gaps in the equipment of a size which renders it unusable for children. It is also possible that falling space dimensions would have to be reassessed for adults.

5.1: Guidelines

Adhering to the guidelines laid out by the National Playing Fields Association (NPFA, n.d.) and RoSPA (RoSPA 2006) for creating accessible playgrounds will help to facilitate attendance and use of playgrounds by older people. Additional guidelines drawn from data gathered in this research are provided. Further research and trials would be required to test the validity of these guidelines.

Guidelines for playgrounds:

- **Integrated playgrounds permitting adult and child use are preferred to playgrounds designed solely for adults**
- **Provide supervision for users, preferably from a training instructor able to offer advice tailored to older people about using equipment and appropriately trained in first aid. If this is not possible, playgrounds should be under the supervision of a general warden in order to reduce anti-social behaviour and encourage a sense of safety**
- **Incorporating pleasant planting will encourage people to attend playgrounds**
- **Ensure the equipment and environment is well maintained**
- **Provide signs inviting adults to use the equipment – publicise where equipment is suitable for adult use**
- **Provide signs informing people how to use equipment and what its health benefits might be**
- **Bright colours are the most popular colour scheme. Colours must create good contrast for visibility**

Location:

- **Ideally, situate facilities in a controlled, or at least supervised environment.**
This will help reduce the sense of threat from other users, particularly groups of youths, provide reassurance regarding safety. Controlled environments also permit a wider variety of equipment, including more easily vandalised equipment
- **Locate unsupervised playgrounds in busy areas where they are always overlooked for safety**
- **Provision of both indoor and outdoor facilities will allow year round use**

- **Locate playgrounds to be within walking distance for the maximum number of people. Where this is not possible, perhaps for larger facilities with supervision, a good bus service will encourage attendance**

Equipment:

- **All equipment should be suitable for use by people weighing up to 107kg (Europe) or 110kg (USA) (largest 95th percentile measurements)**

- **The free space along the forced path of the user should have a standing height of 2407mm, a seated height of 1559mm, and a hanging height of 2254mm**

The existing dimensions of the cylinder representing the user are a radius of 1000mm which is adequate for older adult users, with the largest of the 95th percentile arm span measurements being 1970mm. However the current standing and hanging height is 1800mm and the seated height is 1500mm – this is insufficient for the largest 95th percentile measurements given above.

- **Equipment on which people sit, such as swings and slides, need to be of sufficient width to enable people to fit. This should be 523mm in Europe, but 583mm for the USA.**

A seat width of over 523mm (95th percentile sitting hip/thigh width for a UK male over the age of 65 is 483mm, plus 40mm clothing allowance) should accommodate most adults in the UK and Europe, however 543mm width would be required to accommodate 95% of USA adult females. Again additional width of 40mm will be required to allow for clothing (Smith, Norris and Peebles, 2000). Making seats wider still may aid people's confidence that they will be able to fit and accommodate a greater number of people still. The smallest maximum swing seat width stipulated in Product Assessment Specification 018 (BSI 1996) is 525mm, with a range of 455 to 635mm, so offering wide enough seats should be possible for the UK population. Similarly, slides must be less than 700mm or more than 950mm (BSI 1998b), so adult hip widths should be easily accommodated.

- **Co-operative swinging equipment such as swinging boats should be provided**
- **Raise starts and run-outs on slides to 420mm**

The run out section of slides is permitted to be up to 420mm from the ground (BSI 1996). Using this maximum may assist older people in getting up from bottom of a slide. A short length of raised horizontal surface is also permitted at the beginning of the slide and may assist older adults in getting onto the slide with confidence

- **Embed slides in hills**

Slides may be easier for some people to use if embedded in a hill rather than free standing in order to avoid steps, however the gradient and surfacing of the approach needs further investigation. The maximum recommended ramp incline is 38 degrees to the horizontal (BSI 1998a) however it may be that grass slopes could cause more risk of slipping for older people than steps, and more research into this is required

- **Keep step heights and ladder rung heights to a minimum (110mm and 130mm respectively) where possible**

Where steps are used, these should be comfortable to use for older people. The fifth percentile comfortable step height for both ascending and descending for a Netherlands female over the age of 80 is 100mm. The 5th percentile maximum step height is also 100 for the age band 75 – 79 (Netherlands female), however this may be anomalous as the sample size was just 38, and the 5th percentile maximum step height in the 80+ group was 190mm (Smith et al, 2000). As the minimum specified rise on a spiral stair is 110mm, this minimum height should be used, providing greater height is not required in order to deter smaller children from ascending. The minimum rung height of a ladder is 130mm in order to prevent entrapment for children under 36 months, so ladder rungs must be 130mm apart.

- **A range of seat heights on seated equipment should be provided**

Seats on items such as swings and seesaws need to be of a reasonable height to allow older people to sit and rise easily. The mean sitting height for a UK female over 65 years is 430mm, and an adjustment of between 25 and 45mm for shoes needs to be made (Smith et al, 2000) giving a mean height of 465mm for swing seats, however providing a range of swings with different height seats would be preferable to enable people to select the one most appropriate to themselves. This is especially important to enable adults and children to use equipment as the 5th percentile seated popliteal height of a UK 7 year old girl is just 275mm (Norris & Wilson 1995), though the minimum ground clearance for swing seats is 350mm (BSI 1998a). However, lower swings need to remain in place for children.

- **See-saws should have cushioning end stops**

This helps prevent the seats from reaching all the way to the ground making it easier for older people to use the force of their legs to push upwards and to dismount, as well as less jarring. Further investigation is needed to determine the ideal height of these end stops.

- **Grab rails at 850mm should be provided for items requiring balance, which should be low to the ground.**

The standing grip height of older adults is between 610mm (lowest 5th percentile UK female) and 825mm (highest 95th percentile, UK male), though the maximum measurement internationally is 868mm (95th percentile Netherlands male). Using the upper of these values for the UK will allow taller people to reach grab rails without stooping, while shorter people will still be able to reach. This does fall within the specification laid out by BS EN 1176-1:1998 (BSI 1998a) of 600 - 850mm above the standing surface, as 825mm could be used in the UK, however internationally, the maximum permissible height of 850mm should be used. No details regarding the preferred position of the handrail relative to the body on a walking task has been obtained, and this could benefit from further research.

- **A line maze promoting balance activity without the need to leave the floor is a popular option and easy to provide**
- **Crawl tubes need to be a minimum of 584mm (Europe) or 609mm (USA) wide at their narrowest point to be wide enough for adults. The height should be 836mm (Europe) or 852mm (USA)**

The largest 95th percentile shoulder breadth in Europe is for a UK adult male. This is 544mm, however the largest measurement in the USA is 569mm. Again, an additional 40mm to allow for clothing should be given, giving a width of 584mm or 609mm respectively (inside of any padding) through the range of crawling shoulder heights. The shoulder to grip length of adults ranges from 540mm (UK) to 735mm,(Netherlands) thus the width of 584mm or in the USA 609mm would be required through this range of heights. This also provides an indication of the minimum required height of a crawl tunnel, though height has not been mentioned as a problem. However, the largest adult crawling height is 836mm (UK) and 852mm (USA). Making tubes wider than recommended may reduce claustrophobia and encourage use.

- **If sand play is provided, create raised boxes so that people do not have to stoop too far to play.**

Providing an edge to sit on (at a comfortable adult seated height of 465mm), or seats at the sand pit could help older adults to use them. As sand play is an activity older adults are less likely to participate in unless playing with children, the sand pit must not be too high for children to reach. The 5th percentile standing elbow height of a UK 2 year old female is 480mm (Norris & Wilson 1995) and so the height of raised

sandpits should not exceed this, though standing platforms could provide multi-height access for different size children and enable a reasonable seating for adults. To allow people to place their knees under the sand box as at a table, the height of the base of the sand box should be 610mm (95th percentile knee height for a Netherlands male). However, if a seat height of 465mm which would cause least difficulty for the most older people, as discussed for swing height, was to be used, 211mm (95th percentile, France and USA adult thigh depth) would be needed above that - the combined seat height and thigh height gives a measurement to the bottom of the sand box of 676mm. The height of the lip of the sand box will then be dictated by the desired depth of the sand, however the mean of the mean seated elbow heights available is 228mm from the seat surface – this gives a lip height of 693mm (from a 465mm seat). This is approximately equivalent to the mean standing elbow height of a 5 or 6 year old UK child. Situating the lip of the box at this height would only permit a sand plus container base depth of 17mm – a greater lip height or lower seat height would be required for a sufficient depth of sand, and user trials would help to determine which would be preferred. A platform of 213mm (693 minus 480) will be required to allow the smallest 2 year olds to stand and play at the sand box at 693mm. Raised sand boxes should also provide access for wheelchairs. 95% of UK wheelchair users would be accommodated by a knee clearance height of 691mm (BSI 2001) however to enable people to get closer to the sand pit, an arm rest clearance of 794mm would be required, though a stepped depth of sand box could assist in keeping lip height to a minimum. Thus multi-level access is required, providing a lip height ranging from 480mm to 794mm (plus lip thickness) or 1006mm (mean UK adult standing elbow height) if adults can stand at the sand pit edge. Adjustable height seating may help to accommodate more people comfortably.

- **Grip enhancing material should be provided on monkey bars, climbing frames and ladders**
- **Climbing walls are an option for both adults and children**
- **In supervised, controlled environments:**
 - **Provide more conventional exercise equipment such as exercise bikes and gym balls**
 - **Floor level trampolines with well marked edges would be enjoyed by many**
 - **Provide padding on the insides of crawl tubes**

- **Paddling, wading and swimming pools require easy steps or slopes to enter and exit rather than ladders, with a non-slip surfacing.**
- **Provide loose play equipment including balls (and space for ball games), skipping ropes, hopscotch and oversized board games such as chess and Jenga. Giant games are particularly popular.**

Other Facilities:

- **Fitness trails, walking trails and cycle trails are all desired**
- **Ensure provision of seating areas. Seating areas should be comfortable, the correct height (as previously mentioned for swing height) and promote sociability**
- **Swinging benches or seating provides some low level activity for older people and may be a step towards encouraging greater participation**
- **Provide well looked after toilets**
- **Provide a shelter from the weather (shade from sun/shelter from rain or wind) at outdoor playgrounds**
- **A café providing refreshment would encourage attendance.**

Flooring:

- **Solid fill flooring such as rubber is preferred**
Though loose flooring such as bark offers better protection for the long bones as it absorbs the impact of a fall over a greater depth and greater time with less bounce (David Eager, 2006, personal communications), people feel a solid fill floor is smoother to walk on and less slippery, making it less likely to create a fall in its own right. It must however be sufficiently rigid to provide a stable base, but conform to BS EN 1177:1998. (BSI 1998b) People also felt solid fill flooring to be cleaner and safer in terms of being able to see hazards such as discarded needles. It is possible that in a monitored environment, bark would be acceptable beneath certain items of equipment, where people would not expect to walk, but further research is required to determine what would be acceptable

Guidelines for promotion of usage:

- **Schemes targeted at older adults under 70 may have greater uptake**
Evidence so far suggests this younger age group are more willing to use playground facilities
- **Organise group playground sessions for older adults with a motivational instructor, including transport for the less mobile**
This provides social contact, removes some of the barriers to social acceptability of use, allows people to feel safer under supervision and gives people motivation and instruction on what to do on the equipment
- **Promote playground use in a health care setting**
Health care workers, including doctors, are in a powerful position to suggest playground use to promote activity, and evidence suggests that the majority of people would respond to such a recommendation
- **Renaming adult friendly facilities something along the lines of leisure grounds or activity parks may de-stigmatise use for some people**
- **Encourage non-intimidating, non-destructive use by older teenagers and adults**
This may lead to a greater willingness to use playground facilities for activity in older age
- **Allocate time when the playground is just for children, time for multi-generational play, and time when it is for adult group use.**
While multi-generational play was considered the preferred circumstance of use by older people, benefiting adults and children alike, concerns about preserving play free from adult interference, feeling silly, fear of children being too boisterous and fear of being perceived as a paedophile all suggest that allocating child only time and adult group session time may be beneficial, but this would need investigation.

5.2: Playground Audit

In order to ascertain the suitability of existing facilities for adult use, an audit of an existing facility was conducted (see Appendix L) and the results compared with the guidelines specified in this project. A radius of 1km, which was considered a reasonable walking distance, was drawn from a central point in a densely populated area near a town centre, with the intention of auditing those playgrounds which fell within the encompassed area. Although the idea of using indoor equipment was preferred by many participants, conversations with indoor equipment providers revealed that existing indoor equipment is not considered suitable for adults due to inappropriate materials used. Additionally there were no such facilities within walking distance from a central point. Two outdoor playgrounds were found within that area, although it is possible that smaller playgrounds not situated in parks were missed. The second of these playgrounds visited had been dismantled. The remaining playground was situated in a park near to the centre of town which was well used and busy during the day, but screened from the road by trees and buildings and quiet at night.

The playground was visited in the early evening, and youths were not present on the equipment, instead congregating at a bandstand elsewhere in the park. The playground was clean and all equipment was in working order however the paint work was very worn. In terms of the recommendations to enable access for people with disabilities, the playground and its access had no raised edges or level changes. Two gates were provided, only one of which was well marked in a contrasting colour, though both were an appropriate width (1014mm compared to a recommended 1000mm) and no loose fill flooring was used. The main access path through the park was sufficiently wide (1530mm, compared to a recommendation of 1200mm) and flat, however the short length of path between the gate and the equipment was insufficient, being only 970mm wide. No car park was available, though there was a bus stop nearby. Two bench seats were provided, both with easy access from the entrance, and one of which incorporated arm rests to assist with rising. However in terms of equipment, there was none suitable for use by wheelchair users, and certainly no ramps to aid use. A slide, a sample of agility equipment (monkey bars, minimal climbing apparatus), a small adventure playground style piece of equipment (steps, platforms and a second slide) designed for smaller children, a roundabout and two infant cradle swings were provided.

In terms of the guidelines specified in this project, there were a few items that were fulfilled. These were the use of bright colours, which were worn, nearby pleasant planting (due to the location in a town centre park), available access to supporting facilities such as cafes due to its proximity to the town centre (nothing within eyesight of the playground), and a location easily accessible on foot or by bus. Again due to the situation, there were walking paths around the park. Also, solid fill flooring was used providing a clean and stable ground cover.

On the negative side, a sign reading “No adults unless accompanied by a child” was in place on one of the gates to the playground, which would discourage adults from using equipment. No suggested age range was given, however reasonably tall agility bars and the presence of a separate piece of equipment for very small children suggested that the area was designed for older children to use. No extra grips were provided on the metal agility apparatus. The slide width was just 278mm (523mm recommended in the UK), the run out of the slide was just 140mm from the ground as opposed to the 420mm maximum permitted, and access was via a steep ladder, the step height of which was 254mm, 115mm greater than the recommended 130mm. Swing heights were not measured, given that the only swings provided were small cradle swings for toddlers, and no co-operative play equipment such as see-saws was provided and no sand pits, nor paddling pools, trampolines, board games, or loose play of any sort. No balance equipment was provided, nor any crawl tubes. No ground based activities such as hopscotch were in place.

Seats were not arranged to encourage sociability, and were lower than the 465mm suggested at only 400 and 398mm. There was some natural shelter in the form of trees, however seats were not sheltered. Due to the general absence of a wide variety of play items, many of the guidelines generated were obsolete. Some could not be checked, such as the weight limit or the presence of any schemes to encourage use, however this latter was considered unlikely.

Overall, the playground was very disappointing and did not meet any of the guidelines to do with equipment itself, though access to the playground was adequate. The general lack of equipment and variety of activities was also discouraging, particularly given that there appeared to be no alternative facilities within 1km of the central point. Alteration and expansion of this playground in line with the guidelines for use by older people, especially given the town centre site and the day time popularity of the park facility,

would be likely to improve the play experience not only for older adults, but for children as well.

5.3: Cost/Benefit Analysis

The National Institute for Health and Clinical Excellence (NICE 2006) estimates that a net healthcare saving of between £750 and £3150 per Quality Adjusted Life Year (QALY) was made for each person who underwent a brief intervention regarding physical activity in primary care. As this is a net figure, the cost of intervention delivery is already deducted, however £750 per QALY will be used as a conservative estimate. If this is taken as a reflection of the healthcare savings resulting from increased physical activity, then we use this figure to calculate the saving that could be made from encouraging activity through playground use.

