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MEETING ABSTRACTS **Open Access**

Center for Interdisciplinary Research in Health (CIIS) National Meeting 2023

Lisbon, Portugal. 31 March - 01 April 2023

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Paulo J. G. Bettencourt[1,2], Ana Mineiro[1,3], Paulo Alves[1,4], Nuno Rosa[1,5], André Correia[1,5], Marlene Barros[1,5]
[1] Universidade Católica Portuguesa, Center for Interdisciplinary Research in Health, Portugal; [2] Universidade Católica Portuguesa, Faculty of Medicine, Lisboa, Portugal; [3] Universidade Católica Portuguesa, Instituto de Ciências da Saúde, Lisboa, Portugal; [4] Universidade Católica Portuguesa, Instituto Ciências da Saúde, Escola Enfermagem (Porto), Portugal; [5] Universidade Católica Portuguesa, Faculty of Dental Medicine (FMD), Viseu, Portugal
Correspondence: Paulo J. G. Bettencourt (pbettencourt@ucp.pt)
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The Center for Interdisciplinary Research in Health (CIIS) is the research center of the Universidade Católica Portuguesa (UCP) focused on health care. The Center is organized in five platforms, and distributed in four geographies across Portugal: Lisbon, Porto, Viseu and Sintra (Table 1). The center has currently 155 active researchers and attracted funds exceeding 10M€.

For the first time ever, CIIS has organized a National Event that included researchers from all platforms and disciplines, in a truly interdisciplinary and translational scientific event, counting 117 registered participants and 120 abstracts. The meeting took place at the Faculty of Medicine, in the Sintra campus, on the 31st March and 1st April 2023. The Scientific Committee of the CIIS National Meeting decided that the theme for the meeting is *Interdisciplinary Health Care*. Rather than clustering researchers by platform or discipline, we decided to create three working sessions that are inclusive to everyone and not restricting the presentations by discipline, being therefore, interdisciplinary. These are: 1 – *Translational Care*; 2 – *Clinical Care*; and 3 – *Community Care*.

The meeting was held in the presence of the Universidade Católica Portuguesa Rector Professor Isabel Capeloa Gil, the Vice-Rector Professor Peter Hanenberg, the Director of the CIIS, Professor Marlene Barros, the Director of the Faculty of Medicine, Professor António Almeida and the guest speaker Professor Tomáš Zima, Charles University, Prague, Czech Republic, and hosted by the Deputy Director of the CIIS, Professor Paulo J. G. Bettencourt.

For two days, papers were presented by invited speakers within each session, and posters were presented by CIIS researchers and students, in a highly anticipated poster session. All abstracts were peer-reviewed. To bring further excitement to the poster session, the Meeting´ Scientific Committee selected the best poster from each platform to receive the Best Poster Award. Finally, the CIIS platform coordinators presented their plans and vision for the future.

Following the success of this meeting, the Scientific Committee of the National Meeting, decided to implement yearly meetings of the Center.

We would like to acknowledge all CIIS members, staff and students that accepted the challenge of participating in this event, presenting their most recent data, sharing their knowledge, and making this truly an interdisciplinary health care event.

We hope this meeting has contributed to share the latest scientific achievements of all members and promoted the beginning of new collaborations for the future, keeping in mind the main goal of improving health care with an interdisciplinary view, to ultimately improve quality of life, with humanity and spirituality at the center of all scientific quests.

Acknowledgements
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Table 1 Platforms of the Center for Interdisciplinary Research in Health

Name	Location	Head
Neurosciences	Lisbon and Porto	Prof. Ana Mineiro
Nursing	Lisbon and Porto	Prof. Paulo Alves
CatólicaMed	Sintra	Prof. Paulo Bettencourt
SalivaTec	Viseu	Prof. Nuno Rosa
Precision Dental Medicine	Viseu	Prof. André Correia

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2. Keller, M., Shreffler, J., Wilmes, K., Polites, A., &Huecker, M.. Equal incidence of COVID-19 among homeless and non-homeless ED patients when controlling for confounders. The American journal of emergency medicine. 2022; 53: 286-e5-286-e7.
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Poster Presentations
Session 1 - Translational Care

P1
- Executive functioning training in typically developing adolescents: data review from the last 10 years

