

# **Ageing well by being connected - Phase 1**

**Presented to the Véritas IRB Research Ethics Committee**

**TOPMED**

**Version 03**

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**NCT06076148**

## **SCHEDULED START AND END DATES**

From January 01, 2023 to November 01, 2023.

## **RESEARCH PROJECT TITLE**

Ageing well by being connected - Phase 1

## **RESEARCH PROJECT DESCRIPTION**

**Problematic** (Summarize the problematic that applies to your research)

Older people contribute to society in many ways. However, the contribution they make is highly dependent on one key characteristic: their overall health. Whether people enjoy good health or experience a decline in capacity, their activities or impact on society will not be the same. This is why the World Health Organization has issued recommendations on the importance of healthy aging. Health has many facets: physical health, cognitive health and mental health.

At present, healthcare systems are often focused on reaction, i.e. when problems have already begun to appear, whereas it is widely known that the effort used to react to an economic impact is greater than that used to work on prevention. In this project, we aim to adopt a preventive and supportive approach from a life-course perspective, adapting our developments to evolve with people as they age.

**State of knowledge and project relevance** (Indicate the current state of knowledge and the project's relevance to it)

According to Statistics Canada, the country is experiencing its biggest increase in seniors in 70 years [1]. Indeed, Canadian forecasts confirm a gradual rise in the population aged 85 and over, from 770,000 in 2016, or 2.2% of the total population, to an estimated 2.7 million in 2051, or 5.7% of the total population [2]. This increase is the result of two factors: baby-boomers have been starting to turn 65 since 2011, and life expectancy has increased in recent decades, reaching 80 for men and 84 for women. In Quebec, people over 65 represent 19.7% of the general population, and will account for around 27% by 2051 [3].

Aging is a biosocial process that causes a non-linear and non-constant deterioration in the function of physiological systems associated with anatomical and structural changes. Specifically, age-related physiological and cognitive changes can be observed in body composition, cardiorespiratory capacity, the musculoskeletal system, the central nervous system and brain, and the sensory and perceptual system [4, 5]. All these changes have a major impact on motor and cognitive skills. Overall, from a motor point of view, aging leads to an increase in movement time, with walking speed gradually slowing down, a reduction in postural maintenance, and difficulties in controlling static balance and adjusting to disturbing elements. All these changes increase the risk of falls, and more than a quarter of people aged 65 and over living at home fall at least once a year [6]. These falls have serious consequences for the health and quality of life of the elderly, sometimes leading to serious injury, loss of autonomy or even death.

Cognitively, processes related to memory, attention and processing speed are often affected, but not all forms of expression of these functions are equally affected. For example, selective attention, assessed by the ability to inhibit an automatic response (e.g., reading a word in the Stroop test), and divided attention required to perform concurrent tasks (e.g., driving while adjusting one's radio) are forms of attention that are particularly sensitive to age, while visual search (e.g., identifying a target among distractors) is rather spared. In the field of memory, immediate or very short-term recall of information declines with age, while for long-term memory, voluntary and explicit recall of new information is more affected than implicit recall. Empirical evidence also supports the view that higher cognitive functions are affected, such as arithmetic and problem-solving skills [7].

Together, these physical and cognitive deteriorations, whether progressive or sudden, lead to functional limitation, disability and, ultimately, death. This decline is gradual and varies from individual to individual, depending on genetics, morphology, cognitive reserve and functional characteristics [4, 5, 8].

Most health problems in old age are linked to chronic conditions, particularly non-communicable diseases. Many of these can be prevented or delayed by adopting healthy behaviors. A better understanding of the mechanisms underlying aging has revealed the plasticity of the aging process [9]. At present, there is no pharmacological treatment for age-related dysfunctions, but certain non-pharmacological interventions have been shown to be effective in reducing the incidence of age-related diseases, improving quality of life and increasing life expectancy. Physical exercise and nutrition are the most effective non-pharmacological interventions for this purpose [4, 9].