58% of those interviewed aged 65 and over said that they would use playgrounds. The Nottingham population over 65 (Census 2001) is 34,955. 58% of that population is 20,274. This would give a saving of £15.2 million per QALY in Nottingham.

Nottingham has 149 playgrounds (National Playing Fields Association, n.d.), and the average cost of purchasing and installing equipment is £68374.48 (figures supplied by Colin Bailey, 2006, personal communication). If 149 new playgrounds were to be installed, this could then be expected to cost £10.2 million. No figures were obtained for maintaining playground facilities, or for providing staff to supervise facilities, however if these are estimated at approximately the same as the original installation cost (3 staff per playground plus maintenance costs at £17114 each), and the lifespan of the playground is estimated at just 10 years, then Nottingham's playgrounds will cost £11.22 million per year.

This could provide a saving of up to £3.98 million a year in Nottingham alone, dependent on the quality adjustment made to the years of the users. That is £14.91 per person in Nottingham (Whole population 266988 – (Census 2001)). Generalised to the current population of the UK (60.209 million, (National Statistics 2006)), that is a total saving of up to £897 million per QALY. The benefits to quality of life and enjoyment are less easily quantifiable, and no account has been taken of the possible long term savings and

improvement to life quality for younger people encouraged to be more active by improved playground facilities.

Whilst these calculations are far from precise, they do give an indication of the potential worth of promoting playground use for older people.

5.4: Overview

The original aims of this project were to investigate how playgrounds could be made more inclusive to older adult users and to generate guidelines to assist play providers and equipment manufacturers in making them more inclusive. The research methods chosen worked together to build an understanding of what older people felt were the issues involved in playground use, and to generate ideas regarding the modifications and additions to playgrounds that would promote use by older people. Using this data, a set of basic guidelines have been produced relating to equipment preferences and modifications, as well as extended and supporting playground facilities, location and means of promoting use. Though the involvement of RoSPA was lost at an early stage, this is in line with the original interests they stated at the outset, which helped inform the development of the aims stated above.

Chapter Six: Conclusions

A number of problems were encountered in conducting this research. Early in the process, contacts were made at RoSPA and assistance in accessing literature, contacting potentially interested professionals and conducting a survey of International Play Association members was offered. RoSPA contacts did provide several relevant documents, including playground accident statistics for the UK and a guide to relevant British Standards (BS EN 1176 and BS EN 1177), and were able to facilitate access to the International Play Safety Conference 2006, where a number of further contacts were made. However further access to RoSPA's library and assistance in circulating a survey to the IPA did not come to fruition due to extended leave of both contacts. Published contact details for the IPA board and council members were found and a questionnaire was circulated to those with published details, however, the IPA may not have been the best organisation to survey independently, because of the language difficulties involved in surveying an international sample – a problem which may well have contributed to the low response rate, as indicated by the prevalence of responses from English speaking countries. However the membership approached did cover a range of professions connected with play, offering the opportunity to gather views from different perspectives.

No organisations concerned with older people were surveyed as older people themselves were to form the participants for the study, however it may have been interesting to obtain a view from professionals concerned with older people as well as professionals concerned with play, and in any future research this may be a worthwhile perspective to seek. One user group whose opinion has not been sought is children themselves. With play professionals keen to stress the importance of prioritising children in playground provision, an early avenue for further research in the area would be to seek the views of children regarding sharing the playground with older adults. An under-representation of older adults with more severe physical impairments or with cognitive impairments amongst the participants used in this research could also be rectified through further research on targeted populations of interest. The idea of promoting playground use amongst younger adults in order to create continued use into older age was suggested by participants, and so posing some of the questions asked during this research to adults in different life stages may be another activity for future research.

Problems were also experienced in creating discussion groups. In part this was due to the timing of the project. Many groups whose leaders suggested they may have been willing to participate were on holiday over the summer in much the same way as schools are – something that wasn't anticipated. Further, due to Leicestershire's "July Fortnight", many of these groups broke up for the summer quite early. Another problem encountered in trying to recruit groups was that a number of organisations spoken to had had bad experiences when participating in student research in the past, with a lack of courtesy regarding cancelling of appointments leading to an unwillingness to participate again. One local day centre which ran a number of group and drop in sessions had the opposite problem of their clients having become tired of participating in student research, and this may have been due to its proximity to the university.

Selection of older adult participants to form focus groups on the basis of qualities such as age group or impairment would have provided more manageable groups and potentially more useable data, however no means of composing such groups was available in the time allowed. Recruitment of participants who attended pre-existing groups was considered preferable to recruitment of individuals through advertising or snowball sampling for several reasons. Firstly advertising then gathering sufficient individuals for several focus groups and arranging convenient times may have been too time consumptive for the constraints of the project, and may not have resulted in sufficient numbers of participants being found. Again, given the time constraints of the project the possibility of insufficient interest was considered too great a risk. Additionally, the self-selection of participants would have created a bias in the data. Though to some extent the groups used were self selected also, it was felt that individuals within a group which had agreed to participate en masse were likely to have a greater spread of views than a group comprised of individuals who had each chosen independently to participate. Gathering individuals in this manner would also have necessitated asking everyone to attend a venue for the discussion group, and where the opportunity to do so existed, it was considered more appropriate, especially with consideration to accessibility and the presence of any required assistance (for example, microphones, hearing loops, support staff and transport provision were all made use of for groups), to make use of people's existing routines by holding discussion groups at a time and place that did not involve participants making many additional arrangements. The only change to participants' routines that were made for the research were the agreement of members of two fitness classes to stay back after the class to participate, although each group did sacrifice an alternative activity such as a

quiz or social time. It is worth noting that where groups had been forewarned by the group leader of the content of the study, less time was spent overcoming initial scepticism before ideas began to be generated, and requesting that group leaders inform participants of the subject matter in advance may aid the efficiency of the session.

Using pre-existing groups however, created its own problems. Though a group size of around 8 to 12 participants is thought to be suitable for group interviewing techniques (Stewart & Shamdasani 1990, *In*: Robson, 2002), half the groups were larger than this, with 29, 22 and 15 participants. Due to the fact that so few people contacted were willing and able to participate, it was not appropriate not to use these groups simply because of their size. However, due to the time allowed in the sessions and, for the two larger groups, the necessity to use a microphone and hearing loop system, the groups could not be split into smaller, more manageable sub-groups. This meant that the groups were difficult to control and it is possible that some members who may have contributed in a smaller group did not do so in such a large one. Using pre-existing groups also meant that pre-existing group dynamics such as homogenised views or dominant members may have influenced the data gathered. It was also found that the idea of organised group use of playground facilities by older people was very popular amongst discussion group participants, and this may have been a function of using pre-existing groups – a sample consisting of the type of people already involved in groups, and indeed the circumstances of being in a group setting whilst discussing the issues, may have introduced its own bias into the data. If further discussion groups were to be conducted, smaller groups made up of individuals previously unknown to each other may provide different data.

Another potential complication of using face to face methods such as discussion groups, is that people may be particularly prone to social biases, including providing answers they feel the researcher would like to hear. Both during discussion groups and semi-structured interviews, people were asked whether they would use equipment or thought use of equipment by older adults was a good idea. They were then asked to provide suggestions about what would encourage them to use equipment. While it is legitimate to ask someone who would not currently use equipment what could change that might make them use it, it is also possible that people made suggestions that they thought might be helpful, but would not be any more likely to use the equipment themselves after their suggestions were implemented. This may be particularly the case where prompts were used to stimulate ideas. This came across especially in the semi-structured interview stage,

where prompts offered were often taken more as options than as suggestions. This may have been due to the mix of questions asked, with some questions genuinely offering options (e.g. – good idea/bad idea). Though many participants did need prompting, and thus the prompts were on balance necessary, they may at times have served as convenient options for people to choose rather than generating fresh ideas. In some instances during the semi-structured interviews where fixed responses were used, people who may have felt the question simply didn't apply to them as they were not interested in using the facility were forced into making an answer as if it did. While some people were able to say that they didn't have an answer to the question, there is no guarantee that this was always the case, and a "don't know" or "not applicable to me" option should have been made available. Extensive use of filter questions was not made as the views of those who said they did not want to use the equipment were considered important as information may have emerged as part of the interview regarding what could change their minds. Using less prompts in future research might yield more diverse results, however it could have the effect of yielding very little.

Multiple methods were used both to triangulate the data and to build upon each other. Discussion groups are good for generating ideas, and so were used before semi-structured interviews, and informed the development of the interview questions. However discussion groups, while providing a good overview of opinions, cannot give an accurate representation of the strength of opinions. Although the aim of this research was to generate guidelines, it might have been interesting to find out how strongly people felt about some of the issues being discussed. For example, people said they would rather use playgrounds in a group than alone, however there was nothing to gauge to what extent they would rather use playgrounds in a group. Though the data collected did allow an assessment of the popularity of various ideas by way of frequency counts, interviews or questionnaires in further research could provide an opportunity to investigate the importance of certain stated preferences – for example, people may have said they would prefer indoor play areas, but these may be very expensive to run, and if that preference is only a slight one, with people barely more likely to use the facility, it may not be cost effective for the benefit it could yield. Enabling people to rank features to determine which were most important would also be of benefit. In the interviews conducted during this research, people were asked simply whether something was a good idea, and no means of determining the relative importance of different ideas was provided.

Interviews and discussion groups produce a great deal of unwieldy qualitative data which is time consuming to analyse. Though the semi-structured interviews did produce some quantitative data, this was of limited value in terms of producing valid statistical inferences in part because the sample itself could not be presumed to be representative of the population, and in part simply because of the small number of participants involved. Using the semi-structured interview format as a questionnaire rather than as an interview would have allowed a great many more people to be surveyed, which may have produced more generalisable results. This would also have reduced the potential for researcher bias and approach affecting the data. One area of interest when compiling the questions for the interviews was to establish whether people already involved in group activity were more likely to have shown a preference for group use of playgrounds. The volume of data gained was insufficient to make any firm conclusions regarding this, however also worth noting is that by omitting to ask about non-exercise group activities, this data is rendered incomplete and of limited value for its purpose.

Though a reasonable degree of consistency was found between discussion groups as well as between methods, because a representative sample was not created for either discussion groups or interviews, the generalisability of the conclusions of the study cannot be certain. As well as conducting a larger scale study using an appropriate sampling technique in order to give a stratified or random sample, further investigation into the validity of the guidelines developed at this stage is recommended. This could include further discussion groups to seek opinion on and refine guidelines, and beyond that, observation and user trials to see whether people actually use more inclusive facilities at all, and if they do, whether the modifications suggested assist in this. Observations could serve to overcome the major weakness in the methodology of this project by determining if people behave as they say they would. One of the major flaws in using self-report data from interviews, questionnaires and discussion groups, is that what people say they would do does not always reflect what they actually would do. This is a flaw common to all the methods used. Triangulation of methods aids in counterbalancing the weaknesses in one method with the strengths of another, but triangulating methods with a common flaw cannot negate that flaw, and thus the conclusions drawn from the study must be tentative pending trials in which suitable changes are made and people's actual responses to them are monitored – something beyond the scope of the study at this time.

An issue, raised a number of times both by older participants and play professionals, was that playground use by older people may have a strong cultural component – a number of people felt that in Finland, where the investigation into the health benefits of playground use was conducted, social issues such as vandalism, as well as fears regarding paedophilia may be less problematic than in the UK. The IPA respondent from India stressed in his response the cultural expectations of older people and the extent to which that would form a barrier to playground use. This again may be an issue worthy of further research, particularly if schemes to encourage playground use were adopted and proved a success in the UK.

6.1: Project Conclusion

From the data gathered to this point, it can be concluded that playgrounds may form a viable avenue for physical activity for older people, and this research indicates that if provision is appropriate and suitable opportunities are created as outlined in the guidelines produced, there is sufficient willingness among older people to make use of playground facilities to justify the implementation of a more inclusive policy on playgrounds.

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Appendices

**N.B. Formatting may have been changed for
printing and binding purposes**

Appendix A
IPA Questionnaire

1. Name:
2. Nationality:
3. Role:
4. Are you willing to be contacted to further discuss points raised in this questionnaire?

Yes No

If yes, how would you prefer to be contacted?

Email Phone

Please provide contact details:

5. At what age are people considered elderly in your country?
Please enter the age into the box below:

This age will form the definition of “older people” for the purposes of the rest of the questionnaire

6. What do you think of the following ideas:

	Good Idea	Bad Idea	Don't Know
Older people participating with children on playground equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Why?

	Good Idea	Bad Idea	Don't Know
Older people using playground equipment without children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Why?

7. Do you have any data on the following? If yes, please attach details.

1: The frequency with which older people attend playgrounds with children	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2: The use of playground equipment by older people when accompanying children	<input type="checkbox"/> Yes	<input type="checkbox"/> No
3: The use of playground equipment by older people when not accompanying children	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4: The use of the playground area by older people when not accompanying children	<input type="checkbox"/> Yes	<input type="checkbox"/> No
5: Any other use of playgrounds by older people	<input type="checkbox"/> Yes	<input type="checkbox"/> No

8. If older people do join in on the equipment **with** children what equipment do they use?

- | | | |
|---|---|--|
| <input type="checkbox"/> Conventional swings | <input type="checkbox"/> Slides | <input type="checkbox"/> Nets |
| <input type="checkbox"/> Single point swings | <input type="checkbox"/> Sliding poles | <input type="checkbox"/> Aerial runways |
| <input type="checkbox"/> Spring items | <input type="checkbox"/> Loose equipment | <input type="checkbox"/> Climbing frames |
| <input type="checkbox"/> Swinging bridges | <input type="checkbox"/> Chinning bars | <input type="checkbox"/> Sand/soil |
| <input type="checkbox"/> Roundabouts/spinning items | <input type="checkbox"/> Agility bars | <input type="checkbox"/> Water |
| <input type="checkbox"/> Crawling tubes | <input type="checkbox"/> Multi-person equipment | <input type="checkbox"/> Bridges |
| <input type="checkbox"/> Balancing beams | <input type="checkbox"/> Seating areas | <input type="checkbox"/> Don't know |
| <input type="checkbox"/> Others | | |

Please specify:

9. If older people make use of playground equipment when **not** accompanying children what equipment do they use?

- | | | |
|---|---|--|
| <input type="checkbox"/> Conventional swings | <input type="checkbox"/> Slides | <input type="checkbox"/> Nets |
| <input type="checkbox"/> Single point swings | <input type="checkbox"/> Sliding poles | <input type="checkbox"/> Aerial runways |
| <input type="checkbox"/> Spring items | <input type="checkbox"/> Loose equipment | <input type="checkbox"/> Climbing frames |
| <input type="checkbox"/> Swinging bridges | <input type="checkbox"/> Chinning bars | <input type="checkbox"/> Sand/soil |
| <input type="checkbox"/> Roundabouts/spinning items | <input type="checkbox"/> Agility bars | <input type="checkbox"/> Water |
| <input type="checkbox"/> Crawling tubes | <input type="checkbox"/> Multi-person equipment | <input type="checkbox"/> Bridges |
| <input type="checkbox"/> Balancing beams | <input type="checkbox"/> Seating areas | <input type="checkbox"/> Don't know |
| <input type="checkbox"/> Others – please specify | | |

Please specify:

10. Do you have any data relating to the following? If yes, please attach details

The numbers of playground related accidents organised by age	<input type="checkbox"/> Yes	<input type="checkbox"/> No
The type of accidents (eg falls, collisions etc) occurring on playgrounds organised by age	<input type="checkbox"/> Yes	<input type="checkbox"/> No
What equipment is involved in accidents	<input type="checkbox"/> Yes	<input type="checkbox"/> No
What playground equipment is involved in accidents organised by age	<input type="checkbox"/> Yes	<input type="checkbox"/> No
The injury types sustained on playgrounds organised by age	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Other incidents/illnesses occurring on playgrounds organised by age	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Please give details of any additional data you have regarding accidents involving older people on playgrounds:

11. Are you aware of any of the following ideas having been considered in your area?

	Yes	No
Encouraging older people to join in with children in using playground equipment	<input type="checkbox"/>	<input type="checkbox"/>
Encouraging older people to make use of playground equipment when not accompanying children	<input type="checkbox"/>	<input type="checkbox"/>
Encouraging older people to make use of playground areas when not accompanying children	<input type="checkbox"/>	<input type="checkbox"/>
Purchasing playground equipment designed to be suitable for use by adults and/or older adults as well as children	<input type="checkbox"/>	<input type="checkbox"/>
Integrating equipment designed specifically for adult use into playground design	<input type="checkbox"/>	<input type="checkbox"/>

Please give any additional information:

12. What would be the **advantages** to older people using playgrounds?

13. What would be the **disadvantages** to older people using playgrounds?

14. What would be the **barriers** to older people using playgrounds?

15. What factors do you think would encourage older people to use playgrounds?

<input type="checkbox"/> Purpose built equipment	<input type="checkbox"/> Organised group use
<input type="checkbox"/> Publicity and information	<input type="checkbox"/> Rest areas
<input type="checkbox"/> Location of playgrounds	<input type="checkbox"/> Availability of refreshments
<input type="checkbox"/> Transport services	<input type="checkbox"/> Don't know
<input type="checkbox"/> Others	

Please describe:

16. Are there any safety concerns specific to the use of playgrounds by older people?

<input type="checkbox"/> Yes
<input type="checkbox"/> No
<input type="checkbox"/> Don't know

If Yes, please give details:

17. If you have not considered the idea of older people using playgrounds, what factors would lead you to do so?

18. Do you currently have any policies regarding the following:

	Yes	No	Don't Know
Accessibility of playground areas to:			
a) People with physical impairments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) People with sensory impairments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Older people specifically	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Accessibility of playground equipment to:			
a) People with physical impairments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) People with sensory impairments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Adults or people with adult body sizes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Older people specifically	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please give any details you feel may be relevant:

19. Are you aware of any initiatives dealing with the following:

	Yes	No
1: Encouraging older people to join in with children in using playground equipment	<input type="checkbox"/>	<input type="checkbox"/>
2: Encouraging older people to make use of playground equipment when not accompanying children	<input type="checkbox"/>	<input type="checkbox"/>
3: Encouraging older people to make use of playground areas when not accompanying children	<input type="checkbox"/>	<input type="checkbox"/>
4: Encouraging multi-generational play in other contexts	<input type="checkbox"/>	<input type="checkbox"/>
5: Integrating equipment suitable for adult use into playground design	<input type="checkbox"/>	<input type="checkbox"/>
6: Any other initiative involving older people in play activities	<input type="checkbox"/>	<input type="checkbox"/>

For each "Yes" answer, please fill in as much of possible of Questionnaire B (attached), using the numbers used in question 19 to identify the type of initiative. Please attach any additional information available.

20. Any further comments (please continue over page):

Thank you very much for your help

g. What benefits are being seen for the older people involved?

h. What type of play equipment is being used?

- | | | |
|---|---|--|
| <input type="checkbox"/> Conventional swings | <input type="checkbox"/> Slides | <input type="checkbox"/> Nets |
| <input type="checkbox"/> Single point swings | <input type="checkbox"/> Sliding poles | <input type="checkbox"/> Aerial runways |
| <input type="checkbox"/> Spring items | <input type="checkbox"/> Loose equipment | <input type="checkbox"/> Climbing frames |
| <input type="checkbox"/> Swinging bridges | <input type="checkbox"/> Chinning bars | <input type="checkbox"/> Sand/soil |
| <input type="checkbox"/> Roundabouts/spinning items | <input type="checkbox"/> Agility bars | <input type="checkbox"/> Water |
| <input type="checkbox"/> Crawling tubes | <input type="checkbox"/> Multi-person equipment | <input type="checkbox"/> Bridges |
| <input type="checkbox"/> Balancing beams | <input type="checkbox"/> Seating areas | <input type="checkbox"/> Don't know |
| <input type="checkbox"/> Others | | |

Please specify:

i. What design modifications have been made to the playground or playground area to facilitate the scheme?

Please give any further details:

Thank you very much for your help

Appendix B
IPA Questionnaire
Covering Letter

Dear IPA member,

As part of a Postgraduate degree in Ergonomics with the Ergonomics and Safety Research Institute at Loughborough University, and in conjunction with the Royal Society for the Prevention of Accidents' (RoSPA) Play Safety section, I am conducting research into the aspects of playground design which could influence their use by older people. The benefits of play to the quality of life and the development of children are well recognised, however recent research from the University of Lapland suggests that using playgrounds may benefit the physical and mental health of older adults too.

To help build a picture of the international position regarding the use of playgrounds by older people, this questionnaire is being distributed to IPA members in around 50 countries. The questionnaire takes about 15 minutes to fill in, and your help in providing information will be greatly appreciated.

The questionnaire can be filled in on line using the tick and text boxes provided. Once you have completed this, please save the document and return it to me by emailing it to me as an attachment at H.Moore-05@student.lboro.ac.uk. Alternatively, you can print out the document and fill it in by hand, in which case it can be returned to:

Hannah Moore
9 Cobden Street
Loughborough
LE11 1AF
England

Please return completed questionnaires by the 15th August 2006.

The questionnaire has two parts – you will only need to answer the second part if you have any schemes or policies regarding older adults and playgrounds. I have enclosed three copies of the second part. If additional forms are required, please photocopy as necessary. All questions refer to the situation in your own country. Where a number of options are offered, please tick the relevant box or boxes. Any data you provide will remain confidential and nothing you say will be attributable to you personally in the report. If you require any further information or have any difficulty completing the questionnaire, please contact me by email at H.Moore-05@student.lboro.ac.uk or by phone on [landline] or [mobile].

Thank you very much for your assistance.

Hannah Moore

Appendix C
IPA Questionnaire
Raw Data

1. Name:
2. Nationality:
3. Role:
4. Are you willing to be contacted to further discuss points raised in this questionnaire?

Yes No

If yes, how would you prefer to be contacted?

Email Phone

Please provide contact details:

5. At what age are people considered elderly in your country?

Please enter the age into the box below:

Mean: 63
 Median: 65
 Mode: 65
 Range: 50 - 70

This age will form the definition of “older people” for the purposes of the rest of the questionnaire

6. What do you think of the following ideas:

	Good Idea	Bad Idea	Don't Know
Older people participating with children on playground equipment	67% (N = 6)	0% (N = 0)	22% (N = 2)

No reply 11% (N = 1)

Why?

- Play is good for everyone
- When older people participating with children on playground equipment, older people only being a caregivers rather than able to enjoy the exercise time themselves. For those equipment only suitable for children, older people are not able to use too.
- it keeps the elderly young and involved and it gives the child guidance and engagement with a playmate
- I don't see older people using playground equipment on their own, but children bring that playful side out of adults and it would encourage laughing and positive feelings
- Intergenerational play helps child development and forms bonds in the community
- I would like to qualify this answer - not necessarily a bad idea, but the roles assigned to older people and the expectations are not in this direction. And generally, the old do not see themselves in a such an active role. Moreover, they may not be so physically fit.
- Grandparents are often the main carers of young children on playgrounds, as both parents are working
- Finnish research has shown the health benefit to older people playing. Who can therefore be against it? My reservation is that children in London specifically have very few places they can call their own, and they are often driven off public spaces. So having adults - any adults - also encroaching on children's spaces may deprive children of opportunities to

play independently and without too much adult intervention. There is however lots of room for innovation - why not have equipment which is sturdy enough for different weights of people but not specifically for either adults or children. Then whoever is competent and enjoys playing with it can do so. But then we would also have to have lots more different things to play with - the last thing we'd want is children to have to queue up until older people have finished playing on 'their' equipment.

- Potential for generating a better relationship between the old and the young.
- A better sensitivity toward children by older-retired folks helps them support tax increases and programs from which children can benefit.
- The interaction of play is a good stimulant for staying young, no matter how minimal.
- The interaction also allows older folks to both promote and supervise play action.
- An aspirin before and after interaction begins will enhance the play process and recovery process!

	Good Idea	Bad Idea	Don't Know
Older people using playground equipment without children	56% (N = 5)	33% (N = 3)	0% (N = 0)

No reply 11% (N = 1)

Why?

- Play is good for everyone
- It refers to those equipment mainly designed for elder usage rather than the general equipment found in playground. Suppose, older people should have their own playground for exercise, for interaction and for mutual support.
- anything that engages people of all ages and abilities in activities that are physically enhancing and fun should be encouraged
- I don't think that they would be into that
- In today's culture any adults without accompanying children are viewed with suspicion on playgrounds. Standard playgrounds are not designed to accommodate adults
- Playground to relax and meet friends and walk, but not for playing, unless it is organised sport like golf, or a little bit of cricket.
- Play equipment is dimensioned for children, not adults. Playground accidents sometimes occur when adults use the equipment. Much equipment today provides stimulation, swings, rockers etc. rather than exercise. Trim trails would be better for older people. Many playgrounds forbid entry to adults if they are not accompanied by children, which relates to fears of 'stranger danger'
- Why not? It might be a good idea to incorporate "developmentally appropriate" equipment and area design to meet this objective.

7. Do you have any data on the following? If yes, please attach details.

	Yes	No
1: The frequency with which older people attend playgrounds with children	11% (N = 1)	89% (N = 8)
2: The use of playground equipment by older people when accompanying children	0% (N = 0)	100% (N = 9)
3: The use of playground equipment by older people when not accompanying children	11% (N = 1)	89% (N = 8)
4: The use of the playground area by older people when not accompanying children	11% (N = 1)	89% (N = 8)
5: Any other use of playgrounds by older people	33% (N = 3)	67% (N = 6)

8. If older people do join in on the equipment **with** children what equipment do they use?

<input type="checkbox"/> Conventional swings 33% (N = 3)	<input type="checkbox"/> Slides 22% (N = 2)	<input type="checkbox"/> Nets 11% (N = 1)
<input type="checkbox"/> Single point swings 0% (N = 0)	<input type="checkbox"/> Sliding poles 0% (N = 0)	<input type="checkbox"/> Aerial runways 11% (N = 1)
<input type="checkbox"/> Spring items 11% (N = 1)	<input type="checkbox"/> Loose equipment 44% (N = 4)	<input type="checkbox"/> Climbing frames 0% (N = 0)
<input type="checkbox"/> Swinging bridges 11% (N = 1)	<input type="checkbox"/> Chinning bars 0% (N = 0)	<input type="checkbox"/> Sand/soil 44% (N = 4)
<input type="checkbox"/> Roundabouts/spinning items 0% (N = 0)	<input type="checkbox"/> Agility bars 0% (N = 0)	<input type="checkbox"/> Water 33% (N = 3)
<input type="checkbox"/> Crawling tubes 0% (N = 0)	<input type="checkbox"/> Multi-person equipment 11% (N = 1)	<input type="checkbox"/> Bridges 11% (N = 1)
<input type="checkbox"/> Balancing beams 0% (N = 0)	<input type="checkbox"/> Seating areas 67% (N = 6)	<input type="checkbox"/> Don't know 0% (N = 0)
<input type="checkbox"/> Others		

See-saws – 11% (N = 1)

Walking/Jogging area – 11% (N = 1)

- Older people tend to interact with children using equipment rather than being with the children on the equipment. Also the level of interaction varies with the individual - the majority take a more passive 'watching' role
- Walking or jogging areas. The frequency of older people accompanying is low, and mostly grand mothers rather than grand fathers.
- Generally, older people are not observed to join in using equipment with children. Older people help children on and off play items and supervise the children

9. If older people make use of playground equipment when **not** accompanying children what equipment do they use?

<input type="checkbox"/> Conventional swings 22% (N = 2)	<input type="checkbox"/> Slides 0% (N = 0)	<input type="checkbox"/> Nets 0% (N = 0)
<input type="checkbox"/> Single point swings	<input type="checkbox"/> Sliding poles 0% (N = 0)	<input type="checkbox"/> Aerial runways 0% (N = 0)
<input type="checkbox"/> Spring items 11% (N = 1)	<input type="checkbox"/> Loose equipment 0% (N = 0)	<input type="checkbox"/> Climbing frames 0% (N = 0)
<input type="checkbox"/> Swinging bridges 0% (N = 0)	<input type="checkbox"/> Chinning bars 0% (N = 0)	<input type="checkbox"/> Sand/soil 0% (N = 0)
<input type="checkbox"/> Roundabouts/spinning items 0% (N = 0)	<input type="checkbox"/> Agility bars 11% (N = 1)	<input type="checkbox"/> Water 0% (N = 0)
<input type="checkbox"/> Crawling tubes 0% (N = 0)	<input type="checkbox"/> Multi-person equipment 0% (N = 0)	<input type="checkbox"/> Bridges 0% (N = 0)

- | | | |
|--|--|---|
| <input type="checkbox"/> Balancing beams
0% (N = 0) | <input type="checkbox"/> Seating areas
0% (N = 0) | <input type="checkbox"/> Don't know
0% (N = 0) |
| <input type="checkbox"/> Others | | |

Purpose built equipment – 11% (N = 1)

Walking/Jogging areas – 11% (N = 1)

- Walking, jogging areas, playing a light sport for a while, like cricket and in the upper classes in cities, golf.

10. Do you have any data relating to the following? If yes, please attach details

	Yes	No
The numbers of playground related accidents organised by age	0% (N = 0)	100% (N = 9)
The type of accidents (eg falls, collisions etc) occurring on playgrounds organised by age	0% (N = 0)	100% (N = 9)
What equipment is involved in accidents	0% (N = 0)	100% (N = 9)
What playground equipment is involved in accidents organised by age	0% (N = 0)	100% (N = 9)
The injury types sustained on playgrounds organised by age	0% (N = 0)	100% (N = 9)
Other incidents/illnesses occurring on playgrounds organised by age	0% (N = 0)	100% (N = 9)

Please give details of any additional data you have regarding accidents involving older people on playgrounds:

- There are very few serious injuries involving play equipment to anyone, of any age in Australia in spite of the data promoted by those with an interest in talking up injury statistics. Without a factual context of the numbers of people using play equipment at any given time, the data collected is of little use, beyond alarming the public to the view that there is a problem.
- The above NO answers are with regard to older adults, not children. Injury stats are available in this country for various age groups for children. (USA)

11. Are you aware of any of the following ideas having been considered in your area?

	Yes	No
Encouraging older people to join in with children in using playground equipment	22% (N = 2)	78% (N = 7)
Encouraging older people to make use of playground equipment when not accompanying children	11% (N = 1)	89% (N = 8)
Encouraging older people to make use of playground areas when not accompanying children	33% (N = 3)	67% (N = 6)
Purchasing playground equipment designed to be suitable for use by adults and/or older adults as well as children	22% (N = 2)	78% (N = 7)
Integrating equipment designed specifically for adult use into playground design	22% (N = 2)	78% (N = 7)

Please give any additional information:

- There seems to be an increase in interest in equipment which can be used by people of all ages. However, play equipment is only one part of the play agenda. Many authorities are preferring to develop the natural environment for play, rather than more play equipment

- In Hong Kong, we are having playground with tailor-design equipment mainly suitable for elderly instead of children. This playground will not be integrated into the normal playground designed for children. It will be located separately.
- Intergenerational use of public space is encouraged, however apart from seating equipment is installed for use by children and young adults rather than the elderly.
- Play and recreational areas are designed for some seating arrangements for older people. Older people are not expected to participate even though they may bring the children to the parks.
- There may be considerable problems with encouraging older people unaccompanied by children onto play areas, owing to parental concerns with stranger danger and the paranoia on this within society, although it does not seem to be as great an issue in Ireland as it may be in the UK.
- Playgrounds are provided for the 1-12 year age group and it is often difficult enough to restrict teenagers from using/abusing play equipment without encouraging older people onto the play area.
- Often playground areas have walking trails that weave in and around children's playgrounds. In addition there are occasional adult fitness points on the trails. E.g., push up bench, balance item, parallel bars, pull up bar, etc.

