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Summary

This document represents the second version (V1.2) of the model, which is undergoing continuous refinement until its distribution in the sports and autism sectors by 2025. This model gives readers the theoretical framework of what it takes to propose and implement sports programs for autistic people in Europe: identification of the needs of autistic people, of the knowledge useful for professionals in the sports sector, etc.

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INTRODUCTION

Presentation of the document

In the autistic community and among the experts in the field, sports has been long regarded as a valuable part of everyday life of autistic people. Those who had a chance to participate in inclusive and tailored sports activities have for a long time stated its numerous benefits regarding better physical wellbeing but also improvement of quality of life in general.

The Sacree project aims to explore the scientific hypothesis suggesting the benefits of sports for autistic individuals. This model serves as a bridge between the realms of sports and autism, offering insights into the organisational development necessary to establish sports programs tailored to this community.

We are aware that it is difficult to present autism and the autism community in a single document, especially as each autistic person is a unique individual. Nevertheless, this model gives readers the theoretical framework of what it takes to propose and implement sports programs for autistic people in Europe: identification of the needs of autistic people, of the knowledge useful for professionals in the sports sector, etc.

This document represents the second version (V1.2) of the model, which is undergoing continuous refinement until its distribution in the sports and autism sectors by 2025. As the content is still in development, please note that the layout of this document is provisional and may undergo revisions in subsequent iterations.

To draft this version, the Sacree team conducted a comprehensive study of existing sports programs tailored for autistic individuals. This involved thorough review of relevant scientific literature and analysis of responses gathered through questionnaires and interviews with autistic individuals and their families regarding their experiences and perspectives on sports.

The initial version of this document (V1.1) has been distributed to several organisations and autistic individuals, along with a questionnaire designed to gather their feedback and suggestions. The responses have been carefully analysed to refine the model, leading to the development of an improved version (V1.2) presented in this document.

This feedback has also enabled us to develop this model into 2 guides:

- A guide for professionals in the sports sector,
- A guide for autistic people and their families.

This document is therefore more theoretical, while the two guides are rather ready-to-use practical tools.

Please share any recommendations or advice by contacting us at sacree.project.autism@gmail.com.



We express our deepest gratitude to all individuals who contributed to the creation of this document:

- Those who participated in our online questionnaire regarding the experiences of autistic individuals,
- Those who generously shared their insights through interviews,
- Those who dedicated their time to review Version 1.1 of our sports program tailored for autistic individuals and provided valuable feedback through a questionnaire assessing its quality.

Your support and collaboration have been invaluable in shaping this document, and we extend our warmest thanks to each and every one of you.



Model available in other languages

The version 1.2 of the Sacree model has been translated into the languages of the Sacree project partners, including English (this document), French, Croatian, Portuguese, and Italian.

<p>FR</p> <p>The model in French: click here</p>	<p>IT</p> <p>The model in Italian: click here</p>
<p>HR</p> <p>The model in Croatian: click here</p>	<p>PT</p> <p>The model in Portuguese: click here</p>

These links direct you to the 'Documents to Download' section on our website, <https://sacree.eu/>, where you can access all the translated documents.



CHAPTER 1: PROJECT OVERVIEW

1.1 Summary of the project

The Sacree program aims at improving the daily lives of autistic people by promoting the practice of sport activities. Running for 36 months, until 2025, the project is funded by the European Commission's Erasmus+ Sport Program.

Although a few recent studies have looked into the impact of sport on autistic people, they targeted local participants and used small samples that might not reflect a common reality for people on the autism spectrum across Europe. Similarly, former EU projects dedicated to supporting people with disabilities through sports activities only targeted very specific sports, disabilities in general, or physical disabilities rather than autism explicitly. Therefore, both the research on the impact of sport on autistic people and their concrete access to sport across Europe need to be improved.

Sacree targets a better inclusion of autistic people in sport activities and society in general by fostering their accessibility to physical activity that is adapted to their needs through sustainable solutions. The project will contribute to creating an inclusive ecosystem that can be replicated everywhere in Europe. It also aims to raise awareness among European sport clubs, their staff and practitioners, as well as other professionals, researchers, and involved stakeholders. By bringing together actors from the world of autism, sport, and science, the Sacree project intends to co-construct an evidence-based pedagogical model, built on a scientific comparative study and field-tests carried out in different environments and countries.