In Canada, 82% of adults aged 35 to 49, 83% aged 50 to 64 and 88% aged 65 and over are sedentary or very inactive [10]. Yet the World Health Organization's (WHO) health guidelines suggest at least 150 minutes of activity every week, with a minimum 10-minute session of moderate-to-high-intensity aerobic training [11]. The physiological benefits of physical exercise have been demonstrated for all populations. It has been associated with improved cardiorespiratory fitness, balance control, muscle strength and function in the elderly, as well as a reduction in coronary heart disease and type II diabetes [12]. In addition, exercise is linked to the likelihood of living longer with independence and a good quality of life [5, 13].

However, it can be difficult to get people to participate on a regular basis for a number of reasons, not least motivational: lack of interest, overestimation of their own condition, lack of knowledge about the benefits of activities, etc. [14]. In fact, one of our partner organizations, Groupe Maurice, which has indoor training rooms as well as outdoor exercise equipment, has noted this motivational problem in the use of the material resources made available to their residents. It is therefore important to work on the motivational, playful and social aspects of physical and cognitive exercise, while promoting autonomy. Technologies, especially immersive ones, could be one of the solutions to the motivational aspect, in addition to working on the social isolation aspect.

Over the past two decades, technology has become an increasingly important part of our daily lives. With the pandemic, the adoption and integration of technology into daily life has grown exponentially, and this is true for people of all ages. Indeed, technology has been integrated, optimized or enhanced in many aspects of our lives, such as e-schooling, telecommuting, e-commerce, communication, health and well-being, etc. Embracing new technologies can work to our advantage, enabling us to lead healthier lives. Wearable technology and apps can help increase physical and cognitive activity and achieve health and fitness goals, while online tools allow us to track our health and stay in touch with family and friends [15-17]. As technology evolves, it continues to offer new benefits. Whether it's helping older people cope with issues such as social isolation or motivating us to set and achieve new goals, there's no doubt that technology can help us in many positive ways as we age, including immersive technologies. Immersive technologies involve immersing the user in an environment with which they are able to interact using their sensory and sensorimotor abilities. These technologies include augmented reality (AR), virtual reality (VR) and mixed reality.

At present, healthcare systems are often focused on reaction and therefore on the last two aspects, whereas it is widely known that the effort used to react to an economic impact is greater than that used to work on prevention [18].

### **Research objectives** (Describe research objectives, hypotheses or questions)

With this project, we want to adopt a preventive and supportive approach to life-course management, adapting our developments to evolve with people as they age.

The primary aim of this research is therefore to gain a better understanding of the new generation of older people, their expectations and needs, in order to optimize intervention solutions and improve the range of tools available for healthy aging.

The second objective is to develop a methodology (a program) to increase the prevention and limitation of physical and cognitive capacity loss, based on the results of the previous objective.

### **Financing**

The project is funded by NSERC's Applied Research and Technology Partnerships (ARTP) program.

### **Partner companies**

Fédération de l'Âge d'Or du Québec (FADOQ)

Fédération Québécoise des Loisirs en Institution

SEC Fonds Immobiliers Groupe Maurice

## **RESEARCH METHODOLOGY**

### **Research location**

Group interviews can be conducted in several different settings. On the one hand, they will be conducted on Topmed's premises at Collège Mérici, 755 Grande-Allée Ouest, Quebec City. On the other hand, they can be carried out outside the Topmed structure. To this end, partners may contact the research team to identify locations that could serve as host structures.

**Measurement, evaluation and data collection instruments** (Indicate which instruments will be used or developed, specify their nature, specify for what purposes (variables measured) they will be used and attach information where available on the instruments (website links, interview forms, etc.).

To meet the objective of identifying participants' needs and expectations in terms of activities, a mixed method is envisaged, combining a quantitative approach (individual questionnaires) and a qualitative one (group interviews).

RV 50+ part

### **Preliminary part of the study**

The first questionnaire is a preliminary to the group interviews. It will be in digital form, and will be completed individually before the test sessions. The aim is to provide a preliminary profile of the participants, highlighting their interests, abilities and motivations. It will be available two weeks (2) before the group interview, to give participants enough time to complete it.