12. What would be the **advantages to older people using playgrounds?**

- Perhaps greater fitness levels of some adults and children
Perhaps there may be a perception that playgrounds are 'safer' than without adults
- Improved relationships between old and young people
- Older people have their own playground for exercise and for social interaction. Their physical ability is not as good as youngsters so that the playgrounds for them should be well designed and with tailor-made equipment for them to use.
- Anecdotally it appears that the social organisation of western societies has an unwritten agenda of separation of the generations, but older people using playgrounds means many positive things; the asset gets used more; the asset is less likely to be damaged by vandalism due to greater usage and presence of adults; children have an adult nearby which will modify behaviour and may reduce injury due to misuse/misbehaviour; it may reduce perceived fears promulgated by the notion that old people in playgrounds without children are weirdos (eg, New York has many playgrounds where adults are prevented from entering without a child ... explanation please!
- Fun! Mental wellbeing through relaxation and laughter
- Exercising. Involvement with younger generation, keeps them occupied and safer care.
- Possibly health and age group interaction.
- More fun, more activity outdoors with related health benefits (physically and mentally)
- Would get them up and moving and be in proximity of younger folks. Also would provide an outdoor experience to enhance cardiovascular endurance, muscle strength, and intergenerational interaction.

13. What would be the **disadvantages to older people using playgrounds?**

- Adults could dominate space, males could dominate females, but this probably happens now with children's use
- If the older people using the normal playgrounds which design for the children, older people only can act as a caregiver. They won't be able to enjoy the exercise time with the provided equipment. As playground is always crowded with users (parents and children), they will easily get hurt.
- perceived fear of weirdos; old folk hogging the equipment so the kids can't get a go; old folk injuring themselves because they over extend themselves physically
- Getting in the way of children - children have to be prioritised for play as it is their culture we try to support. I can see children enjoying playing with Grandparents or older adults they know very well but I would think that random old people sharing their play space could be a bit of nuisance (just as any adult they didn't know sharing that space would be a nuisance). On the other hand, if older people actually had a role as

playworkers or volunteers at the play setting then the children would more easily be able to see them in that role. Also, the older people would be able to gain the same benefits but with a level of awareness to the play needs of the children which have to come first.

- Need to separated, youngsters could be boisterous, and old people may not be able to match the speed of actions of the old. They could be hurt, or just tolerated and not very welcome by the younger generation.
- Possible accidents
- Could overestimate their fitness and mobility levels
- Showing off to lady friends may give old guys a fracture or two.
- Not be enough or any equipment appropriate for use.
- Not have enough shade area.

14. What would be the **barriers to older people using playgrounds?**

- Perception that it is a childish activity
- suitable equipment and other activities; public perceptions
- Having a role, a reason for being there that could be accepted by other adults and the children.
- Cultural expectations and reduced energy levels; they need more of walking areas and meeting areas to interact with older people.
- Probably being seen to be childish, not 'acting one's age
- Access surfacing.
- Access from parking area.
- Fear of muggings, etc.

15. What factors do you think would encourage older people to use playgrounds?

<input type="checkbox"/> Purpose built equipment	67% (N = 6)
<input type="checkbox"/> Publicity and information	78% (N = 7)
<input type="checkbox"/> Location of playgrounds	78% (N = 7)
<input type="checkbox"/> Transport services	44% (N = 4)
<input type="checkbox"/> Organised group use	56% (N = 5)
<input type="checkbox"/> Rest areas	78% (N = 7)
<input type="checkbox"/> Availability of refreshments	67% (N = 6)
<input type="checkbox"/> Don't know	0% (N = 0)
<input type="checkbox"/> Others – potential fun and bonding	11% (N = 1)

Please describe:

- Do they even have any desire to, out with the role of looking after children?
- Walking areas; safe areas for younger children who they could leave for a while and exercise. Indian playgrounds are not maintained, they need to be maintained and community efforts are required, older people have the time they could be encouraged to take up these activities.
- having fun with children, bringing generations together
- Toilet facilities, appropriate music

16. Are there any safety concerns specific to the use of playgrounds by older people?

<input type="checkbox"/> Yes – 56% (N = 5)
<input type="checkbox"/> No – 44% (N = 4)
<input type="checkbox"/> Don't know – 0% (N = 0)

If Yes, please give details:

- 1. Location of equipment should be spacious enough and the mobility of older people is slow and need more space for additional aids support.
- 2. The colour of equipment should not be bright in colour as it will attract the younger users using it.
- The elderly are more prone to breakages due to Osteoporosis
- Like at all ages there will be playground use injuries. Playground monitors should have medical knowledge training to encompass this age group. Hearing loss, visual impairment, mobility all must be considered.

17. If you have not considered the idea of older people using playgrounds, what factors would lead you to do so?

- [We] support the use of playspaces by people of all ages, however given that children and young people in this country assume far lesser priority than adults, we would not support a further exacerbation of this situation by focussing our attention on adults, who are able to determine how they lead their lives compared with young people who are totally dependent on the decisions of others.
- Only within families who visit with their children - we are interested in article 31 - the child's right to play - this has to come first.
- We are already working in partnership with the Grandparents Association trying to promote intergenerational play in London
- A needs assessment, interested civic and political groups, monetary backing

18. Do you currently have any policies regarding the following:

	Yes	No	Don't Know
Accessibility of playground areas to:			
a) People with physical impairments	78% (N = 7)	11% (N= 1)	11% (N= 1)
b) People with sensory impairments	78% (N = 7)	11% (N= 1)	11% (N= 1)
c) Older people specifically	33% (N = 3)	56% (N = 5)	11% (N= 1)
Accessibility of playground equipment to:			
a) People with physical impairments	67% (N = 6)	22% (N = 2)	11% (N= 1)
b) People with sensory impairments	67% (N = 6)	22% (N = 2)	11% (N= 1)
c) Adults or people with adult body sizes	11% (N= 1)	78% (N = 7)	11% (N= 1)
c) Older people specifically	11% (N= 1)	78% (N = 7)	11% (N= 1)

Please give any details you feel may be relevant:

- As stated above, current play equipment that is suitable for big kids is suitable for adults
- In fact, we haven't any official policy but we now promote the universal accessibility for all in our living environment which including to reach out to the play areas.
- I design for all abilities regardless of age, ability, gender, and provide for experiences that are not reduced to simply providing physical opportunities; ie, i use landforms, planting, art elements, sound elements, and explorative and imaginative elements to provide a range of activities for everyone; and I provide formal and informal rest areas for all as well
- Playground equipment design is specified towards children. Wider slides for children with physical disabilities also increases accessibility for adults

- Under the Disability Act 2005 and the Equal Status Act, recreational facilities, including playgrounds, should be accessible to those with all abilities. In Ireland this is implicit in the National Play Policy and in the local play policies put together by local authorities. This is also reflected in the designs of new equipment which allow for universal access. Councils are now specifying seats with armrests as an aid for older people on playgrounds. A firm path to the playground and around play equipment is also required.
- There is a Consumers Product Safety Commission and an American Disabilities Act enforced in the in the USA that attends access to both area and equipment.

19. Are you aware of any initiatives dealing with the following:

	Yes	No
1: Encouraging older people to join in with children in using playground equipment	0% (N = 0)	100% (N = 9)
2: Encouraging older people to make use of playground equipment when not accompanying children	11% (N = 1)	89% (N = 8)
3: Encouraging older people to make use of playground areas when not accompanying children	0% (N = 0)	100% (N = 9)
4: Encouraging multi-generational play in other contexts	33% (N = 3)	67% (N = 6)
5: Integrating equipment suitable for adult use into playground design	11% (N = 1)	89% (N = 8)
6: Any other initiative involving older people in play activities	11% (N = 1)	89% (N = 8)

For each “Yes” answer, please fill in as much of possible of Questionnaire B (attached), using the numbers used in question 19 to identify the type of initiative. Please attach any additional information available.

20. Any further comments (please continue over page):

- There could be concern with adults being encouraged to visit playspaces not accompanied by children, given that they are predominatly for children.
- You may wish to concentrate on the situation in China. There is a very long tradition of older people using parks and open spaces for early morning exercises, such as tai chi. I was in Guiyang city a couple of years ago, the capital of Guizhou Province. There were a lot of new small parks around the city that had what looked to be play equipment, yet it was being used by the older people in the morning and then by children after school. The equipment seemed to be designed for older people, with long 'stirrups' to stride in and a pair of wheels mounted at chest height that could be turned to exercise the arms and shoulders. I am afraid that I don't have any photos.

Thank you very much for your help

Appendix D
Discussion Group
Participant Information

Participant Information

My name is Hannah Moore. I am a student at Loughborough University where I am studying for a Masters degree in Ergonomics. As part of that, I am conducting a study into how playgrounds could be made more inclusive and beneficial to the whole community, regardless of age or ability.

Participation in the study will require you to join a discussion group with other people to talk about your opinions and experiences regarding playgrounds and try to generate ideas about them. I will also need to know your age and any impairments you have. It is expected that this will last around an hour. Any data collected will be kept confidential and stored securely. You will be identified by participant number rather than name so that no one can attribute the data you give to you personally.

Before you can participate in the research, you will need to sign the attached consent form. You will still have the right to withdraw from the study at any time without having to give a reason.

Please feel free to ask any further questions. My telephone number is [mobile], or you can contact me by email at H.Moore-05@student.lboro.ac.uk. The project supervisor, Laurence Clift, can be contacted on [phone no.], by email at [address] at the following address:

Laurence Clift MSc
Principal Researcher
Ergonomics and Safety Research Institute
Holywell Building
Holywell Way
Loughborough
Leicestershire
LE11 3UZ

Thank you very much for your participation

Appendix E
Discussion Group
Informed Consent Form

Informed Consent Form

I understand fully the procedures in this experiment, which have been explained to me.

I understand that as a participant I am guaranteed complete confidentiality and anonymity and although a record will be kept of my participation in the study, all data will be identified by number only. Therefore I consent to the written publication of results.

I have been informed that there is no known expected discomfort or risk involved in my participation in this study, and have been asked about any medical conditions that might create a risk for me when I participate.

I have been informed that there are no “disguised” procedures in this study.

I have been informed of the purpose of the study and understand that after the experiment, the investigator will answer any questions regarding the procedures of this study.

I have been informed that I am free to withdraw from the study, at any time without penalty of any kind.

I am aware that concerns about this study can be referred to the principal investigator

I therefore give my consent to be a participant in this experiment.

**I give my consent for videos of my trial to be used in future presentations

**I do not give my consent for videos of my trial to be used in future presentations

(** *please delete as appropriate*)

Signed;

Participant

Date

Investigator

Appendix F
Discussion Group
Visual Stimulus



Researchers say playing together can help social cohesion



Elderly people find the playground play empowering

Appendix G
Discussion Group
Topic List

Focus group topic guide

1. Does anyone currently use playgrounds – does anyone take grandchildren to playgrounds?
 - a. Do you use any of the equipment?
 - b. What equipment?
 - c. What problems do you experience?
2. What do you think of the idea of older people using playgrounds?
3. Would you use playgrounds?
4. What puts you off using playgrounds?
5. What would encourage you to go to playgrounds?
 - a. location
6. What equipment would you like to use?

Prompts:

1. Seating areas
2. Conventional swings
3. Single point swings

4. Slides
5. Sliding poles
6. Nets
7. Aerial runways
8. Spring items
9. Bridges
10. Swinging bridges
11. Loose equipment
12. Chinning bars
13. Agility bars
14. Climbing frames
15. Sand/soil
16. Water
17. Roundabouts/spinning items
18. Crawling tubes
19. Balancing beams
20. Multi – person equipment

7. What changes could be made to equipment to make it easier for you to use?

8. What could be added to a playground to encourage you to use it?

9. How would you like to use playgrounds?
 - a. Social groups?

Appendix H
Discussion Group
Raw Data

	Current Use
Group 1	<ul style="list-style-type: none"> • Did use some equipment with kids when younger – not a problem
Group 2	
Group 3	
Group 4	
Group 5	<ul style="list-style-type: none"> • A few do take grandchildren – no problems experienced
Group 6	<ul style="list-style-type: none"> • One currently used equipment with grandchildren – she used swings, roundabouts, slides, seating, metal climbing frames, sand/soil, water and bridges

	Would you use it?
Group 1	<ul style="list-style-type: none"> • Gentle exercise only desired in the area, and there is nothing for that
Group 2	<ul style="list-style-type: none"> • Would consider trying it
Group 3	<ul style="list-style-type: none"> • Would go with grandchildren • Would try using equipment • Would be cautious, but that wouldn't put them off – would like to build confidence • Would only consider the park with a group, or with grandchildren
Group 4	<ul style="list-style-type: none"> • Would consider using it with children, though not by themselves • Still wouldn't use it in a group
Group 5	<ul style="list-style-type: none"> • On a public playground, even if there was a welcoming sign, wouldn't do it
Group 6	<ul style="list-style-type: none"> • Not everyone would consider using the equipment at all • Very mixed response on whether it was a good idea • Some felt no outright as its for children, and were very adamant • Much of the group was pretty unenthusiastic – “not at my age, that doesn't appeal to me” • This was the most readily contradictory group – perhaps because it was small and people were well known to each other •

	What would you use?
Group 1	<ul style="list-style-type: none"> • Having balance beams with hand rails is better than without – some would go on, but many wouldn't – some would consider with rails and if beams were lower • Stepping stones would be considered • Hill embedded slides would be ok – need to be able to get to the top of slides, and sitting down at the top can also be a problem • Someone suggested a sliding seat that you get on at the top and at the bottom it tips you back to a standing position • Slide needs to be a gentle slope • A ball pool at the bottom was suggested for an easy landing area • Also need to be able to get up at the bottom • Swings need to be better size – would consider using them if they were the right size • Wouldn't use single point swings (eg, tyre swings) • Don't know what equipment would want • Avoid heights and spinning objects due to balance problems • About half would use springing items – but need bigger foot rests • Wouldn't use moving platforms, but would consider it with rails • Balls to bounce • Skipping rope • Multi-person cooperative equipment was fancied – equipment you could share with grandchildren – rocking things and seesaws • Double swing with two seats • Seesaw would consider – but need stops so don't have to get on to floor to get on/off – needs to drop only to chair height

	<ul style="list-style-type: none"> • See saws with sideways facing seats as well as forward facing (love chair type) • Swinging boat – but needs to be the right size – popular idea • Seating areas desired – has to be at the right height • Raised sand pit – would only use with children • Paddling pools/wading pools desired, but only with appropriate steps/slopes in and out – steps set into the wall no good, cant pull self up on them. Also, surface must be non-slip • Bridges are ok if they don't move • Water slides were suggested • Large scale board games – jenga, chess, checkers etc would be fun – these would be good for chair bound people • Frisbee and throwing games • Treadmill with rails considered
Group 2	<ul style="list-style-type: none"> • Balance stuff would be good – couple of steps to go up and down with a rope to hold – like in physio
Group 3	<ul style="list-style-type: none"> • Would use roundabouts • Require a soft landing • Having things in two sizes side by side for adult and child • Co-operative equipment popular • See-saw – but getting on and off issue • Nets – make you feel safe and contained • Ball games would be good, but again, want them indoors • Oversized games • Skipping • Hop scotch • Swings need to be reasonable height off floor and wider • Swinging bridges could be used, but only with something to hold onto and if numbers on it were limited • Crawling tubes – would consider, but want the inside to be soft for the knees • Balancing beams would consider if right height and width • Slides – mustn't be too steep • Slides – some prefer there to be a hill approach rather than steps • Half would give chinning poles and agility bars a try but want better grips • Nets – some would consider using, but depends how high they go – they may have trouble getting over the top of them. • Climbing frames would be considered with grips • Bridges are fine • Climbing walls with supervision popular
Group 4	<ul style="list-style-type: none"> • On swings, chairs and slides, seats need to be bigger • A very few would use roundabouts • Just a swinging seat would be a nice start • Would consider using swings • About half and half on the idea of balance beams with rails
Group 5	<ul style="list-style-type: none"> • Some like waterslides • Stepping stones and rope walkways good • Cycle track or static bikes would be good • Crawl tunnels –diameter would be an issue – would also want it to be reasonably soft on knees • Things need to be higher, wider – adults sized things need to be integrated • Co-operative equipment popular • Not worried about using ladders and steps • Balance balls would be good • Cargo nets – would try • Grab rails for balance desired • Low balance beams – would need to be low • Don't need nets to catch them