To sum up, the main aim of the Sacree project is to provide a sports program accessible to autistic people in order to:

- Contribute to the recognition of sport as a tool for the integration and inclusion of people on the autism spectrum,
- Open new horizons for stakeholders and decision-makers in the European Union (EU) for future actions to promote a more inclusive and diverse society.

To meet these objectives partners have created a wide and innovative network, with 3 core characteristics: transnational, transdisciplinary, and cross-sectorial.

1. **Transnational:** Structures of 5 European Union countries (Belgium, France, Italy, Portugal, and Croatia) are cooperating, with different contexts regarding the inclusion of people with disabilities,
2. **Transdisciplinary:** Sacree project addresses topics in sports, autism, social sciences and health sciences,
3. **Cross-sectorial:** Sacree groups one French National Sport Federation (FSASPTT), one international association located in Belgium (Autism-Europe), one historical Italian football club (SS Romulea SSD arl), the University of Franche Comté (The laboratory C3S



of the UFC), one union of Croatian associations for autism (CUAA), and one Portuguese association (Inovar Autismo).

This consortium is dedicated to the exchange of good practices, analyzing the success factors and shortcomings of different field tests, and understanding of how target groups benefit from the results to increase the impact and transferability of these.

1.2 Target groups of the project

1.2.1 Associations, structures, organisations and people who work there (trainers, coaches...)

The Sacree project primarily targets associations, institutions, or organisations intending to establish sports programs accessible to autistic individuals, or those already engaged in such initiatives but seeking improvement or expansion. Its overarching goal is to disseminate an accessible sports model for autistic individuals to all stakeholders interested in promoting sports activities within this community. This model will provide:

- Information on the effects of sports on autistic individuals,
- Basic up-to-date knowledge on autism and its key aspects,
- Organisational strategies for developing accessible sports programs across various facilities,
- Guidance on structuring the environment,
- Recommendations for adapting session content,
- Strategies for providing personalised support and accommodation for autistic athletes in sports activities and environments.

This model doesn't solely focus on involving autistic athletes in sports programs, but also emphasises making these programs accessible to them. The goal is to create an environment where both neurotypical and autistic athletes can engage in sports together.

We particularly invite organisations to consult our [guide for professionals in the sports sector](#) (available on our website).

1.2.2 Autistic people

The Sacree project aims to improve the lives of autistic individuals by promoting tailored sports activities. It's inclusive, catering to individuals of all ages and support needs, whether they currently engage in sports or not. Here's how the project benefits them:

1. Autistic individuals benefit from a sports program designed to meet their needs. By supporting the implementation of accessible sports activities, the Sacree project aims to increase the availability of such programs, providing more options for autistic individuals to participate in sports across the EU.



2. Implementation of such programs allows autistic individuals to experience the positive impacts of sports firsthand. Through scientific research, the project explores how sports can enhance cognitive, social, and physical aspects, encouraging autistic individuals to engage in sports and helping them choose suitable activities.
3. This project serves as an educational platform, raising awareness about the intersection of sports and autism. By shining a light on this topic, the initiative aims to increase visibility for autistic individuals and inspire future initiatives that support their needs.

We particularly invite autistic people and their families to consult our [guide](#) for them (available on our website).

1.2.3 Families and relatives of autistic people

Improving the quality of life of autistic individuals not only has positive effects on their families and relatives but also aims to support families in understanding and meeting the specific needs of their children regarding sports. This project strives to help families overcome fears, find appropriate sports programs, and access necessary support. By participating in accessible sports activities alongside their autistic loved ones, families gain firsthand experience and knowledge that can alleviate concerns and build confidence in supporting their children's participation in sports. This inclusive approach fosters stronger family bonds, promotes well-being, and encourages community engagement, ultimately creating a supportive environment where all individuals can thrive together.

1.2.4 Physicians, autism professionals

Given the scarcity of research on the effects of sports on autistic individuals, this model offers invaluable insights, guidance, and examples of best practices to professionals who may interact with autistic individuals, such as physicians, educators, and therapists. Indeed, some tips can be used or adapted in areas other than sport. Equipping these professionals with knowledge and practical advice enables them to better support autistic individuals in accessing and benefiting from sports activities.

Moreover, the influence of people surrounding autistic individuals is significant in their decision to engage in sports activities. By providing information about the positive impacts of sports, this model may inspire more people to encourage autistic individuals to participate in sports. This collective effort to promote the benefits of sports for autistic individuals can lead to increased participation and enhanced well-being within the autistic community.