The following sections are included in the questionnaire:

- Consent and future research projects ;
- Personal information ;
- State of health (Questionnaire on physical fitness for activity)
- Activity habits and preferences
- Technologies and exergames

- Virtual leisure activities
- Virtual games

The online questionnaire will be created using the LimeSurvey platform. The processed information will be hosted in Canada on the platform's encrypted servers (Secure Socket Layer procedure), which comply with the RGPD standard.

Following the preliminary questionnaire, group interviews will be held around the theme of immersive technology. The aim of these groups is twofold. Firstly, to introduce and test different technologies through selected games. Secondly, the aim is to gather preferences and impressions of the immersive technologies and games that have been tried out.

#### **Meeting 1 - Discussion group - Individual game format**

During the session, a balance test will be carried out using the TUG test to determine the position (sitting or standing) for participants to try out the games.

Then, in groups of 6 to 8 people, participants will try out three games corresponding to the following themes: a cognitive game, a physical activity game and a relaxation game. The games will be tested in both sitting and standing positions. They will be asked to mobilize both upper and lower limbs

Following the tests, a discussion (1h10min) will be held on the following topics

- Satisfaction with the experience
- Integrating virtual reality
- The acceptability of this technology

At the end of the session, a second post-group interview questionnaire will be completed on site. This will be in both paper and digital form. Its purpose will be to document the evolution of participants' perceptions of immersive technologies, and to ask them if they would like to take part in another group interview.

The questionnaire will cover the following topics:

- Activity preferences
- Technologies and exergames
- Virtual leisure activities
- Virtual physical activities
- Virtual games
- Continuation of the project

#### **Rencontre 2- Discussion group-Collaborative games formula**

During the session, a balance test will again be carried out. The second trial session will focus on collaborative games and will involve 4 participants. During this session, participants will test two games chosen for their social and communicative characteristics. Similarly, the games will be tried out in both sitting and standing positions. Participants will also be asked to mobilize their upper and lower limbs.

Following the tests, questions on :

- Satisfaction with the experience ;
- Integrating virtual reality ;
- The acceptability of this technology.

At the end of the session, the post-group interview questionnaire will be completed on site. It will be presented in both paper and digital versions. Its purpose will be to document the evolution of participants' perceptions of immersive technologies.

The questionnaire will cover the following topics:

- Activity preferences
- Technologies and exergames
- Virtual leisure activities
- Virtual physical activities
- Virtual games
- Continuation of the project

### **Estimated duration of participants' activities**

#### RV 50+ part

Pre-focus group questionnaire: 20 minutes

- FIC reading: 10 minutes
- Completion: 10 minutes

Duration for **one (1)** discussion group: 2h20min

- Reading and explanation of the FIC: 10 minutes
- Balance test: 10 minutes
- Virtual reality game testing: 40 minutes
- Experience sharing: 70 minutes
- Post focus group questionnaire: 10 minutes

For **two (2)** Focus Groups: 4h40min

- Reading and explanation of the FIC: 20 minutes
- Balance tests: 20 minutes
- Equipment testing: 80
- Discussions: 140 minutes
- End questionnaire: 20 minutes

**HUMAN, ANIMAL OR LIVING MATERIAL VOLUNTEER PARTICIPATION** (number, characteristics (e.g. age, species), inclusion and/or exclusion criteria, recruitment method if applicable)

#### RV 50+ part

The recruitment pool will be formed from all seniors (non-members or members of FQLI, FADOQ, as well as residents of Le Groupe Maurice) who have responded to our recruitment ads in traditional and social media.

As far as the quantitative aspect is concerned, the questionnaire precedes the focus group. The recruitment pool is therefore the same as that of the focus groups.

On the qualitative side, we'll be recruiting around fifty (50) people aged 50 and over, with a proportional number in each age group: 50-54, 55-59, 60-64, 65-74, 75 and over. We'll set up focus groups around the virtual reality game trials, made up of 4 to 8 people.

### **Inclusion criteria**

### RV part

- Be aged 50 or over
- Being autonomous

### **Exclusion criteria**

The following criteria apply to both the RV 50+ section and the intergenerational exchange section. The children's criterion applies only to the intergenerational exchange section.