	<ul style="list-style-type: none"> • Well marked trampolines at floor level
Group 6	<ul style="list-style-type: none"> • Seesaws • Slides • Swings • Roundabout • Gym equipment – such as horse, ropes and beams • Horse • Ropes • Beams • Balancing equipment • Balls • Skipping ropes • Mats • Seating areas – but comfortable • Toilets • Refreshments – tea and biscuits • Hand holds and hand rails at different levels were thought to be a good idea • Climbing frames for some members, but no one wanted to use climbing equipment made out of ropes or nets • Sand/soil play • Water • Bridges

	Circumstance of use
Group 1	<ul style="list-style-type: none"> • Happy to pay to use controlled environment free of vandalism and threatening youths • Usually only use facilities with children - Wouldn't use facilities without grandchildren • Grandchildren sometimes do encourage use by grandparents • Organised activities may also negate fear of youths • Organised activities would also provide transport • Finland example doesn't work due to different environment – it all took place in a controlled environment • Led group activities would be considered ok • Organised groups will struggle with insurance, and liability may be a preventative barrier
Group 2	<ul style="list-style-type: none"> • Would only go with a guide – for reasons of both ability and company • The Doctor decides what you should use – would need to get advice from a doctor
Group 3	<ul style="list-style-type: none"> • Would go with grandchildren • Would prefer indoor use in a controlled environment • Gangs of youths are avoided indoors – don't feel threatened – feel safer • Lots of nets and safety nets – don't have to ever fall as far as the ground • Would do it in an organised group • Stigma attached to old men using equipment when not in larger group – more accepted for women – in a controlled environment, this wouldn't necessarily be the case • Controlled, safe environment preferred – not the park • Would only consider the park with a group, or with grandchildren • Needs to be on a bus route or walking distance • Happy to pay a small fee to go • Insurance – if they went with an exercise group, would the tutor get insurance • Indoor centre would allow year round use in any weather
Group 4	<ul style="list-style-type: none"> • Would consider using it with children, though not by themselves • Still wouldn't use it in a group • One preferred it to be outside to get fresh air • Location important – needs to be on a bus route or able to walk to it • Doctor recommendation and supervision an issue

	<ul style="list-style-type: none"> • Need transport laid on for any program • Half still wouldn't use it even if it was indoors and supervised.
Group 5	<ul style="list-style-type: none"> • A few do take grandchildren • Privacy issue – wouldn't want to use equipment in public • Would be more keen in supervised controlled environment • Like-minded people to do it with would be needed • Would need guidance in what to use and how • Would go if it was an organised activity – would give it a try • On a public playground, even if there was a welcoming sign, wouldn't do it • Adventure playgrounds – group activity with children • Indoor centre would allow it to be year round • No motivation to go alone – need group leadership • Social aspect very important • Would give it a try if it was an organised activity on offer • Not keen on the idea of an independently attended “seniors hour” • Location is an issue – more likely to use big venue parks • Yet still needs to be local • Insurance can be an issue • Doctors referral might help
Group 6	<ul style="list-style-type: none"> • There was concern about the hygiene of public places with issues such as dog faeces. • The two men in the group felt that integrating play type equipment into a gymnasium setting would be beneficial and more easily accepted as being for keep fit and having benefit • Integrating things into a gym environment was also seen as a way of overcoming embarrassment and stigma about using equipment • One person, who suggested the gym idea, also felt that though it would be better in a gym, it was shame because its nice to be outside • Indoor play overcomes weather restraints which may particularly effect the elderly • Suggestion of putting equipment in a gym like setting rather than in a playground met with approval • The idea of joining in with children was far more popular than the idea of going on alone. Most said they would only use it with children • Those who would use the equipment felt it would be better as a group – due to less embarrassment • “It would have to become more mainstream and accepted to overcome self-consciousness. I don't think most people would go”. • Change of name – “adult activity area for all ages” suggested – change of name de-stigmatises and encourages more accepting attitudes. • Having a warden around was suggested

	What stops you
Group 1	<ul style="list-style-type: none"> • Youths hanging out put them off going to the park – youths are prevalent in park – issue raised that <i>this could be a cultural issue and might not be such a problem in other countries. Consensus on youths</i> • <i>Fear of abuse from youths</i> • <i>Couldn't think of a local park that was ok from the perspective of avoiding youths – the closest they could think of was on Epinal way where there was a playground which does not have easy access from the road.</i> • <i>Similarly, vandalism is a problem</i> • <i>Single males and stranger danger</i> • Signs – the playground is for children, it even says so – signs need to give permission to use them • No type of flooring would make them feel safe – skin is thin, bones are brittle • Fear that the floor doesn't cater for adult weights • Risk and limited ability are putting everyone off • Desire to exercise sometimes countered by medical advice • Additional fear of hurting self • Increased fear of injury from a fall as more fragile

Group 2	<ul style="list-style-type: none"> • Skin is too tender to use things like crawling tubes
Group 3	<ul style="list-style-type: none"> • But the equipment is for children, not adults – age/weight/height restrictions • Put off by youths • Would feel silly • Health and safety and liability issues • Stigma attached to old men using equipment when not in larger group – more accepted for women – in a controlled environment, this wouldn't necessarily be the case
Group 4	<ul style="list-style-type: none"> • Equipment is made for children – not for adults • Council people tell you off if they see you on the equipment • Don't want to have to tackle steps • Fear of hurting selves – many live alone and can't afford to injure themselves • Some said balance programmes don't work anyway • Youths – problem
Group 5	<ul style="list-style-type: none"> • There are rules to stop you going on • There is no equipment for adults • Privacy issue – wouldn't want to use equipment in public • Vandalism by teenagers a problem • Youths can be an issue – don't feel particularly unsafe in this area (rural area)
Group 6	<ul style="list-style-type: none"> • There was concern about the hygiene of public places with issues such as dog faeces. • Many agreed that they preferred to do other things – swimming, walking, gardening – which were already available to them – “I would sooner dig potatoes for activity”. • Time constraints were cited as a restricting factor • Embarrassment seemed to be a big issue for this group • People would not use playgrounds because it was “forbidden by the park authority” – for one person, even though this counted even though they thought it would be fine to go on with the kids. • Fear from one man as being seen as a dirty old man – this was something mentioned by men • Physical risks were a factor for the less fit in the group • “It would have to become more mainstream and accepted to overcome self-consciousness. I don't think most people would go”. • Physical limitations were a deterrent for some members – agility and lack of physical fitness • Cost (public and private) would put people off

	What would encourage you
Group 1	<ul style="list-style-type: none"> • Happy to pay to use controlled environment free of vandalism and threatening youths • Media could encourage use • Organised activities may also negate fear of youths • Organised activities would also provide transport • Gentle exercise only desired in the area, and there is nothing for that • Finland example doesn't work due to different environment – it all took place in a controlled environment • A controlled environment would be costly • Led group activities would be considered ok
Group 2	<ul style="list-style-type: none"> • Would only go with a guide – for reasons of both ability and company • The Doctor decides what you should use – would need to get advice from a doctor • Playground is the wrong word – activity centre, community park – needs a different name
Group 3	<ul style="list-style-type: none"> • Would prefer indoor use in a controlled environment • Gangs of youths are avoided indoors – don't feel threatened – feel safer

	<ul style="list-style-type: none"> • Lots of nets and safety nets – don't have to ever fall as far as the ground • Would do it in an organised group • Information would help about what was adult sized, and how to use it • Calling it something other than “playground” might help – adventure park • Controlled, safe environment preferred – not the park • Would only consider the park with a group, or with grandchildren • Needs to be on a bus route or walking distance • Happy to pay a small fee to go
Group 4	<ul style="list-style-type: none"> • Padded flooring – half said would help • Doctor recommendation and supervision an issue • Need transport laid on for any program
Group 5	<ul style="list-style-type: none"> • Would be more keen in supervised controlled environment • Like-minded people to do it with would be needed • Would need guidance in what to use and how • Would go if it was an organised activity – would give it a try • Needs to be built for adults • No motivation to go alone – need group leadership • Social aspect very important • Would give it a try if it was an organised activity on offer • Toilets – depends – some toilets may actually put them off • Doctors referral might help
Group 6	<ul style="list-style-type: none"> • People felt that equipment would have to be purpose built • One person was a carpenter by trade and kept coming back to things needing to be designed properly for adults • Having equipment side by side was considered a good idea • Indoor play overcomes weather restraints which may particularly effect the elderly • Yeses came with a caveat – either people wanted to know what the benefits were, or they wanted changes to equipment to ensure it was safe • Suggestion of putting equipment in a gym like setting rather than in a playground met with approval • The idea of joining in with children was far more popular than the idea of going on alone. Most said they would only use it with children • Those who would use the equipment felt it would be better as a group – due to less embarrassment • One idea was to make adult play equipment an addition to existing playgrounds rather than trying to integrate equipment • Teenagers and adults need to be continually encouraged to go on using equipment so that they are more likely to be willing to use it in later life • Change of name – “adult activity area for all ages” suggested – change of name de-stigmatises and encourages more accepting attitudes. • Having a warden around was suggested

Good – equipment	Bad - equipment
<ul style="list-style-type: none"> • Having balance beams with hand rails is better than without – some would go on, but many wouldn't – some would consider with rails and if beams were lower • Stepping stones would be considered • Hill embedded slides would be ok – need to be able to get to the top of slides, and sitting down at the top can also be a problem • Someone suggested a sliding seat that you get on at the top and at the bottom it tips you back to a standing position • Slide needs to be a gentle slope • A ball pool at the bottom was suggested for an easy landing area • Also need to be able to get up at the bottom • Swings need to be better size – would consider using them if they were the right size • About half would use springing items – but need bigger foot rests • Wouldn't use moving platforms, but would consider it with rails • Balls to bounce • Skipping rope • Multi-person cooperative equipment was fancied – equipment you could share with grandchildren – rocking things and seesaws • Double swing with two seats • Seesaw would consider – but need stops so don't have to get on to floor to get on/off – needs to drop only to chair height • See saws with sideways facing seats as well as forward facing (love chair type) • Swinging boat – but needs to be the right size – popular idea • Seating areas desired – has to be at the right height • Raised sand pit – would only use with children • Paddling pools/wading pools desired, but only with appropriate steps/slopes in and out – steps set into the wall no good, cant pull self up on them. Also, surface must be non-slip • Bridges are ok if they don't move • Water slides were suggested • Large scale board games – jenga, chess, checkers etc would be fun – these would be good for chair bound people • Frisbee and throwing games • Treadmill with rails considered • Balance stuff would be good – couple of steps to go up and down with a rope to hold – like in physio • Would use roundabouts • Require a soft landing • Lots of nets and safety nets – don't have to ever fall as far as the ground • Having things in two sizes side by side for adult and child • Co-operative equipment popular • See-saw – but getting on and off issue • Nets – make you feel safe and contained • Ball games would be good, but again, want them indoors • Oversized games • Skipping • Hop scotch • Swings need to be reasonable height off floor and wider • Swinging bridges could be used, but only with something to hold onto and if numbers on it were limited • Crawling tubes – would consider, but want the inside to be soft for the knees • Balancing beams would consider if right height and width • Slides – mustn't be too steep • Slides – some prefer there to be a hill approach rather than steps • Half would give chinning poles and agility bars a try but want better grips • Nets – some would consider using, but depends how high they go – they may have trouble getting over the top of them. • Climbing frames would be considered with grips • On swings, chairs and slides, seats need to be bigger • A very few would use roundabouts • Just a swinging seat would be a nice start • Would consider using swings 	<ul style="list-style-type: none"> • <i>Similarly, vandalism is a problem</i> • Don't know what equipment would want • Avoid heights and spinning objects due to balance problems • Wouldn't use single point swings (eg, tyre swings) • Wouldn't use tubes due to decreased flexibility – hips and knees – one said “reminiscent of scans” – also claustrophobia and fear of getting stuck • No one would use chinning bars or monkey bars • Wouldn't use climbing nets or climbing frames • Wouldn't use Ariel runways • But the equipment is for children, not adults – age/weight/height restrictions • Wouldn't use single point swings • Springing items can be a bit high to get your leg over • Many feel they would get too dizzy on roundabouts and spinning items • Seating areas not great in public playgrounds as they encourage youths • Wouldn't use sand or water play in park, though some would like access to water play • Equipment is made for children – not for adults • Don't want to have to tackle steps • Very little response to idea of nets – didn't seem keen • Wouldn't use swinging bridges even with rails • There is no equipment for adults • Not everyone would consider using the equipment at all • No one wanted to use crawling tubes

<ul style="list-style-type: none"> ● Abut half and half on the idea of balance beams with rails ● Some like waterslides ● Stepping stones and rope walkways good ● Crawl tunnels –diameter would be an issue – would also want it to be reasonably soft on knees ● Needs to be built for adults ● Things need to be higher, wider – adults sized things need to be integrated ● Co-operative equipment popular ● Not worried about using ladders and steps ● Balance balls would be good ● Cargo nets – would try ● Grab rails for balance desired ● Low balance beams – would need to be low ● Don't need nets to catch them ● Well marked trampolines at floor level ● Kids are getting bigger, so playground equipment needs to take them ● Seesaws ● Slides ● Swings ● Roundabout ● Gym equipment – such as horse, ropes and beams ● Horse ● Ropes ● Beams ● Balancing equipment ● Balls ● Skipping ropes ● Mats ● Seating areas – but comfortable ● Toilets ● Refreshments – tea and biscuits ● Hand holds and hand rails at different levels were thought to be a good idea ● Climbing frames for some members, but no one wanted to use climbing equipment made out of ropes or nets ● Sand/soil play ● Water ● Bridges ● People felt that equipment would have to be purpose built ● One person was a carpenter by trade and kept coming back to things needing to be designed properly for adults ● Having equipment side by side was considered a good idea ● Yeses came with a caveat – either people wanted to know what the benefits were, or they wanted changes to equipment to ensure it was safe ● One idea was to make adult play equipment an addition to existing playgrounds rather than trying to integrate equipment 	

Environmental Factors

Good	Bad
<ul style="list-style-type: none"> • Happy to pay to use controlled environment free of vandalism and threatening youths • Finland example doesn't work due to different environment – it all took place in a controlled environment • Led group activities would be considered ok • Surfacing – prefer solid form surfacing as its better for walking on – has to be on a level • Would only go with a guide – for reasons of both ability and company • Rubber flooring is easier to walk on – and you don't get splinters • Information would help about what was adult sized, and how to use it • Controlled, safe environment preferred – not the park • Needs to be on a bus route or walking distance • Happy to pay a small fee to go • Indoor centre would allow year round use in any weather • One preferred it to be outside to get fresh air • Padded flooring – half said would help • Location important – needs to be on a bus route or able to walk to it • Walking was a popular activity • Need transport laid on for any program • Would be more keen in supervised controlled environment • Cycle track or static bikes would be good • Indoor centre would allow it to be year round • Flooring – deep foam can be too bouncy, bark can be slippery • Location is an issue – more likely to use big venue parks • Yet still needs to be local • Toilets – depends – some toilets may actually put them off • Good safe flooring was considered important, but there were not opinions on what constituted safe flooring • Integrating things into a gym environment was also seen as a way of overcoming embarrassment and stigma about using equipment • One person, who suggested the gym idea, also felt that though it would be better in a gym, it was shame because its nice to be outside • Indoor play overcomes weather restraints which may particularly effect the elderly • Suggestion of putting equipment in a gym like setting rather than in a playground met with approval 	<ul style="list-style-type: none"> • <i>Similarly, vandalism is a problem</i> • Signs – the playground is for children, it even says so – signs need to give permission to use them • No type of flooring would make them feel safe – skin is thin, bones are brittle • Fear that the floor doesn't cater for adult weights • A controlled environment would be costly • Loosing equipment from existing playgrounds due to accidents and vandalism • Seating areas not great in public playgrounds as they encourage youths • Wouldn't use sand or water play in park, though some would like access to water play • There are rules to stop you going on • Vandalism by teenagers a problem • There was concern about the hygiene of public places with issues such as dog faeces. • The two men in the group felt that integrating play type equipment into a gymnasium setting would be beneficial and more easily accepted as being for keep fit and having benefit

