

ETHICAL REPORT

Judo Intellectual Disability Project (JIDP) 2024-26

Grant Agreement No.: 101133404-ES-SPO-SCP

Introduction

This ethical report is submitted as part of the Judo Intellectual Disability Project (JIDP) under the Erasmus+ Sport Program, Grant Agreement No.: 101133404-ES-SPO-SCP. The project aims to promote the inclusion and well-being of adolescents with intellectual disabilities (ID) through the practice of judo. To ensure full transparency, the project has been registered in the ISRCTN public registry, with reference number ISRCTN11468395, aligning with best practices for the transparency of clinical and social science trials.

It can be consulted at <https://doi.org/10.1186/ISRCTN11468395>

In compliance with ethical guidelines, the project has undergone a rigorous review process, receiving a favorable opinion from the Ethics Committee of Ramon Llull University. The report includes this ethical approval, as well as the informed consent forms from families and caregivers, along with adaptations for the participants themselves, ensuring that all ethical and legal requirements are met in the protection of vulnerable groups.

This document also includes annexes outlining the procedures and materials used to guarantee the safeguarding of the participants' rights, privacy, and well-being throughout the project. All data management, as well as the handling of personal and health-related information, is conducted in full accordance with the General Data Protection Regulation (GDPR) and national legal frameworks.

We trust that this ethical report satisfies the necessary requirements for the continuation of the JIDP and demonstrates our commitment to maintaining high ethical standards throughout the project lifecycle.

REPORT OF THE RESEARCH ETHICS COMMITTEE OF UNIVERSITAT RAMON LLULL

The Research Ethics Committee of the Universitat Ramon Llull, at its meeting held on 7 March 2024, after the evaluation of the proposal with reference number CER-URL_2023_2024_011, titled "Effects of a sports programme based on judo for adolescents with intellectual disabilities. JIDP" coordinated by the investigator Dr José Morales Aznar, and taking into consideration the submitted documentation and the aspects detailed below:

EVALUATION

	Adequate	Incorrect	Doubtful	Not applicable
Justification for research	X			
Description of the research purpose	X			
Ethical implications in the design and methodology	X			
Obtaining the informed consent and other require reports	X			
Information about the adequacy of workspace and required instruments	X			
Competence of the research group	X			
Confidentiality agreement	X			

Observations/ Comments:

Consequently, resolves to issue the following approval¹: Favourable

Signature of the president of the Committee:


 **Dr. JORDI TEIXIDÓ I CLOSA**
Vicerector de Recerca i Innovació
Universitat Ramon Llull

¹ Any modification or incident that affects the development of the project (purpose, team members, etc.) must be notified to the CER URL in order to re-evaluate the project.

All the members of the CER-URL agree to guarantee the confidentiality of the information to which they have access in the development of their tasks. This ensures that the received documentation and the individuals identity are properly dealt with.

ANNEXES TO THE RESEARCH PROJECT: "Effects of a judo-based sports program for adolescents with intellectual disabilities"

INFORMATION FOR FAMILIES AND PARTICIPANTS

Study identification: This is a project that is part of the Erasmus + Sport program with Grant Agreement No.: 101133404-ES-SPO-SCP

This is a study in which you are invited to participate, with the aim of providing information on the effects of participating in a judo-based sports program on the quality of life of children with intellectual disabilities.

Participation in this program will take place from January to June 2024 and from September to 2026, two days per week. The program characteristics are:

CHARACTERISTICS OF A JUDO SESSION:

Judo practice takes place on a tatami, which consists of a set of high-density mats that prevent many injuries and at the same time allow for a variety of activities to be performed safely. The room is well-ventilated and suitable for judo practice, free of objects that may pose a risk or danger to sports activity.

The clothing used is a judogi (judo kimono), which consists of a cotton jacket and pants, along with a belt that shows the technical level of each participant.

Sessions are usually divided into warm-up, main part, and cool-down. The main contents include movements in different modalities, the practice of falls, holds, controls, and throws. The principle of progression is applied at all times, with basic skills being consolidated before moving on to more complex ones.

ADAPTED JUDO SESSIONS FOR CHILDREN WITH ID:

The main methodological actions implemented to adapt the content for children with intellectual disabilities focus on assigning one instructor per participant when necessary.

An individualized pace will be applied for each participant, mostly using imitation as a learning tool and guided modeling.

All participants will have the opportunity to take part in inclusive sessions (with children without ID) and separate sessions (only with children with ID). In both types of sessions, participants will be encouraged to establish healthy eating strategies in collaboration with their families. For example, consuming a piece of fruit after each judo session, and later, at home, participating in challenges through a mobile app that tracks how often they eat healthily. This app will record videos and photos and maintain constant communication about the nutritional habits of each participant. Participants can earn points, win medals, and interact with other participants through this challenge. This method aims to motivate participants and their families to adopt a healthier lifestyle in complement to sports practice.

Institutional identification:

This project is led by the research groups from the Faculty of Psychology, Education, and Sports Sciences, and the Louis Judo Club, affiliated with the Catalan Judo Federation.