- The experimental nature of the research requires participants to be fully physically fit. Consequently, people with functional limitations cannot participate in the study
- Group interviews require the sharing of experience, which presupposes the participation of people capable of communicating their opinions and reflecting collectively on their experiences. Thus, people with cognitive impairments are excluded from the research
- In view of the technology used for the research, people at risk of epilepsy cannot take part in this project
- Also, people with pacemakers are not eligible to participate in this research

### **SCIENTIFIC JUSTIFICATION FOR USING LIVE VOLUNTEERS**

The participation of human volunteers representative of the clientele is essential in the phase of identifying needs and expectations in terms of activities and intervention methods according to age. This will enable us to develop physical and cognitive activity programs adapted to age and personal abilities in the next phase.

The participation of teenagers (minors aged between 13 and 17) and adults is essential in the phase dealing with intergenerational bonding, exchange and sharing. This will then enable us to understand if and how immersive technology can support and foster the relationship between different generations, and thus influence the inclusion and active participation of all.

### **RECRUITMENT**

#### RV 50+ part

In order to be representative of Quebec's 50+ population, posters will be displayed among Groupe Maurice residents, members of FQLI (Fédération québécoise du loisir en institution) and FADOQ (Fédération de l'Âge d'Or du Québec), in traditional media and on social media. In addition, will be posted on paper and electronically to target audiences and in cultural, community, sports and leisure venues, as well as in grocery stores where appropriate. Where necessary, members of the research team will visit the various locations to make the information more accessible. In addition, the TOPMED team may contact people who have previously expressed an interest in participating in a research project.

Potential participants can express their interest by calling or writing to TOPMED. A member of the project team will contact them to answer questions, ensure eligibility, forward documentation and/or arrange a telephone appointment at a later date if required.

The research team will then send an e-mail containing a link to the information and consent form and a physical activity questionnaire. Participants will be given two (2) weeks to review the documents and ask any questions they may have. Potential participants may contact the research team at any time if they have any questions or require assistance. A member of the research team will then be responsible for verifying the completion of the forms and the answers to the questionnaire.

The preliminary questionnaire for group interviews and a link to a booking calendar for group interviews will then be sent by e-mail.

A question about participating in future projects will be included in the pre-interview questionnaire. The participant is free to accept or decline.

During group interview meetings, the information and consent form will be reminded and re-explained. The physical activity aptitude questionnaire will be completed again and signed by the participant. The activity will then begin.

**MEASURES AND STRATEGIES PLANNED FOR THE PROTECTION OF VULNERABLE PERSONS OR PERSONS WITH A DEPENDENT RELATIONSHIP** (if volunteers are minors or adults under guardianship or trusteeship, or if they have a client-professional, student-teacher or employee-employer relationship with a member of the research team)

We'll explain the steps in the process, the level of participation and the risks involved to people aged 50 and over, legal representatives and minors. In this project, all participants are recruited on a voluntary basis. In addition, we will ensure that we have the minor's assent during the research activity to ensure the voluntary nature of their participation.

The data acquired will be coded for all participants.

**RISKS AND DISADVANTAGES AND PROPOSED MITIGATION MEASURES** (physical, psychological, social, professional risks, inconvenience due to travel, anxiety, etc.)

- As regards completion of the preliminary questionnaire for the group interviews, there is no risk associated with participation.
- Regarding the group interview: As far as we know, apart from the time spent on the interview, your participation in this study will not cause you any physical or psychological harm. However, it is possible that the discussion of certain themes may make you feel uncomfortable or uneasy. In this case, you are entirely free not to answer certain questions. If necessary, you may be referred to appropriate support resources. Despite our efforts to ensure the confidentiality of group discussions, certain risks inherent this type of consultation cannot be avoided. In other words, the research team cannot guarantee that each group participant will keep the information exchanged confidential.
- Creative workshops include the use of drawing, writing and craft materials. More specifically, materials include the following: pencils, paper, newspapers, magazines, fiber threads, beads, glue, cardboard, scissors, sticky paper, fabric, tongue depressors. The glue used will be school glue, water-washable and non-toxic, permanent and odorless. Scissors may present a cutting hazard. To avoid this risk, scissors will be round-tipped with stainless steel blades.
- There are also risks associated with the use of immersive technologies. More specifically, discomfort linked to the graphics and the conflicting, multi-sensory aspect of immersion sessions could arise when using immersive technologies. This discomfort could take the form of cyberkinetosis akin to motion sickness, affecting participants to varying degrees: visual fatigue and headaches, temporary loss of visuo-spatial cues and dizziness, or nausea and even vagal discomfort. Although these symptoms are generally not serious, they should of course be spotted, and short sessions will be held to prevent them. In addition, the experimenter will be on hand at all times to ensure the participant's well-being. To this end, the members of the research team present will regularly ask questions about the sensations felt by the participant when trying out the activities. At the end of the focus groups, participants will be able to rest in a suitable space until any symptoms have disappeared. A member of the research team will remain with the participant for as long as necessary.
- Participants with pacemakers or at risk of epilepsy could experience more serious events and should therefore be withdrawn from the workshops.



