Table 1

Active Lives Guiding Principles

| User Context | Key Design Objective | Intervention Features/Design | Evidence Base |
| --- | --- | --- | --- |
| In older people:1. Levels of physical activity are low and often unchanged by interventions2. Improving health not usually a strong motivation for physical activity | Encourage engagement with and intrinsic motivation for physical activity | * Offer novel activities, ensure compatible with lifestyle and identity:
* Lifestyle activity
* Strength and balance training
* Breaks from sitting
* Rather than framing activities in terms of reducing risk of health conditions, highlight benefits that have immediately evident and noticeable outcomes and are known to be valued by the intended user group

e.g. keeping mobile, maintaining independence, enjoyment, reducing pain, social connection, enhancing mood, general quality of life | * Focusing on immediate benefits encourages users to engage in physical activity by building positive outcome expectations (Bandura, 1991; Devereux-Fitzgerald, Powell, Dewhurst, & French, 2016; Notthoff, Klomp, Doerwald, & Scheibe, 2016).
* Increases intrinsic motivation by encouraging engaging in physical activity for the feelings of fun, pleasure, and satisfaction as proposed in SDT (Deci & Ryan, 1985; Ryan & Deci, 2000).
* Offering activities and suggestions, such as use of pedometers (Bravata et al., 2007), that may be novel to users makes the intervention more engaging (Morrison, Yardley, Powell, & Michie, 2012).
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| Catering for highly heterogeneous population in terms of physical activity capabilities and preferences  | * Minimise risk of users receiving activity suggestions that are too advanced and unsafe or too basic and which do not increase capacity
* Steer users towards those activities that seem most personally suitable/ beneficial
* Offer users choice and autonomy regarding content and activities they engage with (within those suitable)
 | * Advice tailored based on current activity levels and perceptions of current strength and balance skills

e.g. Strength and Balance training exercises in three difficulty levels – seated, standing, moving (tailored) – encouraged to progress only when confident at preceding level * Offer a variety of activities to suit different levels of ability
 | * Tailoring activity recommendations to self-reported capabilities reduces the risk of making suggestions that may be harmful to users.
* Allowing self-tailoring of information and goals from a range of options increases the likelihood that users will be able to select personally appropriate advice (Lorig & Holman, 2003) as well as building self-efficacy and supporting the need for autonomy (Ryan & Deci, 2000).
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| Many older people have doubts and concerns about the safety of activity and their capability to undertake activity  | Build confidence to undertake more activity  | Provide reassurance, encouragement, techniques and strategies to:-Reduce concerns and barriers:* ‘Common Concerns’ pages specific to each section
* Provision of carefully graded activities with very gradual increases from low activity baseline
* Stories from similar others about their successes with building up activities
* Access to a trained supporter to support engagement

-Increase self-efficacy:* Graded goal setting and review
 | * Addressing common concerns provides users with an increased sense of competence in their ability engage in physical activity (Deci & Ryan, 1985; Ryan & Deci, 2000).
* Presenting stories from individuals with whom users can relate creates the opportunity for observed positive reinforcement of the impacts of physical activity and builds a sense of relatedness (Bandura, 1977; Deci & Ryan, 1985).
* Providing access to brief human support in conjunction with web-based interventions has been shown to improve engagement and outcomes (Dennison et al., 2014).
* Allowing users to set achievable goals, and build up physical activity through graded activities, helps to build self-efficacy (Bandura, 2012; Ryan & Deci, 2000).
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| 1. Target population have some cognitive impairment2. Behaviour must be maintained for 5 years  | Minimise:* Cognitive load
* Dependence on technology
 | * Suggestions/ examples of how to create new physical activity habits
* Suggestions/examples of how to make small changes to everyday (physical and social) environment to prompt activities
* Support for planning environmental prompting for each activity goal set (time of day, links to specific activities)
* Exercise instructions/ goals set/ record sheets available as printouts
* Signposting/links to offline resources to support activity – e.g. activity classes in local area
 | * Changing the physical or social context in which a behaviour takes place, also known as environmental restructuring, helps to prompt automatic changes to that behaviour (Michie, Atkins, & West, 2014).
* This process facilitates the formation of these behaviours as habits, eventually removing the need for ongoing planning and support (Aarts et al., 1997).
* Habits are automatic behavioural responses to environmental cues. When forming habits individuals find that, with repetition, the cognitive effort required to act decreases, and initiation becomes ‘second nature’ (Lally & Gardner, 2013).
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