PARTICIPATING RESEARCHERS:

- Dr. Jose Morales Aznar. Member of the SAFE (Health, Physical Activity, and Sports Research Group). Professor of the Degree in Physical Activity and Sports Sciences (LCAFE) at the Faculty of Psychology and Educational and Sports Sciences (FPCEE) Blanquerna of Ramon Llull University (URL).
- Dr. Antonia Maria Gómez Hinojosa. Member of the Research Group on Psychology, Person and Context. Professor of the Degree in Psychology at the Faculty of Psychology and Educational and Sports Sciences (FPCEE) Blanquerna of Ramon Llull University (URL).
- Núria Nuñez. Head of International Projects at the Faculty of Psychology, Education, and Sports Sciences Blanquerna.
- Dr. Míriam Guerra Balic. Professor of the Degree in Physical Activity and Sports Sciences (LCAFE) at the Faculty of Psychology and Educational and Sports Sciences (FPCEE) Blanquerna of Ramon Llull University (URL).
- Dr. Josep Oriol Martínez. Professor of the Degree in Physical Activity and Sports Sciences (LCAFE) at the Faculty of Psychology and Educational and Sports Sciences (FPCEE) Blanquerna of Ramon Llull University (URL).
- Prof. Cristina Curto Luque. Member of the SAFE (Health, Physical Activity, and Sports Research Group). Professor of the Degree in Physical Activity and Sports Sciences (LCAFE) at the Faculty of Psychology and Educational and Sports Sciences (FPCEE) Blanquerna of Ramon Llull University (URL).
- Dr. Ainhoa Nieto Guisado. Member of the SAFE (Health, Physical Activity, and Sports Research Group). Professor of the Degree in Physical Activity and Sports Sciences (LCAFE) at the Faculty of Psychology and Educational and Sports Sciences (FPCEE) Blanquerna of Ramon Llull University (URL).
- Dr. Marta Moragas. Member of the GRIES research group. Professor of the Degree in Physical Activity and Sports Sciences (LCAFE) at the Faculty of Psychology and Educational and Sports Sciences (FPCEE) Blanquerna of Ramon Llull University (URL).
- Dr. Eduardo Carballeira. Professor at the University of Coruña.

Study Objectives:**Main Objective:**

To improve the quality of life of adolescents with ID through a judo-based sports program.
To disseminate the results and methodology of the judo-based program to promote knowledge transfer and raise awareness in society.

Specific Objectives:

- 1.1. To implement a judo program for adolescents with mild to moderate intellectual disabilities (ID).
 - 1.2. To evaluate the impact and feasibility of participation in the judo program on the quality of life of individuals with ID.
 - 1.3. To assess the effect of the judo program on improving the physical condition of subjects with ID.
 - 1.4. To observe the differences between the group of subjects integrated into regular judo sessions with adolescents without ID and the group attending sessions exclusively for subjects with ID.
 - 1.5. To evaluate the effect of the judo program on the social interaction of subjects with ID.
 - 1.6. To evaluate the application of nutritional strategies through a mobile app, in collaboration with families and participation in the judo sports program.
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- 2.1. To develop training days for professionals, volunteers, and family members involved in the sports program for individuals with ID.
 - 2.2. To train sports technicians in the methodology used in judo instruction to consolidate the practice for adolescents with ID.
 - 2.3. To disseminate the research results and teaching and learning methods in scientific publications and outreach publications.
 - 2.4. To publicize the activities of the judo-based sports program through social media.

Participant Selection:

Participants will include a group of 20 boys and girls between the ages of 14 and 22 with mild to moderate intellectual disabilities (ID) and no reduced mobility related to their ID, who voluntarily participate and have registered through the associations of people with ID collaborating in the project.

Description of Participation:**Administration of Study Tests**

All subjects participating in the study will be administered the following tests:

- ALPHA-FITNESS battery (Ruiz et al., 2011). This includes the following variables: weight, height, body composition (waist circumference, triceps skinfold, subscapular skinfold), hand strength, leg strength, agility, and aerobic endurance. Based on previous project experience, the measurement of aerobic endurance is adapted to the 6-Minute Walk Test, which better suits the characteristics of individuals with ID.
- Quality of life assessment for adolescents using the KIDSLIFE scale (Gómez et al., 2018). This instrument allows for a multidimensional assessment of the quality of life of individuals under 22 years of age with ID, based on the eight-dimensional model.
- Nutritional habits assessment. The KIDMED questionnaire (Cabrera et al., 2015). The KIDMED questionnaire has been used by researchers, nutritionists, and educators to assess adherence to the Mediterranean diet (MD) in children and adolescents with ID. An app will be created to track and record healthy food consumption, allowing comparisons and encouragement among participants.
- Physical Activity Enjoyment Scale (PACES) (Motl et al., 2002). This is a brief questionnaire that asks about the level of satisfaction when practicing physical activity. This scale is adapted and validated for use with individuals with ID.
- Technical progress in judo. Forms will be used to record the technical progress of participants in judo.

Discomforts and potential risks derived from the study:

The tests carried out do not involve any special risks. Participation is completely voluntary. Sports practice is covered by school insurance.

Expected benefits for participants:

Participation in this study does not involve any financial compensation. Each participant will receive an individual report of the results from the administered tests.

Confidential treatment of participants' personal data:

The requested data will be used exclusively by the research group for analysis. The records will be completely confidential, as each participant will be assigned a code, making it impossible to identify them. None of the researchers, except the principal investigator, will know the origin of the data obtained. All researchers involved in this study have signed a commitment to follow ethical standards and good clinical practice guidelines.

The data obtained from your participation will not be used for any purpose other than that stated in this research, and they will be stored in a data file under the responsibility of the principal investigator. These data will be kept on a password-protected computer, accessible only to the researchers involved in the project.

The study's data file will be under the responsibility of the PI (Principal Investigator), who will comply with the provisions of Organic Law 3/2018, of December 5, on the Protection of Personal Data and the guarantee of digital rights. The contact information will only be used for this study to communicate with the participants and will be destroyed once the study is completed.

Participants' rights:

The study results will be provided to all participants who wish to receive them and will be communicated via phone or email, indicating when they can collect them.

Legal guardians and participants have the right to refuse participation in any part of the study or to withdraw from the study at any time without providing any explanation.