Known or foreseeable risk(s)	Frequency and severity	Proposed mitigation measures	Warnings
<p>All the risks below are related to the use of immersive technologies.</p> <p>They are presented under four themes:</p> <ol style="list-style-type: none"> <li>1. Cyberkinesetosis</li> <li>2. Consequences for the sensorimotor system</li> <li>3. Disruption of circadian rhythms</li> <li>4. Epilepsy</li> </ol>		<p>Prevention:</p> <ul style="list-style-type: none"> <li>-Dress lightly to limit the rise in body temperature.</li> <li>-Knowledge and control of symptoms by the research team</li> <li>-Continuous questioning about the presence of symptoms</li> <li>- Controlling and limiting exposure time</li> <li>- Space for participants to rest after the trial</li> </ul> <p>If appearance:</p> <ul style="list-style-type: none"> <li>-Pause or stop test</li> </ul> <p>Applicable to all symptoms:</p> <ul style="list-style-type: none"> <li>-Members of the research team are certified in first aid.</li> <li>-A snack will be distributed after participation to prevent discomfort.</li> </ul>	<p>Three warnings for all symptoms:</p> <ul style="list-style-type: none"> <li>-Light clothing must be provided</li> <li>-Be aware that using headphones can mess up your hair</li> <li>-Symptoms may persist after exposure.</li> <li>-Allow an hour to two hours' rest after play trials.</li> <li>-No strenuous or prolonged physical exercise after the trial session</li> <li>-No driving for the duration of symptoms</li> </ul>
<p>Topic 1. Cyberkinesetosis (Symptoms similar to motion sickness) (includes pallor, malaise, visual disturbances, disorientation, headaches, fatigue, dizziness, nausea, vomiting, tachycardia, hypersalivation)</p>	<p>Cyberkinesetosis is thought to affect 30-50% of users. Symptoms generally appear within the first 5 minutes and disappear rapidly.</p>		<p>-People considered sensitive: pregnant women; people with vestibular disorders; people suffering from motion sickness; people with postural static anomalies and dynamic balance with proprioception disorders; Migraine sufferers; people with oculomotor disorders; people with anxiety or anxiety attacks.</p> <p>-Appearance in relation to content and visual field requested</p>
Impaired vision	Proven risk	See measurements at the beginning of the table	

Fatigue and eye strain	Proven risk	See measurements at the beginning of the table	
Head/eye pain discomfort	Proven risk	See measurements at the beginning of the table	
Pallor	Proven risk	See measurements at the beginning of the table	
Dizziness and vertigo	Proven risk	-Ask participants to eat lightly before the physical test session to prevent the onset of symptoms.	
Excessive sweating	Proven risk	See measurements at the beginning of the table	
Feeling of discomfort	Proven risk	See measurements at the beginning of the table	
Nausea	Proven risk	-Ask participants to eat lightly before the test session to prevent the onset of symptoms.	
Saliva increase	Proven risk	See measurements at the beginning of the table	
Disorientation	Proven risk	See measurements at the beginning of the table	
Tachycardia	Proven risk	See measurements at the beginning of the table	Wearing a pacemaker or cardiac pacemaker is an exclusion criterion.
Loss of consciousness	Proven risk	See measurements at the beginning of the table	
Topic 2. Sensorimotor consequences (impaired manual dexterity, ability to orientate the body)	The risks presented under this theme are present and recognized in the literature.		
Contraction of eyes or muscles	Proven risk	See measurements at the beginning of the table	
Hand-eye coordination disorder	Proven risk	See measurements at the beginning of the table	
Involuntary movements	Proven risk	Prevention: Warm-up and stretching time before and after the trial	