Social Factors

Good	Bad
<ul style="list-style-type: none"> • Media could encourage use • Usually only use facilities with children - Wouldn't use facilities without grandchildren • Grandchildren sometimes do encourage use by grandparents • Organised activities may also negate fear of youths • Organised activities would also provide transport • Gentle exercise only desired in the area, and there is nothing for that • Most people have mobile phones for security • Would go with grandchildren • Would prefer indoor use in a controlled environment • Gangs of youths are avoided indoors – don't feel threatened – feel safer • Would do it in an organised group • Would only consider the park with a group, or with grandchildren • Should focus on younger people in their 40's who might retain an interest into older age • Would consider using it with children, though not by themselves • Doctor recommendation and supervision an issue • A few do take grandchildren • Would be more keen in supervised controlled environment • Like-minded people to do it with would be needed • Would need guidance in what to use and how • Would go if it was an organised activity – would give it a try • Adventure playgrounds – group activity with children • No motivation to go alone – need group leadership • Social aspect very important • Would give it a try if it was an organised activity on offer • Doctors referral might help • The idea of joining in with children was far more popular than the idea of going on alone. Most said they would only use it with children • Those who would use the equipment felt it would be better as a group – due to less embarrassment • “It would have to become more mainstream and accepted to overcome self-consciousness. I don't think most people would go”. • Teenagers and adults need to be continually encouraged to go on using equipment so that they are more likely to be willing to use it in later life • Change of name – “adult activity area for all ages” suggested – change of name de-stigmatises and encourages more accepting attitudes. • Having a warden around was suggested 	<ul style="list-style-type: none"> • Youths hanging out put them off going to the park – youths are prevalent in park – issue raised that <i>this could be a cultural issue and might not be such a problem in other countries. Consensus on youths</i> • <i>Fear of abuse from youths</i> • <i>Couldn't think of a local park that was ok from the perspective of avoiding youths – the closest they could think of was on Epinal way where there was a playground which does not have easy access from the road.</i> • <i>Similarly, vandalism is a problem</i> • <i>Single males and stranger danger</i> • Organised groups will struggle with insurance, and liability may be a preventative barrier • Finnish are more used to slippery surfaces, so balance might be easier for them • Playground is the wrong word – activity centre, community park – needs a different name • Put off by youths • Would feel silly • Health and safety and liability issues • Calling it something other than “playground” might help – adventure park • Stigma attached to old men using equipment when not in larger group – more accepted for women – in a controlled environment, this wouldn't necessarily be the case • Loosing equipment from existing playgrounds due to accidents and vandalism • Insurance – if they went with an exercise group, would the tutor get insurance • Seating areas not great in public playgrounds as they encourage youths • Council people tell you off if they see you on the equipment • Still wouldn't use it in a group • Youths – problem • Half still wouldn't use it even if it was indoors and supervised. • There are rules to stop you going on • Privacy issue – wouldn't want to use equipment in public • Youths can be an issue – don't feel particularly unsafe in this area (rural area) • Prefer to go dancing or swimming –already have facilities for that • Not keen on the idea of an independently attended “seniors hour” • Insurance can be an issue • Embarrassment seemed to be a big issue for this group • People would not use playgrounds because it was “forbidden by the park authority” – for one person, even though this counted even though they thought it would be fin to go on with the kids. • Fear from one man as being seen as a dirty old man – this was something mentioned by men • Cost (public and private) would put people off

Personal Factors

Good	Bad
<ul style="list-style-type: none"> • Would be cautious, but that wouldn't put them off – would like to build confidence • No real fear of hurting selves 	<ul style="list-style-type: none"> • Risk and limited ability are putting everyone off • Desire to exercise sometimes countered by medical advice • Additional fear of hurting self • Increased fear of injury from a fall as more fragile • The Doctor decides what you should use – would need to get advice from a doctor • Skin is too tender to use things like crawling tubes • Fear of hurting selves – many live alone and can't afford to injure themselves • Many agreed that they preferred to do other things – swimming, walking, gardening – which were already available to them – “I would sooner dig potatoes for activity”. • Time constraints were cited as a restricting factor • Physical risks were a factor for the less fit in the group • Physical limitations were a deterrent for some members – agility and lack of physical fitness •

Appendix I
Semi-Structured Interviews
Questions

1. Age:

- 60 - 64 65 - 69 70 - 74 75 - 79
 80 - 84 85 - 89 90+

2. Gender:

- Male Female

3. How fit do you consider yourself?

- Very fit Quite fit Fairly fit Not very fit Very unfit

4. Do you currently take regular exercise?

- Yes – I attend a group session/class
 Yes – I attend a facility for independent exercise (eg gym, pool)
 Yes – I exercise at home
 Other: please specify
 No

5. What do you think of the idea of older people using playground equipment?

- Good idea Bad idea Don't know

6. What do you think of the idea of designing playgrounds so they can be used by adults and children?

- Good idea Bad idea Don't know

7. Would you like there to be more adult sized equipment along side children's equipment (eg swings, pull up bars)?

- Yes No

If yes, what would you like to use?

8. What do you think of the idea of a playground type facility designed solely for adults?

- Good idea Bad idea Don't know

9. Would calling a playground which adults can use something different, such as an activity park, make you more likely to use it?

- Yes No

What do you think such a facility could be called?

10. Do you attend playgrounds at all (eg. with children you are caring for)?

- Yes – on my own Yes – with a partner or friend
 Yes – with children No

If No go to question 13

11. Do you use playground equipment?

- Yes No

If Yes, what equipment do you use?

- | | | |
|---|---|--|
| <input type="checkbox"/> Conventional swings | <input type="checkbox"/> Slides | <input type="checkbox"/> Nets |
| <input type="checkbox"/> Single point swings | <input type="checkbox"/> Sliding poles | <input type="checkbox"/> Aerial runways |
| <input type="checkbox"/> Spring items | <input type="checkbox"/> Loose equipment | <input type="checkbox"/> Climbing frames |
| <input type="checkbox"/> Swinging bridges | <input type="checkbox"/> Chinning bars | <input type="checkbox"/> Sand/soil |
| <input type="checkbox"/> Roundabouts/spinning items | <input type="checkbox"/> Agility bars | <input type="checkbox"/> Water |
| <input type="checkbox"/> Crawling tubes | <input type="checkbox"/> Multi-person equipment | <input type="checkbox"/> Bridges |
| <input type="checkbox"/> Balancing beams | <input type="checkbox"/> Seating areas | <input type="checkbox"/> Don't know |
| <input type="checkbox"/> Others (please specify) | | |

12. What problems do you encounter?

13. Would you consider using playground equipment?

- Yes – with children Yes – on my own
 Yes – with a partner or friend Yes – as part of a group
 No

14. How would you prefer to use a playground facility?

- With children On my own
- With a partner or friend
- As part of an organised group activity with other people of similar age

15. What discourages you from using playgrounds at present (eg. fear of falling, equipment too small)?

16. If you don't currently use playgrounds, what equipment would you consider using?

- | | | |
|---|---|--|
| <input type="checkbox"/> Conventional swings | <input type="checkbox"/> Slides | <input type="checkbox"/> Nets |
| <input type="checkbox"/> Single point swings | <input type="checkbox"/> Sliding poles | <input type="checkbox"/> Aerial runways |
| <input type="checkbox"/> Spring items | <input type="checkbox"/> Loose equipment | <input type="checkbox"/> Climbing frames |
| <input type="checkbox"/> Swinging bridges | <input type="checkbox"/> Chinning bars | <input type="checkbox"/> Sand/soil |
| <input type="checkbox"/> Roundabouts/spinning items | <input type="checkbox"/> Agility bars | <input type="checkbox"/> Water |
| <input type="checkbox"/> Crawling tubes | <input type="checkbox"/> Multi-person equipment | <input type="checkbox"/> Bridges |
| <input type="checkbox"/> Balancing beams | <input type="checkbox"/> Seating areas | <input type="checkbox"/> Don't know |
| <input type="checkbox"/> Others (please specify) | | |

17. Would you use a facility designed solely for adults?

- Yes No Don't know

18. What equipment would you want to see in a facility for adults?

19. Would you rather use an indoor or outdoor playground type facility?

- Indoor playground Outdoor playground

Why?

20. Would you be willing to pay to use an indoor facility?

- Yes No

21. Would a sign inviting you to use the equipment at a playground encourage you to do so?

- Yes No

22. Would signs explaining how to use equipment and what the benefits were encourage you to use it?

- Yes No

23. Do you think groups of youths are a problem on playgrounds?

- Yes No

Comments:

24. Would you prefer to use facilities that are supervised?

- Yes – by a general warden
 Yes – by a training instructor
 Don't mind No

25. What extra facilities would encourage you to attend a playground, either with or without children

- Toilets Cafe
 Seating areas Natural planted areas
 Shelter
 Others – Please make your own suggestions:

26. Do you think any of the following would make equipment easier for you to use?

- Wider seats/slides
 Positioning items (eg. swing or seesaw seats) higher from the ground
 Hill slope approached to slides
 Gently sloping slide
 Grab rails on balance items
 Better grips on climbing bars/ropes

Padding inside crawl tubes

Bigger crawl tubes

27. What other changes could be made that would encourage you to use playground equipment?

28. What type of flooring would you prefer (Eg. sand, bark, rubber)?

Why?

29. What type of colours would make a facility more attractive to you (eg. bright colours, natural colours)?

30. How would you prefer to get to the facility?

Bus

Walk

Car

31. If your doctor or other health professional recommended using playgrounds for health, would it encourage you to use them?

Yes

No

32. Would you like to use more co-operative equipment such as seesaws and boat swings?

Yes

No

If yes, what would you like to use?

33. What other types of equipment/facilities would you like to use?

Floor based games like hopscotch

A line maze you can follow on the floor

Oversized games such as giant chess/draughts/Jenga

Paddling/wading pool

Ball games

Climbing wall

- Floor level trampolines
- Rocking benches
- Walking trail
- Fitness trail
- Cycle trail
- Other – please specify

Appendix J
Semi-Structured Interviews
Raw Data

1. Age:

<input type="checkbox"/> 60 - 64	33% (N = 6)
<input type="checkbox"/> 65 - 69	11% (N = 2)
<input type="checkbox"/> 70 - 74	6% (N = 1)
<input type="checkbox"/> 75 - 79	17% (N = 3)
<input type="checkbox"/> 80 - 84	22% (N = 4)
<input type="checkbox"/> 85 - 89	11% (N = 2)
<input type="checkbox"/> 90+	0% (N = 0)

2. Gender:

<input type="checkbox"/> Male	39% (N = 7)
<input type="checkbox"/> Female	61% (N = 11)

3. How fit do you consider yourself?

<input type="checkbox"/> Very fit	17% (N = 3)
<input type="checkbox"/> Quite fit	22% (N = 4)
<input type="checkbox"/> Fairly fit	33% (N = 6)
<input type="checkbox"/> Not very fit	22% (N = 4)
<input type="checkbox"/> Very unfit	6% (N = 1)

4. Do you currently take regular exercise?

Yes 83% (N = 15) No 17% (N = 3)

Yes – I attend a group session/class

28% (N = 5)

- Keep fit class (N = 2)

Yes – I attend a facility for independent exercise (eg gym, pool)

33% (N = 6)

- Swimming (N = 5)
- Golf (N = 1)
- Gym (N = 1)
- Badminton (N = 1)
- Tennis (N = 1)
- Sport (N = 1)

Yes – I exercise at home

72% (N = 13)

- Walking (N = 8)
- Gardening (N = 5)
- Toe touches (N = 1)
- Cycling (N = 1)

Other: please specify

0% (N = 0)

5. What do you think of the idea of older people using playground equipment?

Good idea 67% (N = 12)

Bad idea 11% (N = 2)

Don't know 22% (N = 4)

- If designed properly (N = 2)
- Unusual, depends on fitness levels (N = 1)
- Children can be rude – older folk can't cope with that (N = 1)
- If equipment not too small (N = 1)
- Playgrounds are for children. Adults are more likely to go to the gym to improve fitness (N = 1)

6. What do you think of the idea of designing playgrounds so they can be used by adults and children?

Good idea 78% (N = 14)

Bad idea 22% (N = 4)

Don't know 0% (N = 0)

- Playgrounds are for children (N = 1)
- Don't know why adults would want to mess around in playgrounds, especially as everyone would think you were a dirty old man (N = 1)

7. Would you like there to be more adult sized equipment along side children's equipment (eg swings, pull up bars)?

Yes 61% (N = 11)

No 39% (N = 7)

- Yes, especially as easy mobility lessens with age and larger equipment would help with this (N = 1)
- No, we'd make do (N = 1)
- No, it could lead to an unfavourable reaction and issues with paedophilia (N = 1)

If yes, what would you like to use?

- Weights (N = 1)
- Bikes (N = 1)
- Swimming (N = 1)
- Parallel bars, ropes, mats, horses (Gymnasium equipment) (N = 1)
- Trampolines/Rebounders (N = 1)

8. What do you think of the idea of a playground type facility designed solely for adults?

Good idea 39% (N = 7)

Bad idea 39% (N = 7)

Don't know 17% (N = 3)

No answer 6% (N = 1)

- Better mixed
- More fun mixed – better family feeling
- Ought to be separate – children make fun of you
- Don't know, maybe for a few – depends on fitness level
- Very sociable
- Bad idea, don't think it would catch on as we tend to go and do what want specifically, e.g. Gym or swim, etc., and aging problems like falling are too inhibiting

- I don't think this would be used and it's much more fun to be incorporated into a family unit
- More usable for adults without kids on it

(All N = 1)

9. Would calling a playground which adults can use something different, such as an activity park, make you more likely to use it?

Yes 33% (N = 6)

No 61% (N = 11)

No answer 6% (N = 1)

- Not for me personally but maybe for others (N = 2)
- No, can't see anyone using it (N = 1)
- No, but the word playground does put me off (N = 1)

What do you think such a facility could be called?

- Leisure grounds (N = 1)
- Activity Park (N = 3)

10. Do you attend playgrounds at all (eg. with children you are caring for)?

Yes 33% (N = 6) No 67% (N = 12)

Yes – on my own 0% (N = 0)

Yes – with a partner or friend 33% (N = 2) of Yes answers
11% (N = 2) of whole sample

Yes – with children 100% (N = 6) of Yes answers
33% (N = 6) of whole sample

- No, I prefer to play football, go to the beach, or on walks with my grandson (N = 1)
- No, although did use playground on holiday with my wife, for fun (N = 1)

If No go to question 13

11. Do you use playground equipment?

- Yes 50% (N = 3)
- No 50% (N = 3)

If Yes, what equipment do you use?

<input type="checkbox"/> Conventional swings 100% (N = 3)	<input type="checkbox"/> Slides 33% (N = 1)	<input type="checkbox"/> Nets 0% (N = 0)
<input type="checkbox"/> Single point swings 0% (N = 0)	<input type="checkbox"/> Sliding poles 0% (N = 0)	<input type="checkbox"/> Aerial runways 0% (N = 0)
<input type="checkbox"/> Spring items 0% (N = 0)	<input type="checkbox"/> Loose equipment 0% (N = 0)	<input type="checkbox"/> Climbing frames 0% (N = 0)
<input type="checkbox"/> Swinging bridges 0% (N = 0)	<input type="checkbox"/> Chinning bars 0% (N = 0)	<input type="checkbox"/> Sand/soil 0% (N = 0)
<input type="checkbox"/> Roundabouts/spinning items 67% (N = 2)	<input type="checkbox"/> Agility bars 0% (N = 0)	<input type="checkbox"/> Water 0% (N = 0)
<input type="checkbox"/> Crawling tubes 0% (N = 0)	<input type="checkbox"/> Multi-person equipment 33% (N = 1)	<input type="checkbox"/> Bridges 0% (N = 0)
<input type="checkbox"/> Balancing beams 0% (N = 0)	<input type="checkbox"/> Seating areas 0% (N = 0)	<input type="checkbox"/> Don't know 0% (N = 0)
<input type="checkbox"/> Others (please specify) 0% (N = 0)		

12. What problems do you encounter?

- I find stepping down difficult, and when the children say "get off"! (N = 1)
- Law forbids it (N = 1)

13. Would you consider using playground equipment?

Yes 72% (N = 13) No 28% (N = 5)

- Yes – with children 77% (N = 10) of Yes answers
56% (N = 10) of whole sample
- Yes – on my own 23% (N = 3) of Yes answers
17% (N = 3) of whole sample
- Yes – with a partner or friend 38% (N = 5) of Yes answers
28% (N = 5) of whole sample
- Yes – as part of a group 46% (N = 6) of Yes answers

33% (N = 6) of whole sample

- No time (N = 1)
- Not interested (N = 1)
- I would only use the facility on my own if there weren't children present, otherwise I'd feel silly. (N = 1)

14. How would you prefer to use a playground facility?

- With children 44% (N = 8)
- On my own 6% (N = 1)
- With a partner or friend 11% (N = 2)
- As part of an organised group activity with other people of similar age

33% (N = 6)

No answer (would not use it) 6% (N = 1)

- Group, otherwise I'd be embarrassed (N = 1)
- Group for companionship (N = 1)

15. What discourages you from using playgrounds at present (eg. fear of falling, equipment too small)?

- Not designed for use (N = 4)
- Against the law for over 14's (N = 3)
- Fear of falling (N = 3)
- Body strength problems (N = 5)
- Total disinterest (N = 2)
- Leave it for the children – not fair on them for us to use it, and they may be better at playing which upsets my competitiveness (N = 1)
- I've no need to go, and kids can be too boisterous (N = 1)
- Don't feel capable (N = 1)
- Signs saying it is forbidden (N = 1)

- Being labelled a paedophile is a major drawback – a very serious problem and risk (N = 2)
- I weigh too much (I'm overweight) (N = 1)
- I'd feel silly / shyness (N = 3)

16.If you don't currently use playgrounds, what equipment would you consider using?

