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NEURO PLAY

Title	**Continuous intergenerational play for neuroplasticity**
Acronym	NeuroPlay
GA	101134703
Duration	1.11.2023-31.10.2025 - 24 months
Partners	• P1 Slovenian Association of Kinesiology- KiSi; Slovenia • P2 Sdruzhenie Balgarsko Ski Uchilishte – Bolgarian Ski School; BSS; Bolgaria • P3 Športno društvo Snowpack; Snowpack; Slovenia • P4 The International Association of Snowsports in Schools and Universities – IAESS [former IVSS]; Austria)

Deliverable nature:	Report
Deliverable number and title:	D3.4 Scientific articles / International conference abstracts
Work package:	WP3
Work package number(s):	D3.3
Responsible partner:	KISI
Dissemination level:	Public (PU) PU = public, fully open, e.g. web
Date:	25. 10. 2025

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D3.4 Scientific articles / International conference abstracts

Project summary:

NeuroPlay is an ambitious project aimed at boosting children's neurological development while supporting the cognitive and physical health of grandparents through innovative motor-cognitive training. Recognizing the pivotal role grandparents play in children's lives, the project highlights the potential benefits of intergenerational activities for both age groups.
With a global population of 1.5 billion grandparents, NeuroPlay seeks to create engaging exercises and activities that facilitate meaningful interactions between generations year-round. Drawing on expertise from various fields including kinesiology, neuroscience, physical therapy, sports, IT, and certification, the project aims to develop a cutting-edge program rooted in neuroscience principles, with a focus on intergenerational training using lateral motor transfer methodology.
Utilizing established best practices, NeuroPlay will host workshops to disseminate knowledge and methodology to stakeholders. Additionally, the project will organize two summer and two winter camps, providing immersive opportunities for hands-on learning and collaboration. Complementing these efforts, the development of a dedicated NeuroPlay digital platform will allow real-time tracking of participants' progress and incentivize continued engagement in tailored collaborative activities.
By fostering strong intergenerational connections and promoting healthy aging among grandparents, NeuroPlay aligns with key priorities outlined by Erasmus+. This innovative project aims to lay the groundwork for enhanced neurological development in children, contributing to holistic well-being across generations.

Aim of the Report

The aim of this current report is to provide a list and summary of the publications that were published within the framework of the project period. Since there are lengthy processes of peer-reviews, the common publication in SCI journal is foreseen in the later stages. Based on publications, we will be submitting a new grant application where such principles will be further scientifically validated.

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A list of NeuroPlay publications:

- Publication in the scientific journal Annales Kinesiologiae *(PDF example given at the end of this report)*

- 30.9.2025: Dieter Bubeck: CHILD IN MOTION / OTROK V GIBANJU
  Keynote speaker / Glavni govornik: Dieter Bubeck, PhD
  University of Stuttgart
  Title: Why Snowsport should be taught in universities and schools

- SLOSAR LUKA et al., INTERGENERATIONAL ACTIVITY PROGRAMS: OUTCOMES OF THE NEUROPLAY PROJECT, SEPTEMBER 2025, ICHM international conference, Portorož, Slovenia

- MARUŠIČ, Uroš, PIŠOT, Rado. Enhancing neuroplasticity through intergenerational neuroplay : a novel approach to promote physical activity and cognitive functioning. V: TERAŽ, Kaja (ur.), PIŠOT, Saša (ur.). Spremenimo igro - s sodobnimi pristopi nazaj k osnovam = Change the Game - A Modern Way Back to the Roots : 12. mednarodna znanstvena in strokovna konferenca "Otrok v gibanju" = The 12th International Scientific and Professional Conference "A Child in Motion" : zbornik povzetkov = the book of abstracts. Koper: Znanstveno-raziskovalno središče Koper, Annales ZRS: = Science and research centre Koper, Annales ZRS, 2023. Str. 76-77. ISBN 978-961-7195-28-6. https://www.ovg.si/wp-content/uploads/2023/11/Zbornik-OVG-2023_SPLETNA-IZDAJA.pdf , https://dirros.openscience.si/IzpisGradiva.php?id=17370. [COBISS.SI-ID 173998595]

- PIŠOT, Rado, MARUŠIČ, Uroš, PIŠOT, Saša. Decoding motor control and learning : bridging the gap between science and practice with innovative technology. V: TERAŽ, Kaja (ur.). *5th Scientific Conference SPE Balkan Ski : science, practice & education : (Rogla, 2024) : the book of abstracts*. Koper: Znanstveno-raziskovalno središče Koper, Annales ZRS: = Science and Research Centre Koper, Annales ZRS, 2024. Str. 36-37. ISBN 978-961-7195-41-5. http://spe-balkan-ski.com/uploads/2024-spe-book-of-abstracts.pdf. [COBISS.SI-ID 195065347]

