

(For JSPS Fellow)

Form B-5

Date (日付)

24/09/2013 (Date/Month/Year: 日/月/年)

**Activity Report -Science Dialogue Program-**  
**(サイエンス・ダイアログ事業 実施報告書)**

- Fellow's name (講師氏名): Magistro Daniele (ID No. P 12746)
- Participating school (学校名): Fukushima Prefectural Fukushima High School
- Date (実施日時): 13/09/2013 (Date/Month/Year: 日/月/年)
- Lecture title (講演題目): (in English) Aerobic Endurance and Working Memory: a Dual Task training. Its effects on Working Memory aspects and rest brain activities in elderly people.
- (in Japanese)
- Lecture summary (講演概要): Please summary your lecture 200-500 words.

Population ageing is widespread across the world and it is associated with socio-economic and health consequences, including a decline in cognitive abilities, life skills, and in overall quality of life. Therefore, the priority is to delay and/or to avoid risks related to ageing.

It is also well documented that normal ageing is associated with deterioration in cognitive (Park et al., 2003; Hedden and Gabrieli, 2004) and motor functioning (Spirduso, 1982; Welford, 1988; Seidler and Stelmach, 1995), but several studies have shown that the decline of physical and psychological skills of senior citizens is not unavoidable. In particular, cognitive and physical efficiency was demonstrated to be effective in slowing cognitive decline. Furthermore, both having an active lifestyle and engaging in brain exercise seem to play key roles in preventing cognitive disabilities. In fact, physical training exerts positive effects on mobility, autonomy, activity of daily living and quality of life, and cognitive training has positive effects on cognitive ability, speed of reasoning, memory, attention and planning (Colcombe et al, 2003; Colcombe et al, 2005). Moreover, cognitive and physical efficiency affect the physical, psychological and neuro-cognitive capabilities of seniors in a dual manner: directly, by facilitating physical or mental activity; indirectly, because the improved performance of daily life tasks is accompanied by satisfactory perception of quality of life and/or of self-efficacy.

The main objective of this project is to improve the elderly quality of life, coherently with the WHO priorities on Active and Healthy Ageing to support people's health and well-being. Specifically, the aims of the project are: *First*, to implement a valid, efficient dual-task physical/cognitive training program, which aims to positively affect different physical and cognitive outcomes such as mobility function, attention and working memory. *Second*, to understand the effect of dual task training on the neural mechanisms. *Third*, to assess the relationships among, on one side, executive functions, working memory and attention, while, on

the other side, on physical performance, especially in terms of walking coordination tasks, in the elderly population.

*Key words: Elderly, Dual Task Training, Brain activity, Aerobic Endurance, Working Memory*

- Language used (使用言語): English

- Lecture format (講演形式):

◆Lecture time (講演時間) 30 (分), Q&A time (質疑応答時間) 30 (分)

◆Lecture style (ex.: used projector, conducted experiments)

(講演方法 (例: プロジェクター使用による講演、実験・実習の有無など))

used projector

◆Interpretation (ex.: assistance by accompanied person, provided Japanese explanation by yourself) (通訳 (例: 同行者によるサポート、講師本人による日本語説明))

◆Name and title of accompanied person (同行者 職・氏名)

◆Other note worthy information (その他特筆すべき事項):

- Impressions and opinions from accompanied person (同行者の方から、本事業に対する意見・感想等がありましたら、お願いいたします。):