1.2.5 European, national or local authorities

The Sacree project provides authorities with a valuable asset in their efforts to expand sports programs for autistic individuals across municipalities, cities, regions, or countries. It equips them with a comprehensive toolkit for crafting and executing new initiatives within their jurisdiction. Through the utilisation of this program, authorities can advance inclusivity and broaden access to sports programs for autistic individuals, ultimately nurturing greater engagement and well-being within their communities.



1.2.6 All people interested by the theme Sport & Autism

This project invites all individuals interested in understanding the benefits of sports for autistic individuals and improving their access to sports programs. By fostering inclusivity and providing accurate information, it aims to break down stereotypes and promote acceptance. Additionally, it advocates for the creation of more inclusive sports environments, facilitates collaboration among stakeholders, and raises awareness about the positive impact of sports on autistic individuals' quality of life.

1.3 Presentation of the partners

ASPTT Fédération Omnisports (FSASPTT)



The ASPTT Fédération Omnisports (FSASPTT) was created in 1898 and is now one of the main multi-sport federations in France. Its 240 multi-sport clubs throughout France propose 200 sports and cultural activities to 200 000 members. Recognised by the Ministry of Sports and the CNOSE (French National Olympic and Sports Committee) the ASPTT is an active member of the sporting world. Sports for all is the main goal of the federation. The FSASPTT sports offer is built on the principle of physical literacy, it aims to offer activities to all audiences, regardless of age, physical abilities, and condition. With this objective, the federation drives actions that facilitate sports participation by making sports more accessible to all, including minorities, people with disabilities, or destitute people (people living in the Priority City Districts, people with disabilities, women, etc.). Finally, since 2016, ASPTT Fédération Omnisports (FSASPTT) has been running a sports project for the inclusion of autistic children based on the "1 for 1" approach: an autistic child practices in a group of neurotypical children with the support of an educator specialising in Adapted Physical Activity (APA).

Website: <https://asptt.com/>

Autism-Europe



Autism-Europe is an international association created in 1983 whose main objective is to advance the rights of autistic people and their families and to help them improve their quality of life. It ensures effective liaison among almost 90 member autism organisations from 40 European countries (including 26 Member States of the EU), governments and European and international institutions. The association plays a key role in raising public awareness, and in influencing the European decision-makers on all issues relating to the rights of autistic people. Self-advocates and parents play a central role in the organisation to ensure that their views and interests are adequately reflected in our work. Autism-Europe is recognised by the European institutions as the voice of autistic people and their families in Europe. To maximise our impact on the European Union's policies, Autism-Europe also works in strategic coalitions with organisations that share the same concerns and goals.



Website: <https://www.autismeurope.org/>

Laboratory Culture, Sport, Health and Society (C3S, University of Bourgogne-Franche Comté)



The Laboratory Culture, Sport, Health and Society (C3S) is a research unit (label EA4660) that is a department of the university of Bourgogne-Franche-Comte, in Besançon, east of France. The team brings together researchers, including 20 Professors and Associate professors, as well as about 30 doctoral multidisciplinary students (history, sociology, psychology, physiology or neuroscience) around a common objective: to study physical activity and sport. More particularly, scientists dedicate their research on the effects of several types of sports activities and training modalities on psychomotor and physiological factors, sociological and psychological behaviours. Research is not only focused on high-level athletes, but also on healthy and pathological populations, by promoting physical activity as a therapeutic tool.

Website: <http://laboratoire-c3s.fr/>

Croatian union of associations for autism (CUAA - SUZAH in Croatian)



The Croatian Union of Associations for Autism (CUAA) is a non-governmental organisation that unites 14 member organisations spread throughout Croatia, all dedicated to the shared goal of enhancing the lives of autistic individuals and their families. The organisation's primary activities encompass the provision of information, counselling, education, support, as well as advocacy for the needs of children, young people, and adults on the autism spectrum. Their overarching goal is to promote the well-being and quality of life of autistic individuals while actively encouraging the establishment of a comprehensive network of services and support systems for autistic individuals throughout Croatia.

Website: <https://www.autizam-suzah.hr/>

Inovar Autismo

inovarautismo.