<input type="checkbox"/> Conventional swings 33% (N = 6)	<input type="checkbox"/> Slides 44% (N = 8)	<input type="checkbox"/> Nets 11% (N = 2)
<input type="checkbox"/> Single point swings 6% (N = 1)	<input type="checkbox"/> Sliding poles 0% (N = 0)	<input type="checkbox"/> Aerial runways 17% (N = 3)
<input type="checkbox"/> Spring items 6% (N = 1)	<input type="checkbox"/> Loose equipment 6% (N = 1)	<input type="checkbox"/> Climbing frames 28% (N = 5)
<input type="checkbox"/> Swinging bridges 0% (N = 0)	<input type="checkbox"/> Chinning bars 17% (N = 3)	<input type="checkbox"/> Sand/soil 0% (N = 0)
<input type="checkbox"/> Roundabouts/spinning items 17% (N = 3)	<input type="checkbox"/> Agility bars 11% (N = 2)	<input type="checkbox"/> Water 11% (N = 2)
<input type="checkbox"/> Crawling tubes 0% (N = 0)	<input type="checkbox"/> Multi-person equipment 11% (N = 2)	<input type="checkbox"/> Bridges 17% (N = 3)
<input type="checkbox"/> Balancing beams 22% (N = 4)	<input type="checkbox"/> Seating areas 28% (N = 5)	<input type="checkbox"/> Don't know 0% (N = 0)
<input type="checkbox"/> Others (please specify) 6% (N = 1)		

- Balancing – I use a stick, so practice is very good for me (N = 1)
- What sort of loose equipment? (N = 1)
- Hula hoops, trampolines (N = 1)

17. Would you use a facility designed solely for adults?

<input type="checkbox"/> Yes	56% (N = 10)
<input type="checkbox"/> No	22% (N = 4)
<input type="checkbox"/> Don't know	11% (N = 2)
No answer	11% (N = 2)

- Depends what it was (N = 1)

18.What equipment would you want to see in a facility for adults?

- Bikes (N = 1)
- Swings (N = 2)
- Roller-skates – good for balance, and not to much joint or muscle stress, and it would be fun (N = 1)
- Water feature and flower garden (N = 1)
- Picnic tables (N = 1)
- Pitch and putt, boules, and generally more games as they have more purpose (N = 1)
- Swing boats (N = 1)
- Climbing wall (N = 1)
- Flying fox (N = 1)
- Trampolines (N = 2)

19.Would you rather use an indoor or outdoor playground type facility?

- Indoor playground 17% (N = 3)
- Outdoor playground 33% (N = 6)
- Both 33% (N = 6)
- Neither 11% (N = 2)
- Don't know 6% (N = 1)

Why?

- I'm an outdoors person (N = 2)
- Indoors because of the weather (N = 6)
- I like outdoor freshness (fresh air) (N = 4)
- Indoors would be safer (N = 1)
- Inside could be too noisy (N = 1)
- Indoors is too dark and stuffy (N = 1)

20.Would you be willing to pay to use an indoor facility?

- Yes 67% (N = 12)
- No 33% (N = 6)
- Yes, I already pay for keep-fit (N = 1)

21.Would a sign inviting you to use the equipment at a playground encourage you to do so?

- Yes 72% (N = 13)

No 22% (N = 4)

Don't know 6% (N = 1)

• Yes, if others were using it too (N = 1)

• Yes, I would go in and ask, get literature, look into it (N = 1)

22. Would signs explaining how to use equipment and what the benefits were encourage you to use it?

Yes 67% (N = 12)

No 33% (N = 6)

23. Do you think groups of youths are a problem on playgrounds?

Yes 78% (N = 14)

No 17% (N = 3)

Don't know 6% (N = 1)

Comments:

- We come from Bideford, Devon where young and old join in. Youths have their mountain bike and skate board area close by playgrounds and we've never had any problems with them. (N = 1)
- Youths are ignorant, aggravate others, destructive and aimless (N = 1)
- Vandalism (N = 3)
- They make mischief, especially in groups (N = 1)
- Intimidating and destructive (N = 1)
- Youths get bored and they've nowhere else to go (N = 1)
- Bad behaviour (N = 1)
- Rough and loud (N = 1)

24. Would you prefer to use facilities that are supervised?

Yes – by a general warden 6% (N = 1)

Yes – by a training instructor 28% (N = 5)

Yes – both 6% (N = 1)

Yes – don't mind who 22% (N = 4)

- Don't mind 27% (N = 5)
- No 6% (N = 1)
- No answer 6% (N = 1)

- It would also avoid "dirty old men" problems and vandalism problems (N = 1)
- Yes, a proper trainer, although could be intimidating. A gym is better. (N = 1)
- If there's lots of complicated equipment we need a training instructor (N = 1)
- Both, as they fulfil different roles (N = 1)
- Training instructor would improve the safety of a facility (N = 1)

25. What extra facilities would encourage you to attend a playground, either with or without children

- Toilets 89% (N = 16)
- Cafe 61% (N = 11)
- Seating areas 83% (N = 15)
- Natural planted areas 72% (N = 13)
- Shelter 78% (N = 14)
- Others 28% (N = 5)

- Drinking fountain (N = 1)
- A model in a bikini (N = 1)
- Bikes (N = 1)
- Car and bike parks (N = 1)
- Showers (N = 1)
- Café not a deal breaker/not necessary (N = 3)
- Planting could be a good noise muffler (N = 1)
- Planting is good for the environment (N = 1)
- Must be kept clean and well maintained (N = 1)

26. Do you think any of the following would make equipment easier for you to use?

- Wider seats/slides 50% (N = 9)

- Positioning items (eg. swing or seesaw seats) higher from the ground 56% (N = 10)
- Hill slope approached to slides 22% (N = 4)
- Gently sloping slide 28% (N = 5)
- Grab rails on balance items 83% (N = 15)
- Better grips on climbing bars/ropes 72% (N = 13)
- Padding inside crawl tubes 17% (N = 3)
- Bigger crawl tubes 39% (N = 7)
- I think a slope to a slide is a bad idea – you are more likely to slip over on a slope than on steps. Shallow steps with a handrail would be safer. (N = 1)
- Grab rails need to be well placed (N = 1)

27. What other changes could be made that would encourage you to use playground equipment?

- Larger groups (N = 1)
- Mini-bus pick up service (N = 1)
- Knee and elbow pads (N = 1)
- Convenient location (N = 1)
- Stronger apparatus (N = 1)
- Changing the rules on adult use (N = 1)
- Getting into an accepted mindset (N = 1)

28. What type of flooring would you prefer (Eg. sand, bark, rubber)?

Rubber 61% (N = 11)

- It gives a little (N = 3)
- Is not so harsh on skin (N = 1)
- Cleaner (N = 6)
- Safer (N = 6)
- Suitable for indoors too (N = 1)
- Non-slip (N = 2)
- Quieter (N = 1)

Astroturf 6% (N = 1)

- Astro-turf – very clean (N = 1)

Bark 17% (N = 3)

- Natural (N = 1)
- Relaxing (N = 1)
- Safer (N = 1)

Grass 6% (N = 1)

- Grass quieter, natural and relaxing (N = 1)

No preference 22% (N = 4)

- Bark and sand are too messy (N = 1)
- Nothing that would attract dogs (N = 1)
- Whatever is safest (N = 1)
- Not sand (N = 1)

29. What type of colours would make a facility more attractive to you (eg. bright colours, natural colours)?

Natural colours 28% (N = 5)

Bright colours 44% (N = 8)

Pastel colours 6% (N = 1)

Depends on location 6% (N = 1)

Don't mind 6% (N = 1)

No answer 11% (N = 2)

- Bright colours are too childish (N = 1)
- Bright colours are more cheerful, uplifting (N = 4)
- Bright colours are too gaudy and plasticky (N = 1)
- Bright colours, but I don't think it's critical (N = 1)
- Depends where playground is – natural for parks, bright for cities (N = 1)
- Colours that provide good contrast with the surroundings for visibility (N = 1)
- What if someone is colour blind? (N = 1)

30. How would you prefer to get to the facility?

Bus 22% (N = 4)

Walk 67% (N = 12)

Car 33% (N = 6)

Cycle 6% (N = 1)

- Walk if not too far (N = 1)
- Mini-bus. (N = 2)
- Many older folk don't like to drive any more (N = 1)
- Bike (N = 1)

31. If your doctor or other health professional recommended using playgrounds for health, would it encourage you to use them?

Yes 72% (N = 13)

No 28% (N = 5)

32. Would you like to use more co-operative equipment such as seesaws and boat swings?

Yes 17% (N = 3)

No 78% (N = 14)

No answer 6% (N = 1)

If yes, what would you like to use?

33. What other types of equipment/facilities would you like to use?

Floor based games like hopscotch

22% (N = 4)

A line maze you can follow on the floor

50% (N = 9)

Oversized games such as giant chess/draughts/Jenga

56% (N = 10)

Paddling/wading pool

39% (N = 7)

Ball game
33% (N = 6)

Climbing wall
28% (N = 5)

Floor level trampolines
33% (N = 6)

Rocking benches
56% (N = 10)

Walking trail
56% (N = 10)

Fitness trail
56% (N = 10)

Cycle trail
50% (N = 9)

Other – please specify
17% (N = 3)

- Croquet (N = 1)
- Quiet garden area for tranquillity (N = 1)
- Trampoline (N = 2)
 - with harness or top hand and a sight spot to keep straight (N = 1)
- Rocking benches nice for café area
- Boules (N = 1)
- Skipping (N = 1)
- Basketball nets (N = 1)
- Automatic tennis ball shooter (N = 1)
- Skittles (N = 1)

General Comments

- Might be very helpful for some. Good idea, why not

- I think a scheme like this could be good fun. I would be very interested to actually see it happen
- Why not, may work I'd be willing to try it
- Impractical, physically, and no one would want to use it
- No, definitely for children, really don't think adults would actually turn out and use the places, except if they had grandchildren to go with
- OK idea maybe, but not for me
- Good for those interested
- Paedophilia is a big problem, and such places could attract that, for sure
- Needs to be a gentle experience and environment for the elderly
- Good idea if thought out well enough
- Oh that I could!

Appendix K
Semi-Structured Interviews
SPSS Output

Gender and whether older people using play equipment is a good idea

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Gender * Older people using playground equipment	144	100.0%	0	.0%	144	100.0%

Gender * Older people using playground equipment Crosstabulation

			Older people using playground equipment			Total
			Good Idea	Bad Idea	Don't Know	
Gender	Male	Count	24	16	16	56
		Expected Count	37.3	6.2	12.4	56.0
		% within Gender	42.9%	28.6%	28.6%	100.0%
		% within Older people using playground equipment	25.0%	100.0%	50.0%	38.9%
		% of Total	16.7%	11.1%	11.1%	38.9%
	Female	Count	72	0	16	88
		Expected Count	58.7	9.8	19.6	88.0
		% within Gender	81.8%	.0%	18.2%	100.0%
		% within Older people using playground equipment	75.0%	.0%	50.0%	61.1%
		% of Total	50.0%	.0%	11.1%	61.1%
Total	Count	96	16	32	144	
	Expected Count	96.0	16.0	32.0	144.0	
	% within Gender	66.7%	11.1%	22.2%	100.0%	
	% within Older people using playground equipment	100.0%	100.0%	100.0%	100.0%	
	% of Total	66.7%	11.1%	22.2%	100.0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	34.597 ^a	2	.000	.000		
Likelihood Ratio	40.126	2	.000	.000		
Fisher's Exact Test	36.785			.000		
Linear-by-Linear Association	11.972 ^b	1	.001	.001	.000	.000
N of Valid Cases	144					

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.22.

b. The standardized statistic is -3.460.

Symmetric Measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.	Exact Sig.
Nominal by Nominal	Phi	.490			.000	.000
Nominal by Nominal	Cramer's V	.490			.000	.000
Interval by Interval	Pearson's R	-.289	.082	-3.602	.000 ^c	.001
Ordinal by Ordinal	Spearman Correlation	-.343	.082	-4.350	.000 ^c	.000
N of Valid Cases		144				

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Gender and whether people would use equipment

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Gender * Would consider using playground equipment	144	100.0%	0	.0%	144	100.0%

Gender * Would consider using playground equipment Crosstabulation

			Would consider using playground equipment		Total
			Yes	No	
Gender	Male	Count	40	16	56
		% within Gender	71.4%	28.6%	100.0%
		% within Would consider using playground equipment	38.5%	40.0%	38.9%
		% of Total	27.8%	11.1%	38.9%
	Female	Count	64	24	88
		% within Gender	72.7%	27.3%	100.0%
		% within Would consider using playground equipment	61.5%	60.0%	61.1%
		% of Total	44.4%	16.7%	61.1%
Total		Count	104	40	144
		% within Gender	72.2%	27.8%	100.0%
		% within Would consider using playground equipment	100.0%	100.0%	100.0%
		% of Total	72.2%	27.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.029 ^b	1	.865	1.000	.506	
Continuity Correction ^a	.000	1	1.000			
Likelihood Ratio	.029	1	.865	1.000	.506	
Fisher's Exact Test				1.000	.506	
Linear-by-Linear Association	.029 ^c	1	.866	1.000	.506	.149
N of Valid Cases	144					

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.56.

c. The standardized statistic is -.169.

Symmetric Measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.	Exact Sig.
Nominal by Nominal	Phi	-.014			.865	1.000
Nominal	Cramer's V	.014			.865	1.000
Interval by Interval	Pearson's R	-.014	.084	-.168	.866 ^c	1.000
Ordinal by Ordinal	Spearman Correlation	-.014	.084	-.168	.866 ^c	1.000
N of Valid Cases		144				

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Age and whether older people using play equipment is a good idea

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age banded * Older people using playground equipment	144	100.0%	0	.0%	144	100.0%

Age banded * Older people using playground equipment Crosstabulation

			Older people using playground equipment			Total
			Good Idea	Bad Idea	Don't Know	
Age banded	60 - 69	Count	56	0	8	64
		% within Age banded	87.5%	.0%	12.5%	100.0%
		% within Older people using playground equipment	58.3%	.0%	25.0%	44.4%
		% of Total	38.9%	.0%	5.6%	44.4%
70 - 79	Count	16	8	8	32	
	% within Age banded	50.0%	25.0%	25.0%	100.0%	
	% within Older people using playground equipment	16.7%	50.0%	25.0%	22.2%	
	% of Total	11.1%	5.6%	5.6%	22.2%	
80 - 89	Count	24	8	16	48	
	% within Age banded	50.0%	16.7%	33.3%	100.0%	
	% within Older people using playground equipment	25.0%	50.0%	50.0%	33.3%	
	% of Total	16.7%	5.6%	11.1%	33.3%	
Total	Count	96	16	32	144	
	% within Age banded	66.7%	11.1%	22.2%	100.0%	
	% within Older people using playground equipment	100.0%	100.0%	100.0%	100.0%	
	% of Total	66.7%	11.1%	22.2%	100.0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	27.000 ^a	4	.000	.000		
Likelihood Ratio	32.558	4	.000	.000		
Fisher's Exact Test	29.706			.000		
Linear-by-Linear Association	14.096 ^b	1	.000	.000	.000	.000
N of Valid Cases	144					

a. 1 cells (11.1%) have expected count less than 5. The minimum expected count is 3.56.

b. The standardized statistic is 3.754.