- MARUŠIČ, Uroš, ISTENIČ, Ahac, VADNJAL, Brina, PIŠOT, Rado. Year round intergenerational ski preparation : training adventures for children and older people. V: TERAŽ, Kaja (ur.). *5th Scientific Conference SPE Balkan Ski : science, practice & education : (Rogla, 2024) : the book of abstracts*. Koper: Znanstveno-raziskovalno središče Koper, Annales ZRS: = Science and Research Centre Koper, Annales ZRS, 2024. Str. 31-32. ISBN 978-961-7195-41-5. http://spe-balkan-ski.com/uploads/2024-spe-book-of-abstracts.pdf. [COBISS.SI-ID 195058179]

- VADNJAL, Brina, MARUŠIČ, Uroš. Intergenerational cognitive-motor training : exploring games for enhanced cognitive and motor function for kids and elderly. V: TOPLAK, Jurij (ur.), et al. It's about people 2024: In Service of Sustainability and

Dignity : the 12th Annual Conference of Europe's Sciences and Arts Leaders and Scholars : book of abstracts : Maribor, 8-13 March 2024. 1st ed. Maribor: AMEU - ECM, Alma Mater Press, 2024. Str. 109. ISBN 978-961-7183-36-8. https://press.almamater.si/index.php/amp/catalog/view/84/103/230. [COBISS.SI-ID 201198083]

- PIŠOT SAŠA, BARUCA VID, IANKOV PETAR: NEUROPLAY: Bridging Generations Through Motor-cognitive Training; It's about people international conference 2024

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Example of a publication in scientific conference:

MEDGENERACIJSKA VADBA: REZULTATI PROJEKTA NEUROPLAY

INTERGENERATIONAL ACTIVITY PROGRAMS: OUTCOMES OF THE NEUROPLAY PROJECT

Luka Šlosar [1], Saša Pišot [1], Uros Marusic [1] in Rado Pišot [1]

[1] Znanstveno-raziskovalno središče Koper, Inštitut za kineziološke raziskave, Koper, Slovenia

Predavatelj: Luka Šlosar, luka.slosar@zrs-kp.si

IZHODIŠČA: V sodobni družbi, ki se hitro stara, postajajo medgeneracijske aktivnosti vse pomembnejše za spodbujanje zdravja ter krepitev povezanosti med generacijami. Tako starejši odrasli kot otroci potrebujejo gibalne in kognitivne spodbude, ki ugodno vplivajo na njihovo zdravje in razvoj. Projekt NEUROPLAY je to potrebo naslovil z razvojem inovativnih gibalno-kognitivnih aktivnosti, zasnovanih za sočasno udeležbo otrok in njihovih starih staršev. V središče koncepta je postavljena nevroplastičnost kot osnova za skupno učenje, gibanje in kakovostno medgeneracijsko sodelovanje.

PROBLEM/NAMEN: Čeprav so koristi gibalne aktivnosti pri otrocih in starejših dobro raziskane, so programi, ki bi istočasno vključevali obe starostni skupini, še vedno redkost. Glavni cilj projekta NEUROPLAY je oblikovati, preizkusiti in razširiti dostopen program medgeneracijskih aktivnosti, ki spodbuja gibalni razvoj otrok, izboljšuje psihofizično počutje starejših in hkrati krepi socialno povezanost med generacijami.

METODE: V okviru projekta smo v Sloveniji, Bolgariji in Italiji organizirali več športnih dogodkov in delavnic, ki se jih je udeležilo več kot 120 otrok in njihovih starih staršev. Vadbeni program je vključeval gibalno-kognitivne naloge, prilagojene starostni skupini in zmožnostim udeležencev. Povratne informacije udeležencev smo zbrali z anketnim vprašalnikom, ki je omogočil vpogled v njihovo izkušnjo, zadovoljstvo in zaznane koristi.

UGOTOVITVE: Projekt je uspešno vključil veliko število starih staršev, ki so se z veseljem vključili v skupne aktivnosti z vnuki. Udeleženci so poročali o izboljšanem telesnem počutju, večji

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motivaciji za gibanje ter okrepljenih medgeneracijskih odnosih. Starši in stari starši so poudarili tudi pozitiven vpliv na razvoj otrok, tako z vidika gibanja kot socialnih veščin.