Inovar Autismo is an association for Citizenship and Inclusion formally founded in 2016 and has the status of IPSS and NGPD. Its motto is “A society for everyone”. Inovar Autismo defends the rights of autistic people, striving to empower society to embrace difference as something “normal”. Therefore, in their interventions, the focus is not on the “person's problem”, thus allowing the stigma towards disability not to be reinforced. To promote the full participation of autistic people in society, the association refuses to implement responses only aimed at people with disabilities, favouring the preparation of contexts for the inclusion of all people, defending the maxim that it is not people who must adapt to contexts, but that contexts must be “rehabilitated” to include all human diversity, regardless of the level of functionality of each one.



Website: <https://www.inovarautismo.pt/>

SS Romulea



SS Romulea is a historic Italian football club located in Rome and founded in 1922 for all youth categories (500 members from 5 to 19 years old, male and female), accompanying them into professional football, which through the Romulea Autistic Football Club promotes football also among young people and adults on the autism spectrum in an inclusive way with a mixed team composed of players on the autism spectrum and other players who also have support functions: volunteer educators, parents and friends.

Website: <https://autisticfootball.club>

1.4 Methodology and phases of the project

1.4.1 Steps of the project

This section outlines the methodology employed by Sacree partners to develop a model for sports programs tailored to autistic individuals. Spanning three years, the process is divided into five key steps.

Phase n°1: Research

This phase is dedicated to collecting data from the targeted countries involved and abroad. During this initial period of our project, we focused on:

1. Conducting an extensive review of the scientific literature to understand the current state of research,
2. Engaging in widespread investigations to gather input from the future beneficiaries of the project, including the autistic population and their relatives, to align closely with their expectations regarding sports,
3. Employing a qualitative approach involving a targeted panel of representative actors from the autism and sports communities,
4. Implementing a scientific method based on a cross-over and multicentric protocol to test and validate our approach,
5. Disseminating the findings and conclusions of these studies widely.

From this stage, you can already access the "[Analysis of existing sport programs](#)" in the section [Document to download](#) on our website: <https://sacree.eu/>.

Additionally, you can explore our "[Guide to choose the appropriate activity](#)" on the website or in the annex of this document.

Soon, we will release an analysis of the results from our survey and interviews on the website.



Furthermore, a literature review on the effects of physical activity and sports on autism has been completed and submitted to a scientific journal for publication review.

Phase n°2: Refinement and development of the model concept and design

Throughout this phase, we diligently refined and tested the structure of the model through collaborative discussions and feedback from stakeholders. Drawing upon the collective expertise and insights gained during the research phase, we created the initial version of the model.

This initial version has been disseminated to various stakeholders, including sports clubs, autism associations, coaches, autistic individuals, families, relatives, and professionals. Concurrently, we conducted a comprehensive survey to assess the quality and effectiveness of the model, gathering valuable feedback from different stakeholders.

As phase two concludes, we have developed an improved Version 1.2 of the model, informed by the insights gained and feedback received.

Phase n°3: Testing the model

Phase 3 focuses on conducting field testing and demonstration activities in France, Italy, Portugal, and Croatia. These activities will involve target groups consisting of 110 autistic individuals across 10 different structures to assess the effects of sports on autistic people. By engaging with local actors and target groups, this phase aims to implement the new model and study its impact on the ground. Through collaborative efforts, we will explore how to achieve optimal results and maximise the benefits of sports for autistic individuals.