Legal guardians and participants also have the right to ask any questions they deem relevant regarding the study's characteristics and their own participation.

Ethical procedures of the study:

The information will be provided both verbally and in writing.

The informed consent form follows the standards outlined in the Declaration of Helsinki, as well as the information specified in Organic Law 3/2018, of December 5, on the Protection of Personal Data and the guarantee of digital rights. The protocol is subject to evaluation by the Research Ethics Committee of Ramon Llull University.

We are available to answer any questions you may have.

INFORMED CONSENT

I,, of legal age, with ID number, acting on my own behalf,

DECLARE THAT as the legal guardian of:

I have received information about the project: "Effects of a judo-based sports program for adolescents with intellectual disabilities," and I have been given the information sheet attached to this consent. I have understood its meaning, my questions have been answered, and I have been informed of the actions involved. I have been informed of all aspects related to confidentiality and data protection regarding the management of personal data in compliance with Organic Law 3/2018, of December 5, on the Protection of Personal Data and the guarantee of digital rights.

My participation in the project is completely voluntary, and I have the right to withdraw at any time and revoke this consent without any negative impact on myself. In case of withdrawal, I have the right to request that my data be removed from the study's file. For all these reasons,

I GIVE MY CONSENT TO:

Participate in the project "Effects of a judo-based sports program for adolescents with intellectual disabilities."

Allow the SAFE (Health, Physical Activity, and Sports) research team and Dr. Josep Morales, as the principal investigator, to manage my personal data and disseminate the information generated by the project. My identity and privacy will be protected at all times, in accordance with the guarantees established by Organic Law 3/2018, of December 5, on the Protection of Personal Data and the guarantee of digital rights.

Allow the SAFE team to store all records made about me electronically, with the guarantees and timeframes provided by law, or in the absence of legal provisions, for as long as necessary to fulfill the project's purposes for which the data were collected.

In Barcelona, on the day of 20

Signature of the participant

Signature of the principal investigator

ASSENT FORM FOR MINORS

Project Title: "Effects of a judo-based sports program for adolescents with intellectual disabilities"

Researcher: Dr. José Morales

We are conducting a research study to learn if practicing judo is beneficial for boys and girls. A research study is a way to learn more about people. If you decide that you want to be part of this study, you will need to come and practice judo two days a week throughout the school year.

There are a few things you should know about practicing judo: you will have to wear a kimono that looks like pajamas, you will have to roll, fall, grab your partners, perform judo holds, fall on the ground, and throw your partners on the ground. All of this is done in a playful way; it is not dangerous, but you will need to learn how to fall properly to avoid getting hurt. The best part is that you will have the opportunity to play with other boys and girls.

If you do not want to participate in this research study, nothing will happen, and if one day you get tired, you can stop without any problem; you will only participate when you want to.

When we finish this study, we will write a report about what we have learned. This report will not include your name or any mention that you participated in the study.

THIS INFORMATION WILL BE PROVIDED TO THE PARTICIPANT IN A WAY THAT FACILITATES UNDERSTANDING. THE ASSENT WILL BE GIVEN IN THE PRESENCE OF PARENTS/GUARDIANS.

If you decide that you want to participate in this study, sign or mark the SMILEY FACES:

I, _____, want to be part of this research study.

(Sign your name here)

(Date)

YOU CAN INDICATE YOUR DECISION WITH THE FACES



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SOL·LICITUD DE DICTAMEN AL CER-URL

SOLICITUD DE DICTAMEN AL CER-URL

APPLICATION FORM FOR RULING OF CER-URL

El procediment per a la sol·licitud de dictamen és el següent:

- Omplir el formulari de la sol·licitud i el document annex del CER-URL
- Enviar degudament emplenat el formulari i l'annex de la sol·licitud i els documents complementaris (projecte complet, fulls d'informació, fulls de consentiment informat, etc.) en format pdf a la secretària del CER-URL, la Sra. Ruth Babington (rbabington@rectorat.url.edu).

El procedimiento para la solicitud de dictamen es el siguiente:

- Llenar el formulario de la solicitud y el documento anexo del CER-URL
- Enviar debidamente llenado el formulario i el anexo de la solicitud y los documentos complementarios (proyecto completo, hojas de información, hojas de consentimiento informado, etc.) en formato pdf a la secretaria del CER-URL, la Sra. Ruth Babington (rbabington@rectorat.url.edu).

The procedure for the application for a ruling from the CER-URL is the following:

- Fill in the application form and the annex of the CER-URL
- Send the duly completed application form and annex and any complementary documentation (complete project, information sheets, consent forms, etc.) in pdf format to the secretary of the CER-URL, Ms. Ruth Babington (rbabington@rectorat.url.edu).

1. DADES DE L'INVESTIGADOR PRINCIPAL DEL PROJECTE

1. DATOS DEL INVESTIGADOR PRINCIPAL DEL PROYECTO

1. DETAILS OF THE PRINCIPAL INVESTIGATOR OF THE PROJECT

Nom Nombre First Name	Cognom 1 Apellido 1 Last Name	Cognom 2 Apellido 2 Last Name	DNI/NIE/Passaport DNI/NIE/Pasaporte DNI/NIE/Passport
Jose	Morales	Aznar	43414000M
Telèfon - Teléfono - Telephone		Adreça electrònica - Dirección electrònica - Email address	
93 2533000		josema@blanquerna.url.edu	
Adreça postal - Dirección postal - Address			
Císter, 34 08022 Barcelona			
Departament Departamento Department	Ciències de l'activitat física i l'esport		
Centre Centro School or Faculty	FPCEE Blanquerna		
Càrrec Cargo Position	Grup de recerca Grupo de investigación Research group	IP grup de recerca IP Grupo de investigación PI Research group	
Professor titular	SAFE	Dra María Giné	

