

**Research Title:** The effect of research based exercise delivered at home using virtual reality gaming on increasing and enhancing physical activity levels in older people.

**Lead applicant:** Dr Emma Stanmore, SNMSW, UoM

**Interdisciplinary research team:** Prof. Chris Todd, (Director of Research, SNMSW, UoM), Prof. Jackie Oldham, (Director of MIMIT & MAHSC Health Technology Hub), Dr Stephen Pettifer, (Senior Lecturer, School of Computer Science, UoM, Mrs Lynn Weallean, (Positive Ageing Manager, Beth Johnson Foundation UK Charity).

### **Background**

There is growing evidence that regular physical activity may reduce the risk of prevalent diseases in older people such as cardiovascular disease, stroke, some cancers and type 2 diabetes (WHO, 2011). There are other wide-ranging benefits of exercise including reduced anxiety and depression, improved respiratory function, increased bone density, independence and quality of life. However, levels of physical activity amongst older people are well below the recommended levels and new strategies are required to increase their uptake and activity levels in order to meet these guidelines. We are developing a physical activity programme based on the best evidence for older people (including the type, timing, frequency, and duration of the exercises) using virtual reality, delivered by the Xbox 360® Kinect. The Xbox 360® Kinect uses advanced motion sensing video technology to track body movements and can interact with the user to give feedback on the accuracy of the movements to enable adjustments to be made if necessary. The advantages of using virtual reality gaming systems are that they are entertaining and enjoyable which may improve adherence and frequency/duration of the exercise programme (Lange, 2009). They are also inexpensive, flexible, seasonal and can be safely used in the older person's home.

### **Key deliverables:**

- A fully developed proposal for NIHR and MRC for submission by late 2013
- Completion of 2 public involvement workshops with support from Manchester City Council and the Beth Johnson Foundation to demonstrate the VR exercise programme and recruitment of 2 interested older persons to join the research steering group for the main study.
- The development of a physical activity and technical support manual for supported use of the virtual reality programme.
- Formal collaboration with University of Southern California as partners in the research study.