



CNEF 2017

Proceedings of the International Conference
**Cognitive Neuroscience
of Executive Functions**

28th - 30th September 2017
Padova - ITALY

ABSTRACT BOOK

cleup

Proceedings of the International Conference
**Cognitive Neuroscience
of Executive Functions**

28th - 30th September 2017
Padova - ITALY



cleup

First Edition: September 2017

DOI 10.23737/CNEF2017

ISBN 978 88 6787 814 7

© 2017 Cleup sc

“Coop. Libreria Editrice Università di Padova”

via G. Belzoni 118/3 – Padova (t. 049 8753496)

www.cleup.it

www.facebook.com/cleup

All rights reserved

Index

Preface	19
PART 1	
Scientific Program CNEF 2017	23
PART 2	
Invited Speakers – Abstracts	27
PART 3	
CNEF 2017 LEX-MEA project Abstracts	37
PART 4	
Abstracts: Poster Session A (29 Sept 2017)	45
A1 Short-term maintenance of visual information across unfilled and distractor-filled delays <i>Jan Derrfuss, Matthias Ekman, Michael Hanke, Marc Tittgemeyer and Christian Fiebach</i>	45
A2 The influence of positive affect arousal, task difficulty and working memory capacity on proactive cognitive control <i>Andrzej Cudo, Piotr Francuz, Natalia Kopiś and Marta Ratomska</i>	46
A3 The effects of arousal and approach-motivated positive affect on the proactive control. An ERP study <i>Andrzej Cudo, Piotr Francuz, Paweł Augustynowicz and Marta Ratomska</i>	47
A4 No effect of fronto-medial transcranial Direct Current Stimulation on working memory processes <i>Elisabeth Friedrich</i>	48

A5	Working memory assessment: A study with verbal, visual, or spatial n-back tasks <i>Giovanna Mioni and Franca Stablum</i>	49
A6	Feeling poorer temporarily impairs working memory <i>Tiziano Suran and Raffaella Rumiati</i>	50
A7	Fronto-medial transcranial Alternating Current Stimulation during working memory <i>Anna Lena Biel and Paul Sauseng</i>	51
A8	Different load conditions in a working memory task: a fNIRS-EEG study to investigate the processes involved <i>Lisa Zarantonello, Sami Schiff, Piero Amodio and Patrizia Bisiacchi</i>	52
A9	Dorsolateral prefrontal cortex and cognitive control: new evidence from continuous theta burst stimulation <i>Elisa Di Rosa, Lara Bardi, Daniela Mapelli, Sami Schiff and Wim Notebaert</i>	53
A10	Is money more attractive than eyes? The interference of monetary reward on the gaze cueing effect <i>Emanuele Lo Gerfo, Jacopo De Angelis, Leonor Josefina Romero Lauro and Paola Ricciardelli</i>	54
A11	Attentional bias toward faces: a TMS-EEG study <i>Sara Torriero, Giulia Mattavelli, Emanuele Lo Gerfo, Leonor J Romero Lauro, Rossana Actis Grosso and Paola Ricciardelli</i>	55
A12	Does temporal orienting impact visual short-term memory? A high spatial resolution EEG study <i>Giovanni Mento, Simone Cutini, Paola Sessa, Christian Chierchia, Martina Baggio, Roberto Dell'Acqua and Gaia Scerif</i>	56
A13	Does inter-trial interval duration influence cognitive control? The case of the SNARC effect <i>Sabrina Brigadoi, Sara Basso Moro, Roberta Falchi, Roberto Dell'Acqua and Simone Cutini</i>	57
A14	Distinct attentional networks track valence and utility during naturalistic search <i>Ludwig Barbaro, Marius V Peelen and Clayton Hickey</i>	58