Jorge Amorim[1], Soraia Saramago[1], Joana R. Rato,[1] and Alexandre Castro-Caldas[1]
[1] Center for Interdisciplinary Research in Health, Universidade Católica Portuguesa, Lisboa, Portugal
Correspondence: Jorge Amorim (s-jomiamorim@ucp.pt)
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Background
Executive functions (EF) are top-down cognitive processes that affect different life aspects, such as academic success, health management, and, at a last level, public safety. If, on the one hand, literature accumulated data about the possibility of training EF, on the other, adolescence opens a window of opportunity for intervention due to brain, mind-body, and social transformations. Researching effective ways to promote EF in adolescents has a scientific and social value, which motivated this review work.
Methods
Through a systematic review, we highlighted the evidence of training EF during adolescence and searched for connections with academic success. Our search gathers knowledge about 1) the tasks (computerized and non-computerized) used to improve EF in adolescents, 2) the program's effectiveness, and 3) the conditions and settings of training EF.
Results
We reviewed studies between 2011 and 2021 across six databases to search for empirical studies with a control group that studied at least one core EF training in typical development adolescents (13-19 y). We only considered peer-review papers published in English, with more than one training session and more than 8 participants. From a pool of 4.002, 14 articles were included in the final analysis. As the main results, we highlight that no single training program was repeated, and measurements vary across multiple tasks and self-reports. The effectiveness lies in low and medium, but no study registered long-duration effects. Computerized training programs have the potential to measure with low bias; however, the only comparison study shows that non-computerized training got promising results.
Conclusions
Evidence points to the need for more robust evidence in EF training for adolescents with typical development. Future research should follow open science methodology (i.e., registration of protocols and interventions; open datasets) to reinforce clarity about EF theoretical framework and (non)standardized outcome measures options.
Keywords
Executive functions, training, adolescents, inhibitory control, working memory, cognitive flexibility, academic achievement.

P2
- Liposomal delivery of repurposed antiviral drug saquinavir to macrophages as a host-directed therapy for tuberculosis

Manoj Mandal[1#], David Pires[1,2#], Jacinta Pinho[3], Maria João Catalão[1], António José Almeida[3], José Miguel Azevedo-Pereira[1], Maria Manuela Gaspar[3] and Elsa Anes[1]
[1] Host-Pathogen Interactions Unit, Research Institute for Medicines - iMed-ULisboa, Faculty of Pharmacy, Universidade de Lisboa, Lisbon, Portugal; [2] Universidade Católica Portuguesa, Católica Medical School, Center for Interdisciplinary Research in Health, Rio de Mouro, Sintra, Portugal; [3] Advanced Technologies for Drug Delivery, Research Institute for Medicines - iMed-ULisboa, Faculty of Pharmacy, Universidade de Lisboa, Lisbon, Portugal
Correspondence: Elsa Anes (eanes@ff.ulisboa.pt)
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[#] These authors contributed equally to this work
Mycobacterium tuberculosis (Mtb) latently infects approximately a quarter of the world's population and 10 % of these will develop the disease tuberculosis. Mtb infects macrophages, manipulating the proteolytic mechanisms, particularly, by decreasing the expression and activity of lysosomal cathepsins. Consequently, Mtb survives and even replicates inside macrophages concomitant with poor priming of the adaptive immune response. Our group found that the protease inhibitor used in antiretroviral therapy for HIV infection, saquinavir (SQV), restores and further improves the overall activity of cathepsins in Mtb-infected macrophages and more specifically, that of cathepsin S [1]. In this study, we tested the incorporation of SQV in liposomes to establish an improved delivery method for SQV to human monocyte-derived macrophages. Using fluorophore-tagged liposomes we demonstrated the efficiency of SQV-loaded liposome internalization by human macrophages. Additionally, using a general fluorescent substrate of human cathepsins we could observe improved proteolytic activity in treated macrophages. When applying this treatment to Mtb-infected macrophages these effects resulted in better control of the infection. Furthermore, liposomal delivery of SQV reduced the cytotoxicity of the treatment and allowed the usage of higher concentrations without impacting cell viability. By using this strategy, we overcame the cathepsin activity blockade that is induced by the pathogen [2]. The results further demonstrate the efficacy of SQV-loaded liposomes to help control infections by Mtb clinical strains susceptible or resistant to the current antibiotic therapy. Our results suggest the use of liposomal delivery of SQV as a potential complementary therapy against Mtb infection.
Human monocytes were isolated from buffy-coats of healthy human donors provided by the National Blood Institute (Instituto Português do Sangue e da Transplantação, IP, Lisbon, Portugal).
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