Phase n°4: Evaluation of the model

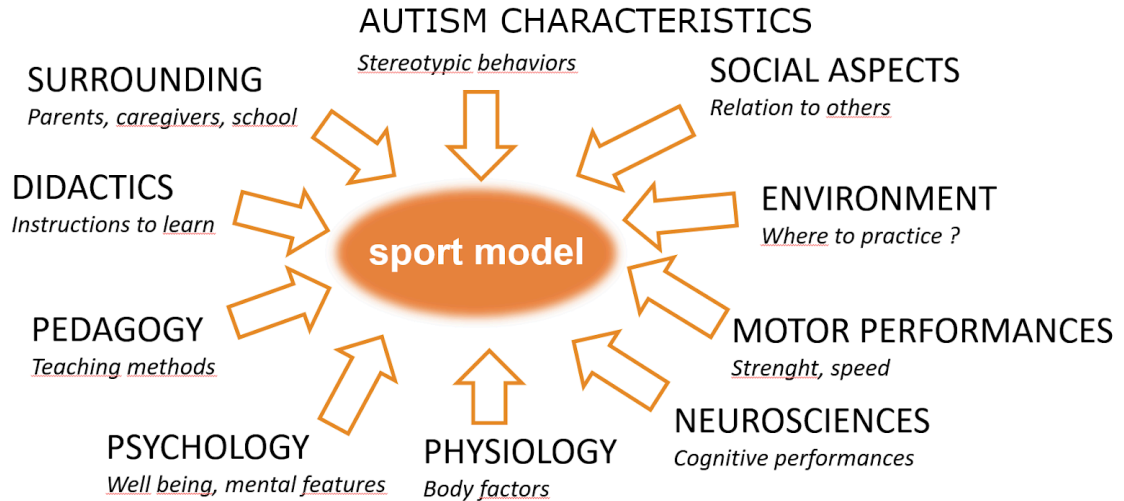
Following the completion of tests and the analysis of initial findings, phase 4 involves reviewing the model in light of recommendations and conclusions from the evaluation. It will be adapted accordingly to prepare for replication on a European scale. To achieve this, the model will be transformed into two guides: one for autistic individuals and families, and another for sports structures and professionals. These guides will be translated into five languages (Croatian, English, French, Italian, Portuguese). We will also develop an e-learning tool.

Phase 5: Dissemination of the model across the European Union

Upon completion of the project and finalisation of the Sacree program, we will embark on an extensive dissemination campaign throughout the European Union. This campaign will target associations, clubs, organisations, local, regional, national, and European authorities, stakeholders, professionals, and other relevant parties. Our goal is to ensure widespread awareness and adoption of the program across the EU, thereby maximising its impact and benefiting autistic individuals and their communities throughout the region.

1.4.2 Factors including in the model currently being developed

The proposed model will develop a deep comprehension of the relation between Sport and Autism, by including the following factors:



Autism characteristics : In literature some articles try to study the influence of sport practice on stereotyped behaviour and social communication, although till now they still have a study design of very low quality.

Surrounding: Sport activity can also depend on and act on the people surrounding an autistic person, depending on the place (home: parents; school: classmates, teacher; etc.). As well, the global atmosphere created in all the environments in which people evolve may have a huge influence on the effect of a sport activity.

Didactics: These factors refer to the form of the instructions given and the material used (content) to teach any sport activity. For instance, the use of pictures to explain how to perform a movement or an activity has been widely recommended with autistic persons.

Pedagogy: This term refers to the method employed by the coach to teach the sport activity, during the session.

Psychology: The domain of psychology as we use it here refers to the factors that do not rely directly on the motor or cognitive performance but on the well-being of the practitioners. This includes stress, anxiety levels, but also factors like motivation and pleasure of practice.

Physiology: The factors investigated in this domain rely on body characteristics that can be affected by sport practice, beginning by simple and global indexes such as the weight to more accurate indexes of composition (fat mass, hydration, etc) or functioning (heart rate, etc).



Neurosciences: This term includes what relates to cognitive functions such as attention, memory (short-term and long-term) or mental flexibility. These functions are usually tested by specific and standardised tests out of the field (computer-based for example).

Motor performances: These types of factors are directly related to physical performances that can be quantified on the field, whether it is with simple material (for example: chronometer for speed) or sophisticated ones (speed optometric cells). These performances can include a variety of physical qualities: speed, strength, coordination, etc.

Environment: This relates to the characteristics of the location of the sport activity: indoor, outdoor, in nature, in urban places, etc.

Social aspects: One of the core traits of autism is a difference in the communication skills (see the double empathy problem in paragraph 4.1.5). Sport activity, whether it is collective or individual, may have a significant impact on these skills.



CHAPTER 2: AUTISM AND SPORTS IN EU

2.1 Definition of sport and autism

2.1.1 Autism

Autism is a condition of human neurodiversity, during life autistic people experience one or more forms of disability because of the social context. Autistic characteristics are usually displayed from early childhood. Because autism is a spectrum, autistic people will have a wide variety of support needs in different areas (such as communication, executive functions, social interaction, sensory processing and perception, etc.) and some people may also have other disabilities or conditions (such as an intellectual disability, motor difficulties, epilepsy, etc.). Currently, the autism prevalence rate is estimated to be around 1-2%, meaning that over 4,5 to 9 million Europeans are autistic although many adults, women, girls and certain minorities remain underdiagnosed due to certain barriers and biases in the diagnostic process.