Balance disorders	Proven risk	Suggested sitting, hydration	
Theme 3. Disruption of circadian rhythms (sleep onset, sleep time)	The risks presented under this theme are present and recognized in the literature.		-People considered sensitive: aphakics (lack of crystalline lens) and pseudophakics (artificial lens); people suffering from eye pathologies or abnormalities; people suffering from sleep disorders; people suffering from photosensitive epilepsy.
Sleepiness	Proven risk	See measurements at the beginning of the table	
Sleep time	Proven risk	See measurements at the beginning of the table	-For people sensitive to blue light, avoid screens two hours before going to bed.
Topic 4. Epilepsy			
Epileptic seizures	Proven risk	-Pre-diagnosed epileptic risk is an exclusion criterion.	-Taking neuroleptics favors the onset of epileptic episodes. This constitutes a contraindication to participation in the study.

Adapted from ANSES. (2021). Effets sanitaires potentiels liés à l'exposition aux technologies de réalité virtuelle et/ou augmentée. Collective expertise report

Mitigation measures :

- Monitoring symptoms of cyberkinetosis
- If they wish, they can end their participation in the group interview at any time.
- Snacks distributed to all participants

**ADVANTAGES AND BENEFITS** (personal benefit of their participation in the project, benefit to the project of their participation)

RV 50+ part

Volunteers' participation will not provide them with any immediate benefit other than a space to share their experience with immersive technologies. However, if this possibility exists, the research team cannot guarantee it. Their participation will enable us to gather empirical data on the interests of people aged 50 and over in physical activities and immersive technologies. This is an advantage for TOPMED and its partners.

**FREE AND INFORMED CONSENT** (Describe the means used to inform volunteers about the project and obtain their written consent)

RV 50+ part

The sample will be purposive. The recruitment pool will be formed following an invitation sent to all seniors (non-members or members of FQLI, FADOQ, as well as residents of Groupe Maurice) who responded to our recruitment advertisements in traditional and social media.

For the preliminary focus group questionnaire, the consent form will be presented in a digital version sent by email, and will be integrated directly into the digital version of the collection tool. A question on interest in participating is included in the preliminary questionnaire, and the participant is free to accept or refuse. Participants will be given two (2) weeks to read and reflect before being contacted again. At the end of this period, the participant will be recontacted in order to set up the dates for his or her participation in the group interviews.

During group interviews, the content of the information form will be reminded at the beginning of the meeting. At the end of the group interview, a questionnaire will be distributed containing a section on future research projects. The participant is free to accept or refuse.

Participants may terminate their participation at any time without negative consequences or prejudice and without having to justify their decision. In this case, participants must inform the responsible researcher or a member of the research team. Thereafter, all material allowing the identification of the participant and the data provided will be destroyed, unless the participant authorizes the researcher to use them for the research despite the withdrawal. In this case, they will be preserved according to the measures described below, which will be applied to all participants.

**CONFIDENTIALITY AND PROTECTION OF PERSONAL INFORMATION** (Describe the measures envisaged for data protection (type of media, retention period, means of ensuring security)).

The information collected in the questionnaires and during the sessions is confidential, coded and will be used only for the purposes of this research project, unless otherwise agreed by the participant. The participant's name and those mentioned during the interviews will be replaced by a code in the form of a number.

Only members of the research team (all subject to confidentiality) will have access to participants' identifying information and encrypted research data will have access to the list containing names and codes, itself kept separate from the research material, data and information and consent forms.

Data recovered on paper will be stored in a crossed-out binder at TOPMED at Mérici Collégial Privé, 755 Grande Allée Ouest, Québec, Qc, G1S 1C1.

All data collected is encrypted on servers, and the encryption key will be kept in the office of the TOPMED researcher in charge.