- A15 Altering spatial priority maps via statistical learning of target selection and distractor suppression 59
Oscar Ferrante, Alessia Patacca, Valeria Di Caro, Elisa Santandrea, Chiara Della Libera and Leonardo Chelazzi
- A16 From math to mind 60
Chiara Liti, Veronica Piccialli and Luigi Bianchi
- A17 Can a set of cognitive trainings of executive functions improve perceptual processing speed? 61
Rafał Szewczyk, Magdalena Przedniczek, Hanna Bednarek and Jarosław Orzechowski
- A18 Cognitive conflict in a modality switching Simon task 62
Manuela Ruzzoli, Leonor Castro, Luis Morís Fernandez and Salvador Soto-Faraco
- A19 Tonic noradrenergic activity is related to attentional set shifting – evidence from pupillometry 63
Péter Pajkossy, Ágnes Szöllösi, Gyula Demeter and Mihály Racsmány
- A20 The more, the worse? Beneficial impacts of secondary task dynamics on cognitive flexibility 64
Miriam Gade and Iring Koch
- A21 Lateral frontal areas trigger attentional switches after negative feedback in a variant of the Wisconsin card sorting task 65
Claudia Danielmeier, Matthias Ekman, Jan Derrfuss and Markus Ullsperger
- A22 Interactive effects of cycle phase and dopamine baseline levels on higher cognitive functions 66
Esmeralda Hidalgo-Lopez and Belinda Pletzer
- A23 Deception and executive functions 67
Graziella Orrù and Giuseppe Sartori
- A24 Left Inferior Frontal Gyrus (LIFG) as the neural common ground for behavioral and cognitive control 68
Klaudia Korona-Golec, Marianna Boros and Edward Nęcka

- A25 Self-control and executive function tasks relations: A multi-dimensional approach 69
Michał Nowak, Natalia Wójcik, Jarosław Orzechowski, Aleksandra Gruszka-Gosiewska and Edward Nęcka
- A26 Cognitive control sensitizes attention to biologically salient pictures: an EEG study 70
Tomasz S Ligeza and Mirosław Wyczęsany
- A27 Electro-cortical markers of performance monitoring code observed errors rather than their proportion: a combined EEG and immersive virtual reality study 71
Rachele Pezzetta, Valentina Nicolardi and Emmanuele Tidoni
- A28 The right Prefrontal Cortex supports suppression of competing memories: An investigation with transcranial Direct Current Stimulation 72
Davide Francesco Stramaccia, Barbara Penolazzi, Gianmarco Altoè and Giovanni Galfano
- A29 Error monitoring and arousal: insights from on-line TMS 73
Fabio Masina, Antonino Vallesi, Elisa Di Rosa and Daniela Mapelli
- A30 Microsaccades and pupil dilation uncover preparatory mechanisms in the generation of pro- and anti-saccades 74
Mario Dalmaso, Luigi Castelli and Giovanni Galfano
- A31 Flanker task with equiprobable congruent and incongruent conditions does not elicit the conflict N2 75
Patrycja Kalamala, Jakub Szewczyk, Magdalena Senderecka and Zofia Wodniecka
- A32 Neural mechanisms of proactive and reactive cognitive control in a rewarded Stroop task: A simultaneous EEG-fMRI study 76
Mariam Kostandyan, Haeme Park, Carsten Bundt, Ruth Krebs and Nico Boehler
- A33 The role of subcortical mechanisms in executive functions – Evidence from the Stroop task 77
William Saban, Shai Gabaya and Eyal Kalanthroff

- A34 Simulating and testing the linear strength of brain response to the conflict level 78
Adam Chuderski, Bartłomiej Kroczeł, Michał Ociepka, Patrycja Kałamała and Magdalena Senderecka
- A35 Momentary changes in the connectome topology predict performance on the reasoning tests 79
Adam Gągol, Michał Świątek and Adam Chuderski
- A36 The common elements of executive functions and intelligence 80
Dorota Buczyłowska, Monika Daseking and Franz Petermann
- A37 Monetary incentives influence cognitive control networks via anterior cingulate functional connectivity 81
Ana Isabel Cubillo Fernandez, Aidan B Makwana and Todd A Hare
- A38 Executive functioning, cognitive skills, and decision-making competence 82
Fabio Del Missier, Timo Mäntylä, Wandi Bruine de Bruin and Mimi Visentini
- A39 Identification of prefrontal ERPs from the anterior insula and their association with executive functions 83
Rinaldo L Perri, Marika Berchicci, Valentina Bianco, Federico Quinzi, Donatella Spinelli and Francesco Di Russo
- A40 Active and passive listeners differences in evidence integration in natural acoustic textures 84
Urszula Górska, Yves Boubenec, Tansu Celikel and Bernhard Englitz
- A41 Neural representations of hierarchical rule sets: The human control system represents rules irrespective of their hierarchical level 85
Doris Pischedda, Kai Görden, John-Dylan Haynes and Carlo Reverberi
- A42 Who does what? Neural representation of one's own subtask, a partner's subtask, and of subtask assignment 86
Doris Pischedda, Shima Seyed-Allaei, Kai Görden, John-Dylan Haynes and Carlo Reverberi