2. DADES RELATIVES AL PROJECTE

2. DATOS RELATIVOS AL PROYECTO

2. PROJECT DETAILS

Títol del projecte Título del proyecto Project title	Efectes d'un programa esportiu basat en el judo per a adolescents amb discapacitat intel·lectual. JIDP
Durada Duración Duration	4 anys
Convocatòria a la que es presenta el projecte Convocatoria a la que se presenta el proyecto Competitive call to which the project is presented	Erasmus+ Sport
Entitat Financadora Entidad financiadora Funding body	Finançament sol·licitat Financiamiento solicitado Funding requested
EACEA. Comissió europea	400.000 €

Investigador/a Principal del projecte Investigador/a Principal del projecte <i>Principal Investigator of the project</i>		Vist-i-plau del responsable de recerca del Centre Visto bueno del responsable de investigación del Centro <i>Approval by the Head of Research of the School/Faculty</i>	
Signat Signado <i>Signed by</i>	Dr. Jose Morales Aznar	Signat Signado <i>Signed by</i>	Dra. Sacra Morejón Torné

Informació bàsica de protecció de dades

Responsable del tractament: Universitat Ramon Llull Fundació.

Finalitat: avaluar els aspectes ètics del projecte.

Legitimació: compliment de missió d'interès públic.

Destinatari: membres del Comitè d'Ètica de la Recerca de la URL.

Drets de les persones interessades: es poden exercir els drets d'accés, rectificació, supressió, oposició al tractament i sol·licitud de la limitació del tractament adreçant-se a Universitat Ramon Llull Fundació.

> Trobareu informació addicional en aquest enllaç: <https://www.url.edu/proteccio-dades>

Información básica de protección de datos

Responsable del tratamiento: Universitat Ramon Llull Fundació.

Finalidad: evaluar los aspectos éticos del proyecto

Legitimación: cumplimiento de misión de interés público.

Destinatarios: miembros del Comité de Ética de la Investigación de la URL.

Derechos de las personas interesadas: se pueden ejercer los derechos de acceso, rectificación, supresión, oposición al tratamiento y solicitud de la limitación del tratamiento dirigiéndose a Universitat Ramon Llull Fundació.

> Información adicional disponible en este enlace: <https://www.url.edu/proteccio-dades>

Basic Data Protection Information

Data controller: Universitat Ramon Llull Fundació.

Purpose: evaluate the ethical aspects of the project

Legitimation: members of the Research Ethics Committee of the URL.

Recipients: the data are communicated to the institution to which the applicant belongs.

Rights of interested parties: The rights of Access, rectification, cancellation or opposition to the processing and request for the limitation of treatment can be exercised by contacting the Universitat Ramon Llull Fundació.

> Further information is available at this link: <https://www.url.edu/proteccio-dades>

ANNEX: SOL·LICITUD DE DICTAMEN AL CER-URL**ANEXO: SOLICITUD DE DICTAMEN AL CER-URL****ANNEX: APPLICATION FORM FOR RULING OF CER-URL**

Si us plau, expliquei de manera reduïda cadascun dels apartats següents:

Por favor, explique de manera reducida cada uno de los apartados siguientes:

Please explain as briefly as possible the following:

1. Antecedents del projecte de recerca.

Antecedentes del proyecto de investigación.

Background to the research project.

This is a continuation of a previous project aimed at evaluating the effects of an intervention based on participation in a sports program using judo as a tool to improve the quality of life for people with intellectual disabilities (ID).

During the 2019-2022 period, various activities were carried out that give this project a trajectory that facilitates its future application. Among others, the Erasmus+ Sport AUTJUDO project was successfully developed with the participation of five partners: Ireland, Sweden, Italy, the Netherlands, and Switzerland, based on the adaptation of a judo program aimed at children with Autism Spectrum Disorder. In this case, the intervention will focus on the application of a judo program with adolescents with ID, which simultaneously implements a strategy to increase the consumption of healthy foods in collaboration with families and in combination with sports practice in six European countries: Spain, Portugal, Italy, Greece, Ireland, and Switzerland, all associated in a consortium to apply for various national and international projects.

Judo is a combat sport with roots in martial arts, but it has a strong pedagogical tradition and enormous educational potential (Morales, Pujol, García, & Curto, 2005). Combat sports have often been excluded from the education process for young people due to certain "social taboos" that associate them with aggression and violence. If we analyze the teaching of combat sports in depth, we cannot affirm that there is violence involved—quite the opposite. Precision and control are required for success, leading to improvements in physical and mental health, as well as increased self-confidence and self-esteem (Morales et al., 2005; Weiser, Kutz, Kutz, & Weiser, 1995). Additionally, studies have shown that martial arts programs for children with Autism Spectrum Disorder (ASD) have led to reductions in stereotypical behaviors and improved social interactions with peers (Bahrami, Movahedi, Marandi, & Abedi, 2012; McKeehan, 2012).

Physical exercise and activity (PA) are among the most important factors for improving the physical and mental health of children and adolescents (Janssen & LeBlanc, 2010; Loprinzi et al., 2012). The World Health Organization guidelines recommend an average of 60 minutes per day of moderate to vigorous aerobic PA and regular muscle-strengthening activities throughout the week to gain health benefits in children and adolescents (Bull et al., 2020). However, several studies report that children and adolescents with ID are inactive and do not meet these PA guidelines (Boddy et al., 2015; Einarsson et al., 2015), compared to their typically developing peers, with children and adolescents with ID being less active and participating in less intense PA (Einarsson et al., 2015; McGarty et al., 2018).