To find out more about autism, go to chapter 4 of this guide.

2.1.2 Sport

The World Health Organization (WHO) defines physical activity as any bodily movement produced by skeletal muscles that requires the expenditure of energy, encompassing activities such as active travel, household chores, and sports.

Sport, therefore, falls under the umbrella of physical activity, but not all physical activity constitutes sport. To illustrate, physical activity can range from walking, doing household tasks, or climbing stairs, while sports may include activities like tennis, football, rugby, climbing, dancing, or gymnastics.

2.2 Inventory of the current situation

2.2.1 Context of autism in EU

The prevalence of autism has increased in the past decades as diagnostic tools have improved.

Although, these studies are still relatively recent, given the late recognition of this condition and varying levels of awareness. Prevalence is of course linked to diagnostic abilities, which have been improved recently thanks to:

- Changes in diagnostic criteria: Updates to the diagnostic criteria for autism have contributed to more accurate identification and diagnosis of individuals on the autism spectrum,
- Earlier diagnosis: Improved understanding of early signs and symptoms has led to earlier diagnosis of autism, allowing for timely intervention and support,



- Demographic and geographic variables: Prevalence rates vary across countries and demographic groups. Factors such as access to healthcare, socioeconomic status, and cultural beliefs can impact the rates of diagnosis, with poorer countries and families often facing barriers to accessing diagnostic services.
- Increased awareness: Greater awareness of autism among health professionals, parents, and the general public has led to more individuals seeking evaluations and diagnoses.

In the European Union, the prevalence of autism in children and adults varies from one Member State to another, but remains in the range of 1% to 2%, that is to say between 4,5 to 9 million European citizens. A higher proportion of men are observed.

Today, support of autistic people in their daily lives is subject to many different practices, levels of consideration and adaptation from one Member State to another. Moreover, most actions implemented for the inclusion of autistic people are developed at a local scale, preventing the development of models and processes that could contribute to define and test common solutions that could be widely adopted. This situation is similar in each country of the partners of the Sacree project (Belgium, Croatia, France, Italy and Portugal).

2.2.2 Autistic people as sport practitioners in UE

Compared to the general population, autistic individuals across various age groups face significantly lower rates of inclusion in sports and physical activities (Potvin et al., 2013; Healy et al., 2017; Dreyer Gillette et al., 2015; McCoy et al., 2020; Pan et al., 2015; Ryan et al., 2018; Tyler et al., 2014; Memari et al., 2013). A 2020 study conducted by McCoy et al. found that autistic youth were 62% less likely to engage in regular physical activity and 81% less likely to participate in organised sports in the past year (McCoy et al., 2020). Even those who show interest in sports and physical activity, more often do it in their home and often alone (Potvin et al., 2013).

A cause for particular concern is the discovery of elevated rates of obesity and reduced levels of physical fitness among autistic youth (Srinivasan et al., 2014; Tyler et al., 2014; Healy et al., 2016; Dreyer Gillette et al., 2015; Pan et al., 2015). In a study encompassing a national sample of U.S. youth, it was revealed that autistic adolescents were 41% more likely to be overweight and 84% more likely to be obese when compared to their non-autistic peers (McCoy et al., 2020).

Obesity in autistic individuals can stem from several factors, primarily low physical activity levels, inadequate diet, metabolic diversity influenced by medication, and limited awareness regarding the importance of healthy eating and exercise. This condition is often attributed to the balance between energy intake and expenditure, with medications, metabolic differences, and selective eating habits as contributing factors characteristic of autism (Pan et al., 2015).

More recent studies show that autism itself is not directly related to obesity, if associated conditions (e.g., intellectual disabilities, eating disorders) and taking medications are excluded (Corvey et al., 2016). However, autistic adolescents often exhibit unique dietary selectivity, consuming more sugary drinks and snacks while having a reduced intake of fruits and vegetables compared to their peers (Evans et al., 2012). This selective dietary behaviour might contribute to an elevated risk of malnutrition, overweight, and obesity (McCoy et al., 2020). Furthermore, the



use of certain medications may also contribute to higher rates of unhealthy weight among autistic individuals (McCoy et al., 2020).

To complete, a number of other barriers to the inclusion of autistic individuals in sports have been identified.