A43	Long range connectivity patterns reflect progressive learning and global strategy shifts <i>Michele Allegra, Shima Seyed-Allaei, Alessandro Laio, Robert Gaschler, John-Dylan Haynes, Nicholas Schuck and Carlo Reverberi</i>	87
A44	The importance of executive functions to effectiveness of peer tutoring <i>Magdalena Kosno</i>	88
A45	Cross-frequency coupling: an application of modulation theory to electrophysiology <i>Giulia Cisotto, Melissa Scattolin and Leonardo Badia</i>	89
A46	Influence of consciously versus unconsciously perceived reward on the recruitment of proactive and reactive modes of control <i>Estelle Rude, Anne-Clémence Chaillou, Rémi Capa, Bich-Thuy Pham and Anne Bonnefond</i>	90
A47	The role of superior parietal cortex in the attention to delayed intention <i>Patrizia Bisiacchi and Giorgia Cona</i>	91
A48	Finding archetypes in human cognition and behavior by using Pareto Optimality <i>Giorgia Cona, Loren Kocillari, Alessandro Palombit, Alessandra Bertoldo, Amos Maritan and Maurizio Corbetta</i>	92
A49	Modulation of the action self-monitoring: A Transcranial Magnetic Stimulation study in the healthy brain <i>Adriana Salatino, Alessandro Piedimonte, Pietro Sarasso, Francesca Garbarini, Raffaella Ricci and Anna Berti</i>	93
A50	Functional heterogeneity in the dorsal and medial premotor cortex during motor preparation revealed by transcranial magnetic stimulation (TMS) mapping <i>Luigi Cattaneo and Sara Parmigiani</i>	94
A51	The neural basis of free language choice in bilingual speakers <i>Anna K. Kublen, Shima Seyed-Allaei, Jubin Abutalebi, R. Stefan Greulich, Albert Costa, John-Dylan Haynes and Carlo Reverberi</i>	95

A52	The influence of executive function on prosodic performance <i>Marisa Filipe, Sónia Frota and Selene Vicente</i>	96
A53	Identifying specific brain signatures of transitions between words <i>Katarina Marjanovic, Massimiliano Trippa and Alessandro Treves</i>	97
A54	How do we produce cognitive estimates? An investigation of healthy individuals performing the Cognitive Estimation Test <i>Sarah E. MacPherson, Rachel L. Anderson, Kellie A. Hunter and Lisa Cipolotti</i>	98
A55	Moral judgment and altruistic/deontological guilt <i>Simone Migliore, Giuseppe Curcio, Giulia D'Aurizio and Francesco Mancini</i>	99
A56	Computer games decrease proactive control: the role of context <i>Andrzej Cudo, Natalia Kopiś and Paweł Stróżak</i>	100
A57	The dorso-medial prefrontal cortex mediates the interaction between moral and aesthetic valuation: a TMS study on the Beauty-is-Good stereotype <i>Chiara Ferrari, Marcos Nadal, Susanna Schiavi, Tomaso Vecchi, Camilo Cela-Conde and Zaira Cattaneo</i>	101
A58	Proposal for a Cognitive Training on a group of dyslexic adolescents <i>Maria Cristina Veneroso, Andrea Di Somma, Maria Soria, Eleonora Ardu and Francesco Benso</i>	102
A59	Distinct patterns of functional connectivity of language, control, and default networks for aphasic deficits after stroke <i>Antonello Baldassarre, Lenny Ramsey, Jennifer Rengachary, Kristi Zinn, Nicholas Metcalf, Gordon Shulman and Maurizio Corbetta</i>	103
A60	Changes in executive function across adulthood <i>Victoria E. A. Brunson, Elisabeth E. F. Bradford, Martina De Lillo and Heather J. Ferguson</i>	104