ID is defined by significant limitations in both intellectual functioning and adaptive behavior, covering many social and everyday practical skills. This disability begins before the age of 22 (Schalock et al., 2021). Children and adolescents with ID experience many health inequalities compared to their typically developing peers, including higher rates of mental health problems, obesity, type 2 diabetes, and other health conditions that can persist into adulthood (Maiano, 2011). Initially, the severity of these health inequalities causes children and adolescents with ID to have a life expectancy up to 20 years shorter than those without ID (O'Leary et al., 2018). Although the average life expectancy is lower for people with ID than for the general population, in some cases, people with ID live as long as their peers without disabilities, confirming a trend in recent decades where life expectancy for people with ID has significantly increased, although it remains below that of the general population (Dieckmann et al., 2015). Therefore, addressing these health inequalities and identifying and developing methods to improve the health of children and adolescents with ID is crucial.

The physical and mental health benefits of PA for the population with ID are well-documented in scientific literature. Systematic reviews and meta-analyses indicate improvements in psychosocial domains (Kapsal et al., 2019) and in physical condition and health (Bouzas et al., 2019; Mirza et al., 2022a). Other studies have observed the effects of physical exercise with different configurations, varying intensity and frequency in different groups with ID (Elmahgoub et al., 2011; Oviedo et al., 2020). Additionally, there is a considerable body of scientific literature highlighting the benefits of PA and sports programs in specific groups with ID, such as the population with Autism Spectrum Disorder (ASD) and Down Syndrome (DS). Individuals with ASD who participate in physical activity programs show improvements in social skills and communication (Bremer et al., 2016; Howells et al., 2019), motor skills (Colombo-Dougovito, 2015; Crucitti et al., 2020), and health-related physical condition (Healy et

al., 2018; Sam et al., 2015). Similarly, individuals with DS who participate in PA programs show improvements in cardiorespiratory health and physical condition (Barnard et al., 2019; Pitetti et al., 2013). Research on the benefits of participation in specific sports programs for children and adolescents with ID has been ongoing, including swimming and aquatic exercise programs for children with ASD (Fragala-Pinkham et al., 2011; Pa, 2011), participation in an adapted basketball program aimed at improving physical condition and social skills (Cai et al., 2020), participation in structured PA (Arslan et al., 2020), adapted football game programs (Regaieg et al., 2020), and the effect of swimming practice on body composition in individuals with DS (Suarez-Villadat et al., 2020).

An important aspect to consider is that PA levels in children and adolescents with ID decrease with age, increasing sedentary behavior (Phillips & Holland, 2011). Most systematic reviews found a negative relationship between age and PA, suggesting that the influence of age on PA leads adolescents with ID to show lower PA levels than younger age groups. This may be due to the lower autonomy and higher parental dependence of children and adolescents with ID compared to their typically developing peers, who generally become more autonomous with age, especially when reaching adolescence (Sutherland et al., 2021). This trend continues into adulthood, as it has been found that adults with ID participate in little or no PA (Ptomey et al., 2018). Since children and adolescents with ID have a higher prevalence of health problems than their typically developing peers, increasing PA could help reduce these health inequalities (Maiano, 2011). Furthermore, as childhood PA is a predictor of adult PA, promoting active lifestyles at an early age will help promote long-term activity and health (McGarty & Melville, 2018). Therefore, there is a need to focus interventions on adolescent and young adult age groups to address this issue. Our research group has experience with interventions for children with ASD (Morales et al., 2022) and other projects with different configurations of physical exercise for older adults with DS (Oviedo et al., 2020), and the evidence collected suggests that the benefits achieved could be extrapolated to groups of adolescents and young adults.

The prevalence of obesity among children and youth with ID exceeds that observed in typically developing children (Maiano, 2011; Segal et al., 2016). Children with ID living in the same environment as typically developing children may have additional risk factors for obesity due to body composition abnormalities, motor skill deficits, barriers to physical activity, food selectivity, and medications associated with weight gain (Bandini et al., 2021). Given the high prevalence of obesity and the lack of weight-loss trials for this vulnerable population, it is necessary to develop weight-loss programs specifically designed with multi-component approaches that include diet, physical

activity (PA), and behavior modification (Boutelle et al., 2017). Although these programs have been shown to be effective in treating childhood obesity in families of typically developing children, they have rarely been adapted for youth with ID (Bandini et al., 2021).

Studies with diet and lifestyle interventions for people with ID to improve their health are scarce, mostly based on dietary modifications through the elimination of unhealthy foods, without involving families and without specifying the frequency, intensity, and duration of interventions (Mirza et al., 2022b). Most studies on diet and nutrient analysis in people with ID have shown low consumption of fruits and vegetables and high fat intake (Hoey et al., 2017; Marín & Graupera, 2011; Skrzypek et al., 2021). Most authors agree that it is necessary to encourage actions and programs that demonstrate how to include fruits and vegetables in cooking and promote their consumption between meals (Adolfsson et al., 2008). Therefore, it would be appropriate to implement projects that combine multiple strategies to improve the health of the population with ID, addressing both nutritional habits and PA strategies in collaboration with families.

On the other hand, people with ID face numerous barriers to participating in sports and PA. External barriers are extensive, including policies (lack of inclusive programs), facilities (poorly adapted), and professionals who have not been specifically trained.

2. Hipòtesis i objectius.

Hipótesis y objetivos.

Hypotheses and objectives.

Main Objective:

To improve the quality of life of adolescents with ID through a judo-based sports program.

To disseminate the results and methodology of the judo-based program to promote knowledge transfer and raise awareness in society.