Barriers faced by autistic individuals:

- Differences in communication and social interactions: Autistic individuals may show differences in communication and social interactions during sports, which can lead to fewer positive experiences (Ryan et al., 2018; Ayvazoglu et al., 2015). Difficulty interpreting and responding to various forms of communication from teammates, such as hand gestures, verbal cues, and emotional expressions like disappointment or celebration, may also present challenges (Menear & Neumeier, 2015).

- Impact on self-esteem: The lack of positive social experiences in sports can impact self-esteem, potentially resulting in frustration and disengagement (Ryan et al., 2018; Mamari et al., 2012; Boucher et al., 2022; Arnell et al., 2018).

- Lack of social relationships: Without friends or partners to engage in sports and exercise, autistic individuals may experience limitations in participating in physical activities (Obrusnikova and Cavalier, 2011; Stanish et al., 2015).

- Preference and enjoyment: While some autistic individuals may enjoy sports and exercise, others may not find them as enjoyable, impacting their participation (McCoy et al., 2020; Boucher et al., 2022).

- Sedentary behaviour and screen time: Autistic young people tend to spend more time engaged in sedentary activities, particularly screen time, compared to their peers (Memari et al., 2013; Must et al., 2015; McCoy et al., 2020; Boucher et al., 2022). A significant percentage of autistic youth consider a preference for screen-based activities as a major obstacle to engaging in physical activity (Obrusnikova and Cavalier, 2011; Healy et al., 2016).

- Challenges with age and complexity: As children grow older, they may encounter challenges in coping with the complexity and competitiveness of sports, affecting their participation (Memari et al., 2012; McCoy et al., 2020; Mamari et al., 2012; Nicholson et al., 2011; Arnell et al., 2018).

-They might also experience difficulties in keeping up with the pace of the game and adapting to shifting player roles, for instance, transitioning from offensive to defensive roles (Menear & Neumeier, 2015).

-Autistic individuals encounter distress behaviours, coping behaviours, self-harming behaviours or aggressive behaviours that hinder their involvement in sports (Potvin et al., 2013; Ayvazoglu et al., 2015; Boucher et al., 2022; Must et al., 2015).



-Fear of injury and difficulties in understanding game strategies and rules, and acquiring necessary skills can impede autistic children's participation in sports (Stanish et al., 2015; Duquette et al., 2016; Boucher et al., 2022).

- Motor differences: Motor challenges in coordination, balance, and muscle strength may create barriers to engaging in physical activities and team sports (McCoy et al., 2020; Mamari et al., 2012; Doquette et al., 2016; Must et al., 2015).

- Sensory processing and perception: Sensory processing and perception differences can be barriers to involvement in some sports (Marco et al., 2011; Cheung & Lau, 2020; Robertson & Baron-Cohen, 2017).

Environmental barriers:

- Inadequacy of resources and support: The lack of sports programs, coaches, and support from family and friends can hinder participation (Boucher et al., 2022).

- Social barriers: Negative attitudes and reactions from coaches, peers, and parents may lead to mockery and isolation (Duquette et al., 2016; Ayvazoglu et al., 2015).

- Insufficient coach education: Limited education among coaches about autism may affect their ability to effectively include autistic individuals (Duquette et al., 2016).

- Financial and time burdens placed on parents can be obstacles to participation (Ayvazoglu et al., 2015; Obrusnikova and Cavalier, 2011).

- Barriers related to transportation and mobility can impede access to sports and physical activities (Obrusnikova and Cavalier, 2011).

2.2.3 Lack of scientific research in this field

The scientific literature offers a lot of studies on the "Autism spectrum Disorder", 50 000 publications, but the number of publications is only 411 if we search "Sport + Autism Spectrum Disorder" (state of the research at the 01/10/2022). For our project, the research question which interests us is on the effect of physical activity/ sport on autistic people, and for this subject, we go from 411 to 75 study.

Finally, the studied population is mostly children from 3 to 12 years old, who represent 82% of studies. The adolescents from 13 to 20 years old concern 13% of studies, and the adults only 5% of the studies. So, this project aims to help fill the gap in scientific research on this subject.



CHAPTER 3: EMPOWERING AUTISTIC INDIVIDUALS THROUGH SPORTS

3.1 Beneficial effects of sport for autistic people

Sport and physical activity offer lifelong preventive and therapeutic benefits for all individuals, including autistic people.