ZAKLJUČEK: NEUROPLAY je pokazal, da je mogoče z relativno enostavnimi in zabavnimi pristopi uspešno združiti dve generaciji v smiselno in zdravju koristno skupno aktivnost. Projekt predstavlja odličen primer dobre prakse na področju promocije aktivnega staranja, celostnega razvoja otrok in medgeneracijskega sodelovanja. Rezultati projekta ponujajo trdno osnovo za širšo uvedbo programa v vzgojno-izobraževalne in športne sisteme po vsej Evropi.

Ključne besede: Medgeneracijska vadba, gibalne sposobnosti, kognitivne sposobnosti, razvoj.

LITERATURA

Schroeder, K., Ratcliffe, S. J., Perez, A., Earley, D., Bowman, C., & Lipman, T. H. (2017). Dance for Health: An Intergenerational Program to Increase Access to Physical Activity. *Journal of pediatric nursing*, *37*, 29–34. https://doi.org/10.1016/j.pedn.2017.07.004

Zhou, F., Zhang, H., Wang, H. Y., Liu, L. F., & Zhang, X. G. (2024). Barriers and facilitators to older adult participation in intergenerational physical activity program: a systematic review. *Aging clinical and experimental research*, *36*(1), 39. https://doi.org/10.1007/s40520-023-02652-z

Example of the presentation:

INTRODUCTION

- The **NeuroPlay** project (Continuous-Intergenerational-Play-for-Neuroplasticity, GA: 101134703, ERASMUS-SPORT-2023-SSCP)
- Duration:**1.11.2023 -31.10.2025**
- Aim: to enhance neurological development in children while promoting cognitive and physical health in grandparents through intergenerational motor-cognitive training.
- The project is a collaboration among partners: from Slovenia, Bulgaria, and Austria, utilizing expertise in kinesiology, neuroscience, and physical therapy.

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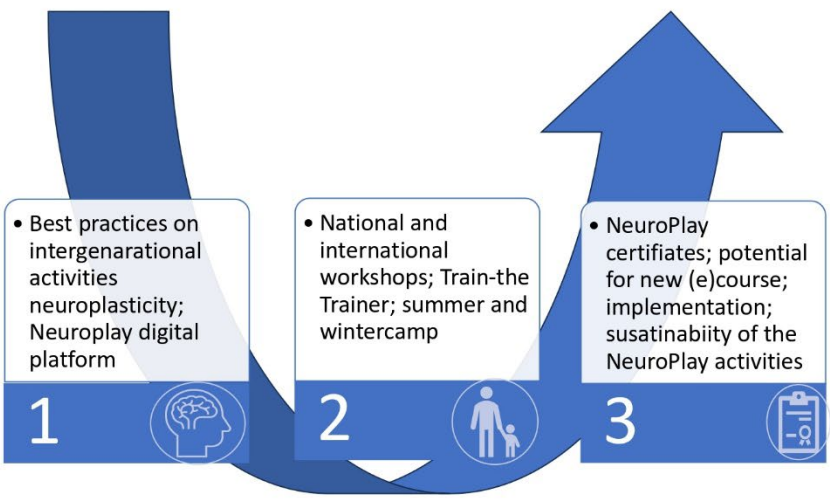
Methodology



The NeuroPlay instruction workshop days

At International conference SPE BALKAN SKI conference, March 2024 at Rogla.

- **Aim**: to share the NeuroPlay vision and methodology with a broader audience, to increase the impact of NeurpPlay initiatives.
- The workshop spanned over three days: **Project presentation; Roundtable discussion** among all partners to review the project methodology and upcoming activities; and **Worksho**p held on the **ski slopes** and surrounding terrain to provide instruction on various intergenerational activities as part of the NeuroPlay project.