Symmetric Measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.	Exact Sig.
Nominal by Nominal	Phi	.433			.000	.000
	Cramer's V	.306			.000	.000
Interval by Interval	Pearson's R	.314	.078	3.941	.000 ^c	.000
Ordinal by Ordinal	Spearman Correlation	.343	.077	4.357	.000 ^c	.000
N of Valid Cases		144				

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Crosstabs

Age and whether people would use equipment

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age banded * Would consider using playground equipment	144	100.0%	0	.0%	144	100.0%

Age banded * Would consider using playground equipment Crosstabulation

			Would consider using playground equipment		Total
			Yes	No	
Age banded	60 - 69	Count	56	8	64
		% within Age banded	87.5%	12.5%	100.0%
		% within Would consider using playground equipment	53.8%	20.0%	44.4%
		% of Total	38.9%	5.6%	44.4%
70 - 79		Count	24	8	32
		% within Age banded	75.0%	25.0%	100.0%
		% within Would consider using playground equipment	23.1%	20.0%	22.2%
		% of Total	16.7%	5.6%	22.2%
80 - 89		Count	24	24	48
		% within Age banded	50.0%	50.0%	100.0%
		% within Would consider using playground equipment	23.1%	60.0%	33.3%
		% of Total	16.7%	16.7%	33.3%
Total		Count	104	40	144
		% within Age banded	72.2%	27.8%	100.0%
		% within Would consider using playground equipment	100.0%	100.0%	100.0%
		% of Total	72.2%	27.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	19.385 ^a	2	.000	.000		
Likelihood Ratio	19.404	2	.000	.000		
Fisher's Exact Test	19.000			.000		
Linear-by-Linear Association	18.771 ^b	1	.000	.000	.000	.000
N of Valid Cases	144					

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.89.

b. The standardized statistic is 4.333.

Symmetric Measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.	Exact Sig.
Nominal by	Phi	.367			.000	.000
Nominal	Cramer's V	.367			.000	.000
Interval by Interval	Pearson's R	.362	.077	4.632	.000 ^c	.000
Ordinal by Ordinal	Spearman Correlation	.359	.076	4.591	.000 ^c	.000
N of Valid Cases		144				

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Appendix L
Playground Audit

Playground Audit

Guidelines for playgrounds:

- **Integrated playgrounds permitting adult and child use are preferred to playgrounds designed solely for adults – NO ADULT SUITABLE EQUIPMENT PROVIDED**
- **Provide supervision for users, preferably from a training instructor able to offer advice tailored to older people about using equipment and appropriately trained in first aid. If this is not possible, playgrounds should be under the supervision of a general warden in order to reduce anti-social behaviour and encourage a sense of safety – UNCERTAIN – PROBABLY NONE**
- **Incorporating pleasant planting will encourage people to attend playgrounds – YES – PARK PLANTING SURROUNDING PLAYGROUND**
- **Ensure the equipment and environment is well maintained - CLEAN AND TIDY, ALL IN WORKING ORDER. PAINT WORN AND PEELING**
- **Provide signs inviting adults to use the equipment – publicise where equipment is suitable for adult use - SIGNS BARRING ADULTS WITHOUT CHILDREN**
- **Provide signs informing people how to use equipment and what it's health benefits might be - NO**
- **Bright colours are the most popular colour scheme. Colours must create good contrast for visibility – YES – RED, BLUE AND YELLOW. ONE GATE CONTRASTING WITH FENCE**

Location:

- **Ideally, situate facilities in a controlled, or at least supervised environment. – NO**
This will help reduce the sense of threat from other users, particularly groups of youths, provide reassurance regarding safety. Controlled environments also permit a wider variety of equipment, including more easily vandalised equipment
- **Locate unsupervised playgrounds in busy areas where they are always overlooked for safety – SCREENED FROM ROAD BY TREES – SO NOT OVERLOOKED. PARK BUSY DURING DAY**
- **Provision of both indoor and outdoor facilities will allow year round use - NO**
- **Locate playgrounds to be within walking distance for the maximum number of people. Where this is not possible, perhaps for larger facilities with supervision, a good bus service will encourage attendance – YES – WALKING DISTANCE FOR MANY HOUSEHOLDS AND NEARBY BUS STOP**

Equipment:

- **All equipment should be suitable for use by people weighing up to 107kg (Europe) or 110kg (USA) (largest 95th percentile measurements) – DON'T KNOW**
- **The free space along the forced path of the user should have a standing height of 2407mm, a seated height of 1559mm, and a hanging height of 2254mm – HANGING HEIGHT ONLY 1800MM FROM AGILITY BARS. FREE SPACE AROUND SLIDE OPEN**

The existing dimensions of the cylinder representing the user are a radius of 1000mm which is adequate for older adult users, with the largest of the 95th percentile arm span measurements being 1970mm. However the current standing and hanging height is 1800mm and the seated height is 1500mm – this is insufficient for the largest 95th percentile measurements given above.

- **Equipment on which people sit, such as swings and slides, need to be of sufficient width to enable people to fit. This should be 523mm in Europe, but 583mm for the USA. – NO SWINGS FOR OLDER CHILDREN – INFANT SWINGS ONLY. SLIDE WIDTH ONLY 278MM**

A seat width of over 523mm (95th percentile sitting hip/thigh width for a UK male over the age of 65 is 483mm, plus 40mm clothing allowance) should accommodate most adults in the UK and Europe, however 543mm width would be required to accommodate 95% of USA adult females. Again additional width of 40mm will be required to allow for clothing (Smith, Norris and Peebles, 2000). Making seats wider still may aid people's confidence that they will be able to fit and accommodate a greater number of people still. The smallest maximum swing seat width stipulated in Product Assessment Specification 018 (BSI 1996) is 525mm, with a range of 455 to 635mm, so offering wide enough seats should be possible for the UK population. Similarly, slides must be less than 700mm or more than 950mm (BSI 1998b), so adult hip widths should be easily accommodated.

- **Co-operative swinging equipment such as swinging boats should be provided - NO**
- **Raise starts and run-outs on slides to 420mm – ONLY 140MM**

The run out section of slides is permitted to be up to 420mm from the ground (BSI 1996). Using this maximum may assist older people in getting up from bottom of a slide. A short length of raised horizontal surface is also permitted at the beginning of the slide and may assist older adults in getting onto the slide with confidence

- **Embed slides in hills - NO**

Slides may be easier for some people to use if embedded in a hill rather than free standing in order to avoid steps, however the gradient and surfacing of the approach needs further investigation. The maximum recommended ramp incline is 38 degrees to the horizontal (BSI

1998a) however it may be that grass slopes could cause more risk of slipping for older people than steps, and more research into this is required

- **Keep step heights and ladder rung heights to a minimum (110mm and 130mm respectively) where possible – RUNG HEIGHT 245MM BETWEEN RUNGS. 175MM TO BOTTOM RUNG OF LADDER. BOTTOM RUNG OF CLIMBING BARS 287MM**

Where steps are used, these should be comfortable to use for older people. The fifth percentile comfortable step height for both ascending and descending for a Netherlands female over the age of 80 is 100mm. The 5th percentile maximum step height is also 100 for the age band 75 – 79 (Netherlands female), however this may be anomalous as the sample size was just 38, and the 5th percentile maximum step height in the 80+ group was 190mm (Smith et al, 2000). As the minimum specified rise on a spiral stair is 110mm, this minimum height should be used, providing greater height is not required in order to deter smaller children from ascending. The minimum rung height of a ladder is 130mm in order to prevent entrapment for children under 36 months, so ladder rungs must be 130mm apart.

- **A range of seat heights on seated equipment should be provided – ONLY INFANT SWINGS**

Seats on items such as swings and seesaws need to be of a reasonable height to allow older people to sit and rise easily. The mean sitting height for a UK female over 65 years is 430mm, and an adjustment of between 25 and 45mm for shoes needs to be made (Smith et al, 2000) giving a mean height of 465mm for swing seats, however providing a range of swings with different height seats would be preferable to enable people to select the one most appropriate to themselves. This is especially important to enable adults and children to use equipment as the 5th percentile seated popliteal height of a UK 7 year old girl is just 275mm (Norris & Wilson 1995), though the minimum ground clearance for swing seats is 350mm (BSI 1998a). However, lower swings need to remain in place for children.

- **See-saws should have cushioning end stops – N/A**

This helps prevent the seats from reaching all the way to the ground making it easier for older people to use the force of their legs to push upwards and to dismount, as well as less jarring. Further investigation is needed to determine the ideal height of these end stops.

- **Grab rails at 850mm should be provided for items requiring balance, which should be low to the ground. – N/A – NO BALANCE EQUIPMENT**

The standing grip height of older adults is between 610mm (lowest 5th percentile UK female) and 825mm (highest 95th percentile, UK male), though the maximum measurement internationally is 868mm (95th percentile Netherlands male). Using the upper of these values for the UK will allow taller people to reach grab rails without stooping, while shorter people will still be able to reach. This does fall within the specification laid out by BS EN 1176-1:1998 (BSI 1998a) of 600 - 850mm above the standing surface, as 825mm could be used in the UK, however internationally, the maximum permissible height of 850mm should be used.

No details regarding the preferred position of the handrail relative to the body on a walking task has been obtained, and this could benefit from further research.

- **A line maze promoting balance activity without the need to leave the floor is a popular option and easy to provide - NO**
- **Crawl tubes need to be a minimum of 584mm (Europe) or 609mm (USA) wide at their narrowest point to be wide enough for adults. The height should be 836mm (Europe) or 852mm (USA) - NONE PROVIDED**

The largest 95th percentile shoulder breadth in Europe is for a UK adult male. This is 544mm, however the largest measurement in the USA is 569mm. Again, an additional 40mm to allow for clothing should be given, giving a width of 584mm or 609mm respectively (inside of any padding) through the range of crawling shoulder heights. The shoulder to grip length of adults ranges from 540mm (UK) to 735mm,(Netherlands) thus the width of 584mm or in the USA 609mm would be required through this range of heights. This also provides an indication of the minimum required height of a crawl tunnel, though height has not been mentioned as a problem. However, the largest adult crawling height is 836mm (UK) and 852mm (USA). Making tubes wider than recommended may reduce claustrophobia and encourage use.

- **If sand play is provided, create raised boxes so that people do not have to stoop too far to play. NONE PROVIDED**

Providing an edge to sit on (at a comfortable adult seated height of 465mm), or seats at the sand pit could help older adults to use them. As sand play is an activity older adults are less likely to participate in unless playing with children, the sand pit must not be too high for children to reach. The 5th percentile standing elbow height of a UK 2 year old female is 480mm (Norris & Wilson 1995) and so the height of raised sandpits should not exceed this, though standing platforms could provide multi-height access for different size children and enable a reasonable seating for adults. To allow people to place their knees under the sand box as at a table, the height of the base of the sand box should be 610mm (95th percentile knee height for a Netherlands male). However, if a seat height of 465mm which would cause least difficulty for the most older people, as discussed for swing height, was to be used, 211mm (95th percentile, France and USA adult thigh depth) would be needed above that - the combined seat height and thigh height gives a measurement to the bottom of the sand box of 676mm. The height of the lip of the sand box will then be dictated by the desired depth of the sand, however the mean of the mean seated elbow heights available is 228mm from the seat surface – this gives a lip height of 693mm (from a 465mm seat). This is approximately equivalent to the mean standing elbow height of a 5 or 6 year old UK child. Situating the lip of the box at this height would only permit a sand plus container base depth of 17mm – a greater lip height or lower seat height would be required for a sufficient depth of sand, and user trials would help to determine which would be preferred. A platform of 213mm (693 minus 480) will be required to allow the smallest 2 year olds to stand and play at the sand

box at 693mm. Raised sand boxes should also provide access for wheelchairs. 95% of UK wheelchair users would be accommodated by a knee clearance height of 691mm (BSI 2001) however to enable people to get closer to the sand pit, an arm rest clearance of 794mm would be required, though a stepped depth of sand box could assist in keeping lip height to a minimum. Thus multi-level access is required, providing a lip height ranging from 480mm to 794mm (plus lip thickness) or 1006mm (mean UK adult standing elbow height) if adults can stand at the sand pit edge. Adjustable height seating may help to accommodate more people comfortably.

- **Grip enhancing material should be provided on monkey bars, climbing frames and ladders – NO – BARE METAL**
- **Climbing walls are an option for both adults and children - NO**
- **In supervised, controlled environments:**
 - **Provide more conventional exercise equipment such as exercise bikes and gym balls – N/A**
 - **Floor level trampolines with well marked edges would be enjoyed by many – N/A**
 - **Provide padding on the insides of crawl tubes – N/A**
 - **Paddling, wading and swimming pools require easy steps or slopes to enter and exit rather than ladders, with a non-slip surfacing. – N/A**
 - **Provide loose play equipment including balls (and space for ball games), skipping ropes, hopscotch and oversized board games such as chess and Jenga. Giant games are particularly popular. – N/A**

Other Facilities:

- **Fitness trails, walking trails and cycle trails are all desired – WALKING PATHS AROUND PARK ONLY**
- **Ensure provision of seating areas. Seating areas should be comfortable, the correct height (as previously mentioned for swing height) and promote sociability – SEATS TOO LOW (400MM) & NOT ARRANGED TO PROMOTE SOCIAL INTERACTION**
- **Swinging benches or seating provides some low level activity for older people and may be a step towards encouraging greater participation – NOT PROVIDED**
- **Provide well looked after toilets - NO**
- **Provide a shelter from the weather (shade from sun/shelter from rain or wind) at outdoor playgrounds - NO**
- **A café providing refreshment would encourage attendance. - NO**

Flooring:

- **Solid fill flooring such as rubber is preferred - YES**

Though loose flooring such as bark offers better protection for the long bones as it absorbs the impact of a fall over a greater depth and greater time with less bounce (David Eager, 2006, personal communications), people feel a solid fill floor is smoother to walk on and less slippery, making it less likely to create a fall in its own right. It must however be sufficiently rigid to provide a stable base, but conform to BS EN 1177:1998. (BSI 1998b) People also felt solid fill flooring to be cleaner and safer in terms of being able to see hazards such as discarded needles. It is possible that in a monitored environment, bark would be acceptable beneath certain items of equipment, where people would not expect to walk, but further research is required to determine what would be acceptable

Guidelines for promotion of usage: - NO PROMOTION TO ADULTS ADVERTISED

- **Schemes targeted at older adults under 70 may have greater uptake**

Evidence so far suggests this younger age group are more willing to use playground facilities

- **Organise group playground sessions for older adults with a motivational instructor, including transport for the less mobile**

This provides social contact, removes some of the barriers to social acceptability of use, allows people to feel safer under supervision and gives people motivation and instruction on what to do on the equipment

- **Promote playground use in a health care setting**

Health care workers, including doctors, are in a powerful position to suggest playground use to promote activity, and evidence suggests that the majority of people would respond to such a recommendation

- **Renaming adult friendly facilities something along the lines of leisure grounds or activity parks may de-stigmatise use for some people**

- **Encourage non-intimidating, non-destructive use by older teenagers and adults**

This may lead to a greater willingness to use playground facilities for activity in older age

- **Allocate time when the playground is just for children, time for multi-generational play, and time when it is for adult group use.**

While multi-generational play was considered the preferred circumstance of use by older people, benefiting adults and children alike, concerns about preserving play free from adult interference, feeling silly, fear of children being too boisterous and fear of being perceived as a paedophile all suggest that allocating child only time and adult group session time may be beneficial, but this would need investigation.