Specific Objectives:

1.1. To implement a judo program for adolescents with mild to moderate intellectual disabilities (ID).

1.2. To evaluate the impact and feasibility of participation in the judo program on the quality of life of individuals with ID.

1.3. To assess the effect of the judo program on improving the physical condition of subjects with ID.

1.4. To observe the differences between the group of subjects integrated into regular judo sessions with adolescents without ID and the group attending sessions exclusively for subjects with ID.

1.5. To evaluate the effect of the judo program on the social interaction of subjects with ID.

1.6. To evaluate the application of nutritional strategies through a mobile app, in combination with families and participation in the judo sports program.

2.1. To develop training sessions for professionals, volunteers, and family members involved in the sports program aimed at individuals with ID.

2.2. To train sports technicians in the methodology used in judo instruction to consolidate the practice for adolescents with ID.

2.3. To disseminate the research results and teaching and learning methods in scientific publications and outreach publications.

2.4. To publicize the activities of the judo-based sports program through social media.

Main Hypothesis:

Based on the formulated objectives, the following hypotheses are proposed, taking into account situations where statistical significance can be obtained ($P < 0.05$): The group of adolescents with ID who participate in the judo program will show better results in physical condition indicators, nutritional habits, social interaction, and quality of life. A secondary hypothesis is that the group integrated into regular judo sessions with adolescents without ID will show better results than the group attending sessions exclusively with subjects with ID in the evaluated indicators.

3. Descripció de la mostra (especificar reclutament, mida de la mostra, característiques, etc.).

Descripción de la muestra (especificar reclutamiento, mida de la muestra, características, etc.).

Sample description (specify recruitment, sample size, features, etc.).

The study design is a simple crossover, quasi-experimental design with random groups and non-probability convenience sampling. The independent variable (group) will have three levels: a) isolated group with ID, b) inclusive group with subjects with ID plus participants without ID, and c) control group composed of subjects who do not engage in any extracurricular physical activity, coming from special education centers and schools. To comply with ethical recommendations, two intervention periods will be established so that participants who commit according to availability can participate in one intervention period, attending regular judo sessions with adolescents without disabilities, and another intervention period attending judo sessions exclusively with subjects with intellectual disabilities. The subjects without ID who will participate in the study come from the Louis Judo Club in Barcelona, where they have been continuously involved in the club and training sessions. In this way, it is ensured that all participants will enjoy the possible benefits of participating in one grouping modality or the other. Both interventions will last six months, with a rest period during the three summer months. The group that starts with one modality will switch in the following

period. Data collection and evaluations will take place at the beginning and end of each intervention period.

The sample will consist of adolescents (of both sexes) between the ages of 14 and 22 with a severity of ID ranging from mild to moderate according to the intensity of support scale for children and adolescents (SIS-C) by Verdugo et al. (2014). Participant recruitment will be carried out by contacting institutions and organizations involved in the education of people with ID, such as TEA (Autism Barcelona, Association Aprenem), Autism Federation of Catalonia, and Down Syndrome (Catalan Foundation for Down Syndrome) located in the Barcelona area, with whom previous projects have already been collaborated, and they have active projects with Ramon Llull University. Participants in the control group will come from the same special education schools as the participants in the experimental groups, provided that they do not participate in any extracurricular activities based on sports practice or physical activity. Randomly, subjects participating in the intervention will be divided into two groups, inclusion (IG) and isolated (IG). Both groups will perform the training sessions proposed in the Judo project, with the difference that the IG will work in isolation with a group of only participants with ID, while the subjects in the inclusion group will be integrated into the regular training sessions of the Louis Judo Club in Barcelona with subjects without ID. In order to include the gender perspective, we will try to recruit the same number of participants per gender to be able to compare possible differences in the results, taking into account this variable. The exclusion criteria for participation in the study were: i) a severity of ID greater than mild or moderate according to the SIS-C scale; ii) being younger than 14 or older than 22; iii) being unable to perform any of the tests; iv) being unable to perform moderate-vigorous physical activity; v) not committing to actively and regularly participating in the experimental group training sessions; and/or vi) for members of the control group, participating in any extracurricular activities based on sports practice or physical activity. All members of the sample will undergo prior medical and psychological supervision to assess possible contraindications related to exercise practice and the inclusion and exclusion criteria. These evaluations will be carried out by members of the research team, thanks to its multidisciplinary composition, which includes professionals from various disciplines (Medicine, Psychology, Sports Sciences, and Physical Education). Considering the study design, a sample size calculation was performed for a statistical power of 80%, at a significance level of 0.05, to detect a moderate effect size ($f=0.5$) for a MANOVA analysis with 3 groups (control, inclusion, isolated) and two time measurements (pre and post), assuming a correlation between repeated measures of 0.75. The result of

the calculation, carried out using the G*Power 3.1 program, is a total sample size of 42 participants (14 in each group). Considering this result, we aim for a total sample of 48 participants, to distribute them into groups of 16, anticipating possible losses.

The project's impact and feasibility will be evaluated using a qualitative methodological approach. In this regard, different domains will be analyzed: implementation will be evaluated based on the recruitment rate, retention/dropout rate, attendance rate, and the number of adverse events related to medical issues and/or disruptive behaviors. Program acceptance will be measured using an adapted and validated version of the Physical Activity Enjoyment Scale (PACES) for adolescents with ID. Satisfaction and perceptions of program development will also be reported by family members and teachers using a brief, self-developed questionnaire. Finally, a cost-effectiveness and fidelity report will be presented, analyzing the degree of execution with existing resources and adherence to the initial planning.

Information on applicable research ethics protocols, including guarantees of confidentiality of personal data and participant guarantees, is developed in section 7 of this document.

4. Metodologia del projecte.

Metodología del proyecto.