Unless required by law, we will not disclose or publish any information that may directly or indirectly reveal your identity without your prior explicit consent.

Audiovisual recordings will only be viewed by members of the research team and will not be distributed.

The data acquired by the producers of headsets and games may contain :

- Video data
- Audio data
- Data associated with user movements
- Data on users' physical environment

This technology cannot be used without data exchange with these companies. To maximize participant confidentiality, we will implement the following solutions:

- Explanation of FIC in a separate room without helmets
- User accounts on behalf of TOPMED
- No use of participants' names or any personal identifying information aloud in the presence of headsets (microphones and cameras)
- Separating screens to protect participants' identities

Data will be stored in encrypted form for a period of five (5) years, then anonymized in a database for retention for a period of ten (10) years for reference statistics. If data is stored on a USB key or other external medium, it will be encrypted.

Results will be coded. Participants will not be identified by name in the results, but will be identified by number. Any scientific publication resulting from this research project will present data in aggregate form, so that individual participants' results will never be communicated. Should the research team use extracts from verbatims, the participants' names will be replaced by a number.

## **DATA ACCESS**

All research data will be accessible to the project team. Project sponsors will not have access to research data. Participants will not have access to research data. The Research Ethics Committee, Veritas IRB, will have access to research data for verification in the event of a complaint. Where appropriate, data will be made available to them for viewing only via videoconferencing.

## **CONTINUOUS EXAMINATION**

Should any inconvenience arise following group interviews and the testing of immersive technologies, participants will be promptly notified.

## **DISSEMINATING RESULTS**

No disclosure to patients will be made following the focus groups and questionnaires.

Results will not be published.

## **COMPENSATION**

No remuneration is provided for participants.

## **DISASSEMBLY**

### Part VR 50+

There is no financial compensation for taking part in the preliminary questionnaire.

Financial compensation of \$25 is provided for participation in each meeting (\$50 in all). If necessary, a parking sticker may be provided for the duration of the participant's attendance at group interviews.

## **RESPONSIBILITIES**

The legal rights of each participant will be maintained.

## **SEQUENCE**

### **RV 50+ part**

### **Process and data collection**

#### Display

Postings in Groupe Maurice residences, among members of the FQLI (Fédération québécoise des loisirs en institution) and the FADOQ (Fédération de l'Âge d'Or du Québec) via traditional and social media, as well as in cultural, community, sports, leisure and food centers.

Related documents :

*V4\_Affiche\_407\_2023*

*407\_Affich-Recrut*

#### Admission

Validation by e-mail or telephone.

Interested parties can register their interest by e-mail or telephone call to TOPMED at the coordinates indicated in the recruitment notice.

Verification of eligibility criteria (age, ability to answer a questionnaire and give an opinion) and exclusion criteria (pacemaker wearer, epileptic risk) by a member of the research team.

Related document:

*407\_LabInt\_Courriel*

#### Validation for participation in FG

Once the interest has been validated and the eligibility and exclusion criteria have been verified, the information documents for the FG will be sent to the participants. A physical activity aptitude questionnaire will be sent at the same time as the CIF. A member of the research team will follow up on the completion of this questionnaire.

Participants will be asked to provide details via a questionnaire to be completed before the FG date.

Documents will be sent electronically, and a two-week lead time will be given before scheduling meeting dates for focus groups.

Related documents :

*FIC*

*Q-AAP+ 2023*

*Lime Survey\_407\_Preliminary-FG\_TI*

### **Meeting 1 and 2-Group meetings**

Balance test: 10 minutes

Virtual reality games trial: 45 minutes

Discussion: Feedback questions on game testing: 1h10min

End questionnaire: 10 minutes

Participation compensation :

Amount: \$25 per group interview

A parking sticker is available if required.

Related documents:

*407\_LlabInt\_Balance test*

*407\_LlabInt\_Questionnaire\_Post-FG\_V1*

*0407\_LabInt\_Question FG\_participants\_v1*

*0407\_LLabInt\_Fg\_Sympoma\_Control\_TI*

### **Data processing**

Compilation of questionnaires

Compilation of group interviews

### **Data analysis**