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THE EFFECT OF EXPERIENCE ON DECISION MAKING AND COGNITIVE ABILITIES IN A GROUP OF ITALIAN AIR FORCE FIGHTER PILOTS AND NAVIGATORS.

L'EFFET DE L'EXPÉRIENCE SUR LA PRISE DE DÉCISIONS ET LES CAPACITÉS COGNITIVES DANS UN GROUPE DE PILOTES ET NAVIGATEURS DE LUTTE CONTRE L'AIR FORCE ITALIEN

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Introduction: To investigate the processes and mechanism(s) underlying decision making in a group of Italian Air Force fighter pilots and navigators analyzing morphologic and functional MRI data to identify brain areas involved in performing a series of cognitive tasks. The rationale for the study is to compare two groups of pilots and navigators differing in experience and number of flight hours to assess whether and how these elements influence cognitive performance. A control group will be also tested.

Methods: Two groups of fighter pilots (group 1 and 2) and two groups of navigators (group 3 and 4) belonging to the same squadron and employed on the same aircrafts will be studied. The inclusion criteria will be: age up to 30 years and number of flight hours up to 750 for group 1 and 3, and age over 30 years and flight hours over 750 for groups 2 and 4. All subjects will be matched for sex and BMI. Participants will undergo a functional Magnetic Resonance Imaging (fMRI) experiment. During the fMRI session, participants will perform a perceptual decision making task that can be solved either by following the instructed strategy or by applying an easier strategy based on the stimulus color (and not disclosed to the participant) (Schuck NW et al. 2015).

Results: After careful definition of the experimental protocol, recruiting all volunteers and collecting their informed consents, data collection has started at the "Besta" Neurologic Institute in Milan. Data are currently under evaluation and preliminary results will be available for the designed congress session.

Conclusions: Decision making processes are currently being widely investigated by using neurophysiological and neuroimaging techniques. Fighter pilots represent a very interesting model, since they undergo a highly standardized training, thus representing a homogenous population of subjects characterized by outstanding capabilities, representing a reliable model to evaluate the influence of experience and progressive training on the decision making performance.