Methodology of the project.

Feu clic o toqueu aquí per escriure text.

5. Composició i experiència del grup d' investigació. Indicar fins a 5 referències bibliogràfiques relacionades amb els antecedents del treball i el mètode, preferiblement del propi equip investigador. ⁽¹⁾.

Composición y experiencia del grupo de investigación. Indicar hasta 5 referencias bibliográficas relacionadas con los antecedentes del trabajo y el método, preferiblemente del propio equipo investigador. ⁽²⁾.

Makeup and experience of the research group. Indicate up to 5 bibliographic references related to the background of the work and the method, preferably from the research team itself. ⁽²⁾.

¹ En cas de que no existeixin referències que avalin la metodologia, s'hauria d'incloure una descripció detallada del procediment experimental a seguir.

² If there are no references to support the methodology, please include a detailed description of the experimental procedure.

Here is the English translation of the provided text:

Instruments

The following are the different tests and assessments that will be conducted during the program:

Laboratory tests

1. Medical evaluation, which will include a system-specific examination.
2. Bioelectrical impedance, weight, height.
3. Chest, waist, hip, arm, wrist, thigh, and leg circumferences.
4. Estimation of cardiorespiratory fitness based on sex, age, and anthropometric measurements (Nes et al., 2011).
5. Horizontal jump assessment.
6. Handgrip strength assessment.

Field tests

1. Six-minute walk test (6MWT). A test that measures the subject's aerobic endurance by determining the maximum distance in meters that can be walked in 6 minutes (Guerra-Balic et al., 2015).

Questionnaires and Quality of Life and Physical Activity Assessments

1. **Physical Activity Enjoyment Scale (PACES)**: A short questionnaire that measures the level of enjoyment and satisfaction in different areas of physical activity through simple questions (Fernández et al., 2008).
2. **Physical Activity Readiness Questionnaire (PAR-Q)**: A tool used to detect potential health and cardiovascular issues in seemingly healthy individuals who wish to start a low, moderate, or high-intensity exercise program (Shephard, RJ, 1988).
3. **Analysis of nutritional habits through the Kidmed questionnaire** (Cabrera et al., 2015). This questionnaire has been used by researchers, nutritionists, and educators to assess adherence to the Mediterranean diet (MD) in children and adolescents with ID.
4. Forms to record participants' technical progress in judo (created for this study).

5. **Kidslife Quality of Life Scale for adolescents with ID:** An instrument that allows a multidimensional evaluation of the quality of life of individuals under 22 years old with ID, based on an eight-dimensional model: emotional well-being, physical well-being, mental well-being, personal development, interpersonal relationships, social inclusion, self-determination, and rights (Gómez et al., 2018).
6. **Gilliam Autism Rating Scale (GARS-3)** (Gilliam, 2014): An instrument used to evaluate changes in the severity of ASD behaviors. It includes 56 items describing behaviors characteristic of individuals with ASD, grouped into six subscales: repetitive behaviors (RB), social interaction (SI), social communication (SC), emotional responses (ER), cognitive style (CS), and maladaptive speech (MS).

Procedure

The adapted judo program intervention is planned to include a control group (CG) of 13-16 participants and two experimental groups of 13-16 (boys and girls) GA and 13-16 (boys and girls) GI, with two weekly sessions, each lasting one hour. The sessions will be held for a minimum of six months during the years 2025 and 2026, in a spacious and well-ventilated environment, suitable for sports activities in general and judo in particular, to ensure the participants' safety. The judo equipment required for this project will include a tatami with a minimum surface area of 100 m², made up of high-density mats (tatamis) that help prevent injuries and ensure a wide range of activities can be performed safely. Each participant will be equipped with a judogi (a traditional uniform consisting of a cotton jacket and pants and a belt that indicates the participant's level of technical skill). Two main instructors will lead each session, and at least 3-4 volunteers will be present for support tasks. The sessions will be divided into three parts according to the physiological principles of exercise: warm-up, main exercise, and cool-down. The main content of the sessions will include:

- Analytical judo techniques, movements, and judo games.
- Different types of movements and fall techniques.
- Ground control techniques and throws.
- Postural control and balance exercises.

The main methodological actions implemented in adapting the content for children with ASD focus on assigning one instructor per participant. An individualized practice pace will be applied for each participant, mainly using imitation as a learning tool and guided modeling.

Regarding the strategies developed to improve nutritional habits, two basic actions have been designed. The first will take place during the judo sessions, where after each session, participants will be asked to consume a piece of fresh fruit provided by their families. During this activity, the benefits of consuming fruits and other fresh products will be explained, and families will be encouraged to continue these habits as much as possible in their daily environment. A reminder brochure about healthy foods will be distributed, which can be placed on refrigerators as a simple and practical daily reminder. The second action will focus on the family environment, implementing an app for smartphones where all participants, caregivers, teachers, sports coaches, and family members can register. Participants will play an active role by uploading photos of the moments when they consume fruits or vegetables. A scoring system will be established based on the set goals, where each participant will be compared with the others, taking into account the number and variety of healthy products consumed. All these actions will have a gamified approach to stimulate the consumption of healthy foods, with the establishment of reminders and rankings based on activity in the app.

During the first phase of the intervention, the nutritional strategy, in combination with the family, will be developed on a closed social network (Instagram, Twitter, or similar) for the participants. This step will serve to collect needs and different forms of gamification, as during this period, the final smartphone app will be prepared, which will be used during the second phase of the intervention. The goal is for a representative from Special Olympics to be able to use the app in future programs of nutritional strategies combined with other sports they promote.