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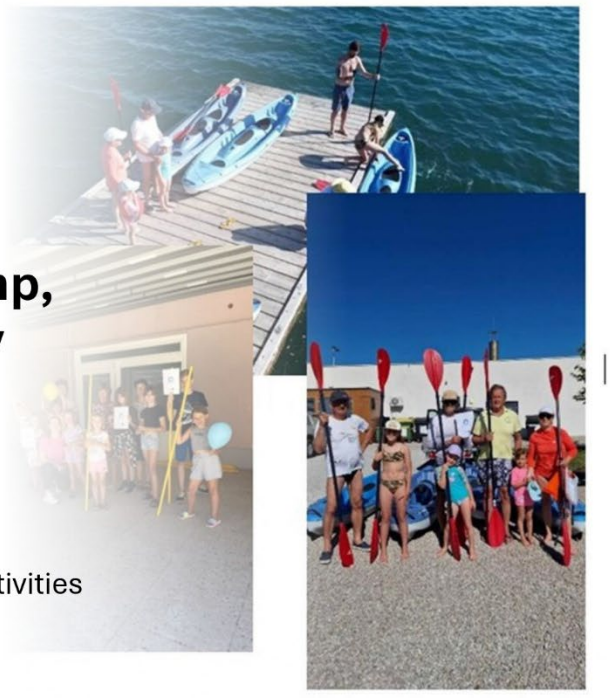
Activities WORKSHOPS

- NeuroPlay conducted 3 national workshops in Slovenia, collaborating with the Center for Daily Activities for seniors in Koper.
- Activities included **kayaking, AcroYoga,** and **balance exercises**, aimed at promoting motor and cognitive skills for both children and seniors (grandparents).
- The workshops demonstrated the power of intergenerational connection, blending physical activity with cognitive challenges to benefit participants of all ages.

NeuroPlay Summer Camp, Slovenia, July 2024



Intergenerational activities

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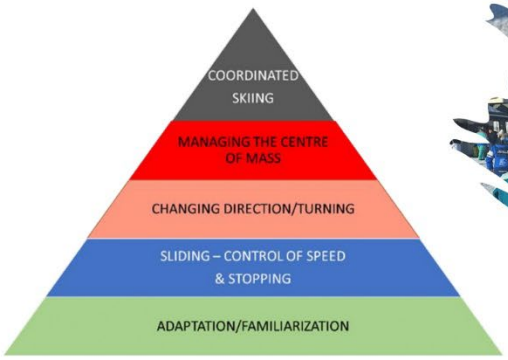
NeuroPlay winter camp

- Slovenia/Italy
- 26-28. december 2024



NeuroPlay
winter camp

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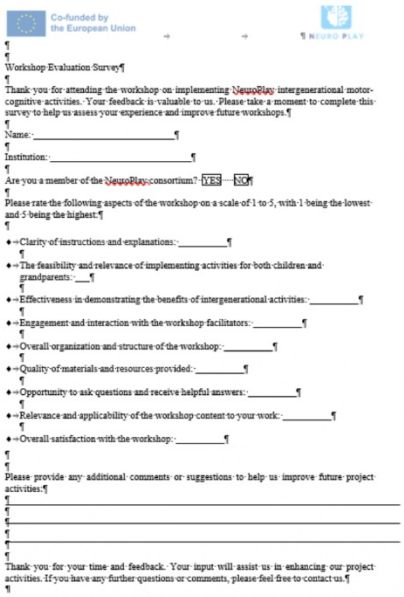
- Feedback from participants and trainers has been collected through standardized questionnaires

Results:

- Preliminary feedback from the international and national-workshops, as well as the summer-camp, indicates high levels of satisfaction.
- Participants n=60 rated the workshops an average of 4 out of 5, emphasizing the clarity of instructions, the relevance of the activities, and the effectiveness of fostering intergenerational connections.
- Trainers highlighted the practicality of the methodologies and their applicability across various settings.



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Workshop Evaluation Survey

Thank you for attending the workshop on implementing NeuroPlay intergenerational motor-cognitive activities. Your feedback is valuable to us. Please take a moment to complete this survey to help us assess your experience and improve future workshops.

Name: _____

Institution: _____

Are you a member of the NeuroPlay consortium? YES — NO

Please rate the following aspects of the workshop on a scale of 1 to 5, with 1 being the lowest and 5 being the highest:

- Clarity of instructions and explanations: _____
- The feasibility and relevance of implementing activities for both children and grandparents: ___
- Effectiveness in demonstrating the benefits of intergenerational activities: _____
- Engagement and interaction with the workshop facilitators: _____
- Overall organization and structure of the workshop: _____
- Quality of materials and resources provided: _____
- Opportunity to ask questions and receive helpful answers: _____
- Relevance and applicability of the workshop content to your work: _____
- Overall satisfaction with the workshop: _____

Please provide any additional comments or suggestions to help us improve future project activities:

_____

_____

_____

Thank you for your time and feedback. Your input will assist us in enhancing our project activities. If you have any further questions or comments, please feel free to contact us.

Conclusion

The NeuroPlay project demonstrates significant potential in promoting intergenerational collaboration.