PART 5

Abstracts: Poster Session B	105
B1 The effect of subthalamic nucleus deep brain stimulation on executive functions in Parkinson's disease <i>Gyula Demeter, István Valálik, Péter Pajkossy, Ágnes Szöllősi, Ágnes Lukács, Ferenc Kemény and Mibály Racsmány</i>	106
B2 Computerized versus paper-and-pencil tests: an exploratory study on Parkinson's patients <i>Valeria Camparini, Sara Mondini, Angelo Antonini and Roberta Biundo</i>	107
B3 Brain connectivity changes associated with tDCS plus cognitive training in Parkinson's disease with mild cognitive impairment <i>Roberta Biundo, Luca Weis, Eleonora Fiorenzato, Giovanni Gentile, Manuela Giglio, Roberta Schifano and Angelo Antonini</i>	108
B4 Cognitive profiling in patients with Parkinson's disease, multiple system atrophy and progressive supranuclear palsy: A 15-month longitudinal study <i>Eleonora Fiorenzato, Luca Weis, Patrizia Bisiacchi, Angelo Antonini and Roberta Biundo</i>	109
B5 Intrinsic Network abnormalities associated with Parkinson's Disease: a focus on attention mechanisms <i>Bernardo Perfetti, Luca Weis, Raffaella Franciotti, Roberta Schifano, Roberta Biundo, Marco Onofrj and Angelo Antonini</i>	110
B6 When fruits lose to animals: disorganized search in semantic memory by Parkinson's Disease patients <i>Sofia Tagini, Shima Seyed-Allaei, Federica Scarpina, Alessio Toraldo, Mauro Alessandro, Paolo Cherubini and Carlo Reverberi</i>	111
B7 Trait impulsivity and response-inhibition in Parkinson Disease. An fMRI piloting study <i>Sara Palermo, Rosalba Morese, Maurizio Zibetti, Maria Consuelo Valentini and Leonardo Lopiano</i>	112

- B8 Interpreting humorous cartoons in Parkinson's Disease 113
Matteo Signorini, Giulia Leandro and Anna Marchetto
- B9 Neuroanatomical underpinnings of executive set-switching deficits in acute stroke survivors 114
Andreja Varjačić, Dante Mantini, Jacob Levenstein, Nele Demeyere and Céline R. Gillebert
- B10 Lesion neuroanatomy of post stroke deficits in selective auditory attention 115
Rachel L. King, Celine R. Gillebert, Glyn W. Humphreys and Nele Demeyere
- B11 Executive functioning in relapsing-remitting multiple sclerosis patients without cognitive impairment: A task switching protocol 116
Simone Migliore, Giuseppe Curcio, Alessandro Couyoumdjian, Anna Ghazaryan, Dorian Landi, Filomena Moffa, Livia Quintiliani, Ferdinando Squitieri, Maria Giuseppina Palmieri, Maria Maddalena Filippi and Fabrizio Vernieri
- B12 Exploring executive functions in Multiple Sclerosis 117
Alice Riccardi, Marco Puthenparampil, Francesca Rinaldi, Mario Ermani, Paola Perini and Paolo Gallo
- B13 Executive functioning may affect verbal learning and recall in multiple sclerosis patients: a combined behavioral and magnetic resonance study 118
Marco Pitteri, Stefano Ziccardi, Marco Castellaro and Massimiliano Calabrese
- B14 Executive functioning in children with attention-deficit/hyperactivity disorder: Cognitive and affective aspects 119
Marisa Filipe, Anabela Barbosa, Andreia Pinto and Selene Vicente
- B15 Contribution of the INECO frontal screening (IFS) to the differential diagnosis of healthy aging, Mild Cognitive Impairment and Alzheimer's disease 120
Helena Moreira, Juliana Silva, Ana Sofia Costa, Álvaro Machado, São Luís Castro, César Lima and Selene Vicente