Analysis of Results

Once the data has been collected, a description of all sample variables will be made using relative and absolute frequencies, measures of dispersion, and central tendency. The Shapiro-Wilk test will be used to evaluate the normality of the data obtained. If the assumption of normality is not met, the data will be appropriately transformed. The dependent variables consist of all quantitative indicators of physical condition, motor skills, quality of life, and nutritional status. The independent variables correspond to the measurement time and group (CG, GI, and GA). Comparisons between groups will be made for the dependent variables through multivariate analysis (MANOVA), focusing on the interaction of independent variables (group and time), provided the requirements for this type of analysis are met. If the requirements for multivariate analysis are not met, linear mixed models for repeated measures will be used, as these models allow the entire sample to be analyzed even if some measurement points are lost, and they help understand

interindividual variability in longitudinal responses. All statistical analyses will be conducted using the Statistical Package for Social Sciences (SPSS) v.24 (IBM SPSS Statistics, Chicago, IL, USA), and an alpha level of 0.05 will be selected.

6. Beneficis esperats (què pot aportar a la societat aquest projecte).

Beneficios esperados (que puede aportar a la sociedad este proyecto).

Expected benefits (contributions to society).

We hope that the participants improve in social and motor aspects, reaping the general benefits of participation in a sports program and the practice of physical activity in the quality of life of the individuals.

7. Possibles efectes no desitjables o secundaris.

Posibles efectos no deseados o secundarios.

Possible undesirable or side effects.

Participation in this study does not entail financial compensation. All participants who participate in the sports program have sports insurance contracted by the Union of Sports Federations of Catalonia (UFEC). Each participant provided an individual report of the results of the six administered procedures with the results obtained.

8. Explicar si existeix algun tipus de contraprestació i/o assegurança pels participants.

Explicar si existe algún tipo de contraprestación y/o seguro por los participantes.

Indicate whether any kind of compensation and/or insurance is provided for the participants.

Participation in this study does not entail financial compensation. All participants who participate in the sports program have sports insurance contracted by the Union of Sports Federations of Catalonia (UFEC). Each participant provided an individual report of the results of the six administered procedures with the results obtained.

I quan s'escaigui, aporti la següent informació:

Y cuando ocurra, aporte la siguiente información:

And when appropriate, provide the following information:

9. Permisos o altres informes de les institucions involucrades.

Permisos u otros informes de las instituciones involucradas.

Permits or other reports from the institutions involved.

The project has been passed by the Ethics Committee of the Faculty of Psychology, Educational Sciences and Sports Blanquerna.

10. Informació sobre l'adequació de les instal·lacions i dels instruments requerits.
Información sobre la adecuación de las instalaciones y de los instrumentos requeridos.
Information about the adequacy of the installations and the equipment needed.

The room is perfectly ventilated and suitable for the practice of judo, free of objects that are still dangerous or risky for sports practice.

11. Consentiment informat i fulls d'informació als participants (adjuntar el model a emplenar).

Consentimiento informado y hojas de información a los participantes (adjuntar el modelo a llenar).

Informed consent and information sheets for the participants (attach model to filled).

Annexes

12. Com es recull el dret explícit de la persona a retirar-se de l'estudi.

Como se recoge el derecho explícito de la persona a retirarse del estudio.

How the explicit right of the person to withdraw from the study is collected.

Write informed consent

13. Autoritzacions o informes perceptius d'altres institucions col·laboradores en l'estudi.

Autorizaciones o informes perceptivos de otras Instituciones colaboradores en el estudio.

Authorizations or perceptual reports from other collaborating institutions in the study.

Annexes

14. Garanties de confidencialitat.

Garantías de confidencialidad.

Confidentiality guarantees.

During the first month of the project, a Data Management Plan (DMP) will be developed to establish how the data will be managed throughout the project and its continuation; however, it will be reviewed and modified if necessary during the development and execution of the project. The CORA DMP TOOL (adapted version based on the model created by the Digital Curation Centre) will be used, ensuring that data management complies with the FAIR principles (Findable, Accessible, Interoperable, and Reusable). The collection, processing, storage,

communication, and transfer of the data will be carried out in accordance with the provisions of the European Union General Data Protection Regulation (GDPR) and Organic Law 3/2018, of December 5, on data protection and the guarantee of digital rights. All data obtained will be analyzed and used solely for the scientific objectives of the study.

- Primary data will be collected through registration sheets and stored in a pseudonymized (coded) manner. Pseudonymization refers to the processing of personal data in such a way that it cannot be attributed to a specific individual without additional information. For this purpose, participants will be pseudonymized, and only the PIs and the field research team will have access to the identification codes. The regulations governing the processing of personal data grant participants the right to access, oppose, correct, cancel, limit, or restrict the processing of their data, or request its deletion. They may also request a copy or have it sent to a third party (right to portability). The data will be stored in csv, xlsx, or txt formats in a virtual folder of Blanquerna-Ramon Llull University (B-URL), with limited access to the researchers.
- To provide open access and give visibility to the data obtained in the project, once completed (approximately 6 months), the main blocks of the study will be deposited, stored, shared, disseminated, and preserved in the open-access data repository in which URL participates (CORA Research Data Repository), a specific repository for data from Catalan universities and CERCA centers. These will be published in open access, following FAIR principles and considering ethical and legal aspects if applicable, through datasets composed of the research data file or files, an identifier, a description of the formats used, descriptive metadata of the data, a readme file, and, if necessary, other contextual documentation. This metadata will be indexed in Google Dataset Search, DataCite Search, OpenAIRE, and Mendeley Data.

15. Conservació, destrucció o destinació del material sobrant.

Conservación, destrucción o destinación del material sobrante.

Conservation, destruction or destination of the excess material.

Not applicable