Preliminary results validate the project's approach, highlighting the importance of tailored motor-cognitive activities in supporting neurological and physical health across generations.

- Given the notable results, we hope for a successful completion of the project (3 workshops)

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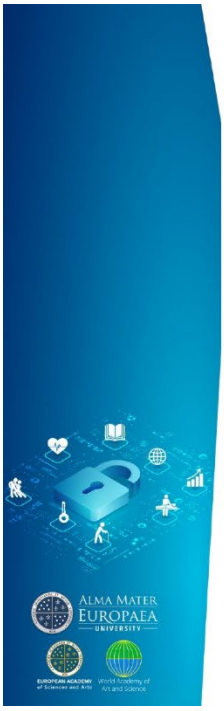

Thank you for your attention!

E-mail: sasa.pisot@zrs-kp.si

More about project:
https://kisi.si/neuroplay/

Example of a publication in scientific journal:

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REPORTS AND REVIEWS/POROČILA IN OCENE, 101–108

CONTINUOUS INTERGENERATIONAL PLAY FOR NEUROPLASTICITY: THE NEUROPLAY PROJECT

The NeuroPlay project (GA: 101134703) addresses the growing need for innovative approaches to promoting health and well-being across generations. With approximately 1.5 billion grandparents worldwide, this project highlights the untapped potential of intergenerational activities to promote neurological development in children and support healthy aging in older people.

As part of this project, we are exploring the possibilities of intergenerational play as an effective tool for promoting cognitive, physical, and social well--being. These activities create unique opportunities for interaction that allow younger and older generations to learn from each other and develop mutual respect and understanding. Through carefully designed motor-cognitive exercises, NeuroPlay promotes neuroplasticity, the brain's ability to adapt and form new neural connections, which benefits participants of all ages.

NeuroPlay emphasizes collaborative activities that stimulate lateral motor transfer, a method that encourages the application of skills learned in a certain context to other tasks. By incorporating neuroscience principles, the project ensures that its activities are both scientifically sound and practically engaging.

Project Partners:

The project is carried out by a consortium of international experts:

1. Slovenian Association of Kinesiologists (KiSi), Slovenia – Lead partner.
2. Športno društvo Snowpack (Snowpack), Slovenia.
3. Sdruzhenie Balgarsko Ski Uchilishte (Bulgarian Ski School, BSS), Bulgaria.
4. The International Association of Snowsports in Schools and Universities (IAESS), Austria – contribution to knowledge translation and content development.

Goals and Objectives

NeuroPlay aims to achieve the following:

- To promote the neurological development of children and support the cognitive and physical health of seniors.
- Promote intergenerational cooperation through year-round activities.
- To develop and disseminate innovative methods for motor-cognitive training.

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Activities and Results

As part of the project, workshops, camps, and joint events were organized in Slovenia and Bulgaria for children and seniors. The main activities included:

- **Workshops** introducing the NeuroPlay method and its neuroscience-based framework.
- **National workshops** focusing on intergenerational activities such as kayaking, balance training, and AcroYoga to improve motor-cognitive skills and strengthen the bonds between generations.
- **Seasonal camps** with various activities such as stand-up paddleboarding and motor-cognitive games designed to promote neuroplasticity and prepare the participants for future challenges.

In all these activities, IAESS from Austria has played a crucial role in the implementation of knowledge and content development. The project also includes a digital platform to track the participants' progress and motivate them to stay engaged.

Impact and Future Directions

NeuroPlay has created a solid foundation for intergenerational collaboration that contributes to healthier aging in seniors and better neurological outcomes in children. By promoting mutual understanding and year-round engagement, this project is in line with the Erasmus+ priorities and demonstrates the transformative power of intergenerational play. Planned activities include additional workshops and camps to further extend the reach and impact of the project.

Recognitions

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Information on the Project

Project: Continuous Intergenerational Play for Neuroplasticity (NeuroPlay)
Grant agreement: 101134703
Call: ERASMUS-SPORT-2023-SSCP
Website: https://kisi.si/neuroplay/

Rado Pišot, Uroš Marušič

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REPORTS AND REVIEWS/POROČILA IN OCENE, 101–108

NEPREKINJENA MEDGENERACIJSKA IGRA ZA NEVROPLASTIČNOST: PROJEKT NEUROPLAY

Projekt NeuroPlay (GA: 101134703) se osredinja na naraščajočo potrebo po inovativnih pristopih za spodbujanje zdravja in dobrega počutja vseh generacij. Po vsem svetu živi približno 1,5 milijarde starih staršev, kar ponuja izjemen, toda premalo izkoriščen potencial medgeneracijskih dejavnosti za spodbujanje nevrološkega razvoja otrok in podpiranje zdravega staranja starejših.