- B16 Is active bilingualism a cognitive reserve factor against cognitive decline? 121
Marco Calabria, Mireia Hernandez, Gabriele Cattaneo, Anna Suades, Montserrat Juncadella, Ramón Reñé, Isabel Sala, Alberto Lleó, Jordi Ortiz-Gil, Lidia Ugas, César Ávila and Albert Costa
- B17 Stop thinking about inhibition! Searching for individual and age differences in inhibition as a psychometric construct 122
Alodie Rey-Mermet, Miriam Gade and Klaus Oberauer
- B18 Adults with single-domain amnesic mild cognitive impairment implement distinctive processing strategies to ensure an optimal task execution 123
Susana Cid-Fernández, Mónica Lindín and Fernando Díaz
- B19 Abnormal speech pauses in behavioural variant fronto-temporal degeneration: dysexecutive impairment? 124
Federica Lucchelli and Eleonora Martini
- B20 Inhibitory control test using mobile computing of anti-saccades measurements as prototypical diagnostics for playful monitoring of Alzheimer mental state 125
Lucas Paletta, Martin Pszeida and Mariella Panagl
- B21 Performance-based everyday functional competence measures across the adult lifespan: the role of cognitive abilities 126
Alessandra Cantarella, Erika Borella, Paolo Ghisletta, Emilie Jolie, Federica Piras, Coraluppi Deborah, Elena Carbone and Rossana De Beni
- B22 Neural and behavioural impact of WM and self-regulation training in school-aged children 127
Ana Isabel Cubillo Fernandez, Henning Mueller, Daniel Schunk, Ernst Fehr and Todd Hare
- B23 Characterising the relationship between executive functions and academic performance in adolescence: Implications for genetic research 128
Georgina Donati, Emma Meaburn and Iroise Dumontheil

- B24 The role of the frontal lobes in anosognosia for Theory of Mind deficit: A single case study 129
Valentina Pacella, Martina Costamagna, Renato Avesani, Cristina Bulgarelli and Valentina Moro
- B25 An Executive Function Training for preschool children: Effectiveness and transfer to pre academic skills 130
Laura Traverso, Paola Viterbori and Maria Carmen Usai
- B26 Atypical neuronal activation during a spatial working memory task in 13-year-old very preterm children 131
P. Saga H. Arthursson, Deanne Thompson, Megan Spencer-Smith, Tim Silk, Lex W. Doyle and Peter J. Anderson
- B27 The role of genes on Executive Functions in pediatric patients with epilepsy 132
Chiara Colliva, Marta Ferrari, Crisitina Benatti, Azzurra Guerra, Fabio Tascedda and Johanna Maria Catharina Blom
- B28 Profiling executive function and self-regulatory behaviours in developmental dyslexia: Cognitive and neural bases of response inhibition explored 133
Caoilainn Doyle, Aoife Lonergan, Alan Smeaton, Geraldine Scanlon, Jessica Bramham, Richard Roche and Lorraine Boran
- B29 Predictive factors for executive functions in 3-year-old thai children 134
Nattaporn Tassanakijpanich, Weerasak Chonchaiya, Chandhita Pruksananonda and Dhanika Boonma
- B30 Theory of Mind is severely impaired and dissociated from cognitive flexibility in cocaine addiction 135
Giorgia Committeri, Diana De Maio, Mariachiara Di Francesco, Lucia Santon, Valentina Sebastiani and Adele Di Stefano
- B31 Investigating the development of executive functions in adolescence 136
Thalia E. Theodoraki, Sarah McGeown and Sarah E. MacPherson

- B32 Component deficits of visuospatial neglect after right hemisphere damage: Magnetic attraction of attention and impaired spatial working memory 137
Monica N. Toba, Marco Rabuffetti, Christophe Duret, Pascale Pradat-Diehl, Guido Gainotti and Paolo Bartolomeo
- B33 Random generation of items in frontal lobe pathology 138
Andrei Dumbrava and Monica N. Toba
- B34 Brain event-related potentials and their source localization during attention network test in typically developing children 139
Praghajieethbraajben Santhanagopalan, Otto Loberg, Jarmo Hämäläinen and Paavo Leppänen
- B35 The effect of cerebellar lesions on visual attention 140
Erika Künstler, Albrecht Günther, Carsten Klingner and Peter Bublak
- B36 Cognitive control in severe obese individuals: an ERP study 141
Giulia Testa, Piero Amodio, Federica Buongiorno, Maria Luisa Rusconi, Anna Belligoli, Marta Sanna, Roberto Vettor, Mirto Foletto and Sami Schiff
- B37 Connectivity correlates of impaired executive functioning in anorexia nervosa 142
Angela Favaro, Elena Tenconi and Paolo Santonastaso
- B38 Basic language skills, executive functions, and their interaction in complex language tasks Evidence from Phenylketonuria 143
Sara De Felice, Anita McDonald, Cristina Romani and Liana Palermo
- B39 Selective deficits of speed of processing in adults with phenylketonuria (PKU): Implications for executive functions 144
Cristina Romani, Anita McDonald, Sara De Felice and Liana Palermo
- B40 Executive functions in sport. A preliminary study in elite volleyball players 145
Simone Montuori, Giulia D'Aurizio, Matteo Pesoli, Francesca Foti, Giuseppe Curcio and Laura Mandolesi

- B41 Impairment of verbal fluency in SCA36: a model to study the cerebellar cognitive affective syndrome 146
Rocío Martínez-Regueiro, Manuel Arias, Raquel Cruz, Beatriz Quintáns, María Pardo, Julio Pardo, María García-Murias, Ángel Carracedo, María Jesús Sobrido and Montse Fernández-Prieto
- B42 Cognitive flexibility ability of patients with obsessive compulsive disorder 147
Sandra Carvalho, Ana Pampín Alfonso, Aitana Alonso-González, Cristina Gutiérrez López-Dóriga, Rocío Martínez-Regueiro, Ángel Carracedo and Montse Fernández-Prieto
- B43 Executive functioning in children with Autism Spectrum Disorder without Intellectual Disability 148
Cristina Gutiérrez López-Dóriga, Sara Cruz, Rocío Martínez-Regueiro, Adriana Sampaio, Lorena Gómez-Guerrero, Sonia Gómez, Raquel Cruz, Ángel Carracedo and Montse Fernández-Prieto
- B44 Intervention that activates executive functions improves students' ability to overcome intuitive interference in mathematics 149
Reuven Babai and Ruth Stavy
- B45 A session of moderate-intensity continuous exercise, but not a high-intensity interval protocol, boosts executive function. An ERP study 150
Tomasz S Ligeza, Patrycja Kałamała, Marcin Maciejczyk, Zbigniew Szygula, Mirosław Wyczęsany
- B46 Persistent modification of cognitive control through implicit attention training 151
Bart Aben, Tom Verguts and Eva Van den Bussche
- B47 Executive Function: how to improve academic performance with cognitive motor interventions 152
Eleonora Palmieri, Piero Crispiani and Mary Mountstephen
- B48 Exposure to natural bright light as means to boost executive functioning in young adults 153
Maria Korman, Ishay Levy, Adi Esbed and Avi Karni

B49	Executive functions in violent and nonviolent criminal behavior <i>Ana Rita Cruz and Fernando Barbosa</i>	154
B50	Executive functions and gender differences: Behavioral and anatomical data <i>Francesca Eleuteri, Margherita Di Paola, Claudia Falcone, Ashok Jansari and Lisa S. Arduino</i>	155
B51	Executive functions and prospective memory: clinical evidences on a multiprocess framework on planning actions <i>Cecilia Monti, Matteo Sozzi, Luca Damiano, Massimo Corbo and Michela Balconi</i>	156
B52	Hereditary and environmental factors of executive functions <i>Željka Nikolašević, Vojislava Bugarski Ignjatović, Petar Čolović and Snežana Smederevac</i>	157
B53	Virtual kitchen: An ecologically oriented task of executive functions assessment <i>Ilenia Levorato, Giovanna Mioni and Franca Stablum</i>	158
B54	The executive function profile in patients with cerebellar pathology <i>Claudia Iacobacci, Giusy Olivito, Silvia Clausi, Michela Lupo, Anna Maria Tedesco, Fabio Ferlazzo, Marco Molinari and Maria Leggio</i>	159
B55	Selective verbal language deficits of children with sickle cell disease are caused by impairment of executive functions <i>Barbara Arfé, Maria Montanaro, Elena Mottura, Renzo Manara, Michele Scaltritti, Giuseppe Basso, Laura Sainati and Raffaella Colombatti</i>	160
B56	Sex differences in social and non-social inhibitory control <i>Kobinoor Darda and Richard Ramsey</i>	161
B57	Measuring executive functions in children: The importance of processing speeds and scoring methods <i>Rebecca Gordon, James Smith-Spark, Lucy Henry and Elizabeth Newton</i>	162
B58	Alcohol does not affect the intentional inhibition of action <i>K. Richard Ridderinkhof</i>	163