V okviru projekta raziskujemo možnosti medgeneracijske igre kot učinkovitega orodja za spodbujanje kognitivnega, fizičnega in socialnega blagostanja. Te dejavnosti ustvarjajo edinstvene priložnosti za interakcijo, ki omogočajo mlajšim in starejšim generacijam, da se učijo druga od druge ter razvijajo medsebojno spoštovanje in razumevanje. Projekt NeuroPlay s skrbno oblikovanimi gibalno-kognitivnimi vajami spodbuja nevroplastičnost – sposobnost možganov, da se prilagajajo in tvorijo nove nevronske povezave, kar koristi udeležencem vseh starosti.

NeuroPlay poudarja sodelovalne dejavnosti, ki spodbujajo lateralni motorični transfer – proces, ki spodbuja prenos naučenih spretnosti z enega konteksta na druge naloge. Projekt z vključevanjem nevroznanstvenih načel zagotavlja, da so dejavnosti znanstveno utemeljene in hkrati privlačne za udeležence.

Projektni partnerji

Projekt izvaja konzorcij mednarodnih strokovnjakov:

1. Društvo kineziologov Slovenije (KiSi), Slovenija – vodilni partner,
2. Športno društvo Snowpack (Snowpack), Slovenija,
3. Združenje Balgarsko Ski Uchilishte (Bolgarška smučarska šola, BSS), Bolgarija,
4. Mednarodno združenje za športe na snegu v šolah in na univerzah (IAESS), Avstrija – prispevek k prenosu znanja in razvoju vsebin.

Cilji in namen

Projekt NeuroPlay si prizadeva doseči te cilje:

- spodbujati nevrološki razvoj otrok ter podpirati kognitivno in fizično zdravje starejših,
- spodbujati medgeneracijsko sodelovanje s celoletnimi dejavnostmi,
- razviti in širiti inovativne metode za gibalno-kognitivni trening.

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Dejavnosti in rezultati

V okviru projekta so bili v Sloveniji in Bolgariji organizirane delavnice, tabori in skupni dogodki, pri katerih so sodelovali otroci in starejši. Ključne dejavnosti so vključevale:

- **Delavnice**, ki so predstavljale metodo NeuroPlay in njen nevroznanstveni okvir.
- **Nacionalne delavnice**, osredinjene na medgeneracijske dejavnosti, kot so kajakaštvo, trening ravnotežja in AcroYoga, za izboljšanje gibalno-kognitivnih sposobnosti in krepitev vezi med generacijami.
- **Sezonski tabori** z različnimi dejavnostmi, kot so stoječe veslanje in gibalno-kognitivne igre, ki spodbujajo nevroplastičnost in udeležence pripravljajo na prihodnje izzive.

Pri vseh teh dejavnostih je imelo ključno vlogo pri implementaciji znanja in razvoju vsebine združenje IAESS iz Avstrije. Projekt vključuje tudi digitalno platformo, ki omogoča spremljanje napredka udeležencev in jih spodbuja k nadaljnji vključenosti.

Vpliv in prihodnje usmeritve

Projekt NeuroPlay je postavil trdne temelje za medgeneracijsko sodelovanje, ki prispeva k zdravemu staranju starejših in boljšim nevrološkim izidom pri otrocih. S spodbujanjem medsebojnega razumevanja in celoletnega vključevanja je projekt v skladu s prednostnimi nalogami programa Erasmus+ in dokazuje preobrazbeno moč medgeneracijske igre. Načrtovane dejavnosti vključujejo dodatne delavnice in tabore za nadaljnje širjenje dosega in vpliva projekta.

Zahvala

Podpora Evropske komisije pri pripravi te publikacije ne pomeni odobritve vsebine, ki izraža izključno mnenja avtorjev, in komisija ne more biti odgovorna za kakršnokoli uporabo informacij, ki jih vsebuje ta publikacija.

Informacije o projektu

Projekt: Neprekinjena medgeneracijska igra za nevroplastičnost (NeuroPlay)

Številka pogodbe o donaciji: 101134703

Razpis: ERASMUS-SPORT-2023-SSCP

Spletna stran: https://kisi.si/neuroplay/

Rado Pišot, Uroš Marušič