- B59 Can continuous positive airway pressure treatment restore executive functions in obstructive sleep apnea? A systematic review 164
Luciana Ciringione, Barbara Poletti, Carolina Lombardi and Nicola Cellini
- B60 Impairment and Heterogenous Executive functions in children with Attention Deficit and Hyperactivity Disorder (ADHD) 165
Laura Fernández-Méndez, Del Olmo Sandra, Maria Rosa Elosúa de Juan and María José Contrera
- B61 Executive attention processes: Energization and progressive supranuclear palsy 166
Megan S Barker and Gail A Robinson

significantly reduced in patients in both the single-task ($p = 0.021$) and the dual-task conditions ($p = 0.049$). Tapping performance was worse in patients as compared to controls, despite the lateralization of the infarct having no significant effect on tapping performance, indicating that diminished performance arose due to cognitive dual-tasking costs, rather than from motoric deficits. Overall, the findings suggest that the K parameter is strongly related to the amount of dual-task costs experienced by both groups, and that the cerebellum plays an important role in dual-tasking.

B36. Cognitive control in severe obese individuals: an ERP study

Giulia Testa^{1*}, Piero Amodio², Federica Buongiorno³, Maria Luisa Rusconi¹, Anna Belligoli², Marta Sanna², Roberto Vettor², Mirto Foletto⁴, Sami Schiff^{2#}

¹ *Department of Human and Social Sciences, University of Bergamo, Italy*

² *Department of Medicine, University of Padua, Italy*

³ *Department of Developmental Psychology and Socialization, University of Padua, Italy*

⁴ *Week Surgery, Department of Surgery, Padua University Hospital, Italy*

* *giulia.testa@unibg.it*

sami.schiff@unipd.it

Keywords: Cognitive control, Event-related potential (ERPs), Obesity, Food-related attention

Severe obesity has been associated with executive dysfunctions such as poor cognitive control during interference tasks. A source of behavioral studies showed lower cognitive control in obese compared to normal-weight when food-related stimuli are present, suggesting enhanced attention toward food (i.e. food-related attentional bias), which may reduce the efficiency of cognitive control. Here, cognitive control of interference in presence of food-related stimuli was assessed by means of event-related potentials (ERPs) and behavioral measures of cognitive control in severe obese individuals. Twenty-four obese and 28 normal-weight were evaluated in fasting state. Cognitive control in presence of food-related stimuli was investigated with a version of the Simon task modified with task-irrelevant food, object and neutral distractors. ERPs and reaction times (RTs) were registered in

spatial corresponding (C) and non-corresponding (NC) conditions for each distractor. Larger Simon effect in presence of food-related distractors was found in the obese group. The N2 amplitude was higher in C compared to NC trials only in normal weight, whereas this effect was not present in the obese group. Longer P3 latency was found in obese compared to normal-weight. Attentional bias toward food interferes with cognitive control in severe obese individuals, supporting previous evidences for a food-related motor impulsivity. For the ERPs, the finding of higher N2 amplitude in conflict trials (NC) in normal-weight, but not in the obese group, suggests impaired conflict detection in the latter. Longer P3 latency observed in the obese may reflect a slowing down in information processing speed.

B37. Connectivity correlates of impaired executive functioning in anorexia nervosa

Angela Favaro*, Elena Tenconi, Paolo Santonastaso

Department of Neuroscience, University of Padua, Italy

* *angela.favaro@unipd.it*

Keywords: Anorexia Nervosa, Iowa Gambling Task, Brain Connectivity

Anorexia nervosa (AN) is a severe psychiatric disturbance characterized by reduced food intake, abnormally low body weight, intense fear of gaining weight, disturbance of body image and persistent lack of recognition of the seriousness of the condition. AN patients typically show weaknesses in set-shifting, decision-making, central coherence, and behavioral inhibitory control. Our studies showed that set-shifting difficulties and cognitive inflexibility appear to be trait-related (i.e., no improvement is shown after weight recovery), but significantly influenced by the Catechol-O- methyltransferase (COMT) genotype in the underweight condition. Similarly, the functional connectivity of prefrontal cortex is affected by this polymorphism in the underweight AN group. The underweight AN group, but not the weight-recovered group, displayed significantly higher reaction times at the Stop-Signal test, a behavioral inhibition task. This impairment seems to be explained by significantly lower functional connectivity in the ventral attention network, although the association between functional connectivity within this network and the Stop-Signal reaction times appears to be modulated by the polymor-