For chronic diseases, sport and physical activity decreased relative risk by:

- 29-41% for premature mortality (ANSES, 2016; INSERM, 2018),
- 20-30% for Type 2 Diabetes in targeted populations (Gill and Cooper, 2008),
- 25% for colon cancer (Wollin, 2009) and breast cancer (INSERM, 2018),
- 45% for Alzheimer's disease and 18% for Parkinson's disease (Hamer and Chida, 2009).

Sports also play a role in preventing complications, reducing relapses, and managing decline:

- In coronary diseases, the relative risk for death decreases by 16% (e.g., from 60 minutes/day of physical activity, Loprinzi and Addoh, 2016),
- For cancer, physical activity improves treatment outcomes and fatigue tolerance, and reduces the relative risk of relapses (e.g., by 20% with 2 hours/week of physical activity, INSERM, 2018),
- In mental health, the relative risk of depression relapse decreases by 51% (Babyak et al., 2000),
- For neurodegenerative diseases, physical activity slows sensorimotor and cognitive declines, optimising quality of life (Mahalakshmi et al., 2020).

The findings indicate that engaging in sports can provide autistic individuals a range of physical, psychological, and social advantages. Physically, sports promote motor skill development, coordination, and overall physical fitness, which can enhance the individuals' overall well-being. Interestingly, there is no full contra-indication for any activity, although some require a specific preparation. Each could provide benefits in a specific area. While we wait for this part to be finalised, take a look at our initial conclusions.

Studies have identified a number of benefits of sport and physical activity for autistic people, including improvement in, for instance:

- Social skills (Alexander et al., 2011), but it is only a single-subject case study,
- Motor skills (Huseyin, 2019),
- Quality of sleep (Wachob and Lorenzi, 2015),
- Fitness (Pierantozzi et al., 2022),
- Community involvement (Kunzi, 2015).



Participating in sports not only develops physical abilities but also fosters crucial life skills essential in everyday living. Activities involved in self-care, such as dressing, tying shoelaces, and maintaining personal hygiene, can be generalised from sports, thereby positively impacting their independence and overall quality of life (Huseyin, 2019).

Additionally, engagement in sports serves as a means to counter sedentary habits, reducing the risk of chronic health issues and mitigating the side effects of medications. This active involvement aids in managing prevalent conditions like anxiety, depression, and obesity often experienced by autistic individuals (Kunzi, 2015).

To have more information, we invite you to wait for the publication of a narrative review on the effect of sport on autistic people, written by the University of Franche Comté, one of the partners of the Sacree project. The link to the article will be included in the final version of this document.

3.2 Research: impact of sports on autistic individuals

During the Sacree project, we are going to evaluate the progress of the autistic persons using the tests defined to measure the impacts of sport on autistic people. We are going to test the:

- Physical performances,
- Functional skills,
- Fine motor skills,
- Manual dexterity,
- Cognitive performances.

3.2.1 How? The proposed battery of test

Please note that the tests presented reflect the maximum number of tests individuals could potentially complete. Each test within this battery is flexible and can be adapted or omitted if participants encounter difficulties. Additionally, the level of support needed may vary among participants, which could affect the feasibility of certain tests. We strongly advise conducting thorough familiarisation sessions before each test and distributing the testing process across multiple days.

1) Hand-grip :

The goal is to measure the maximum grip strength.

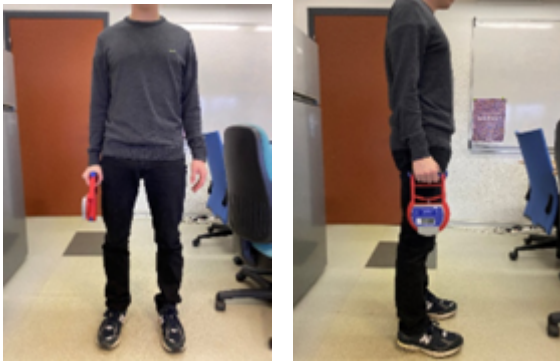
1. Press the « on » button of the handgrip,
2. Stand with arms by your sides,
3. Exert as much pressure as possible for 3 seconds,
4. Repeat the same test with the other hand (weaker hand),
5. You can perform this exercise up to 3 times.

It is very important to encourage the subjects, for example, "courage is a very brief effort".



Images of the test below:

Standing position with arms by your sides :



Exerting maximum force on the handgrip :



To perform this test, a handgrip ergometer is necessary. The value of the force exerted is given directly on the screen of the device.

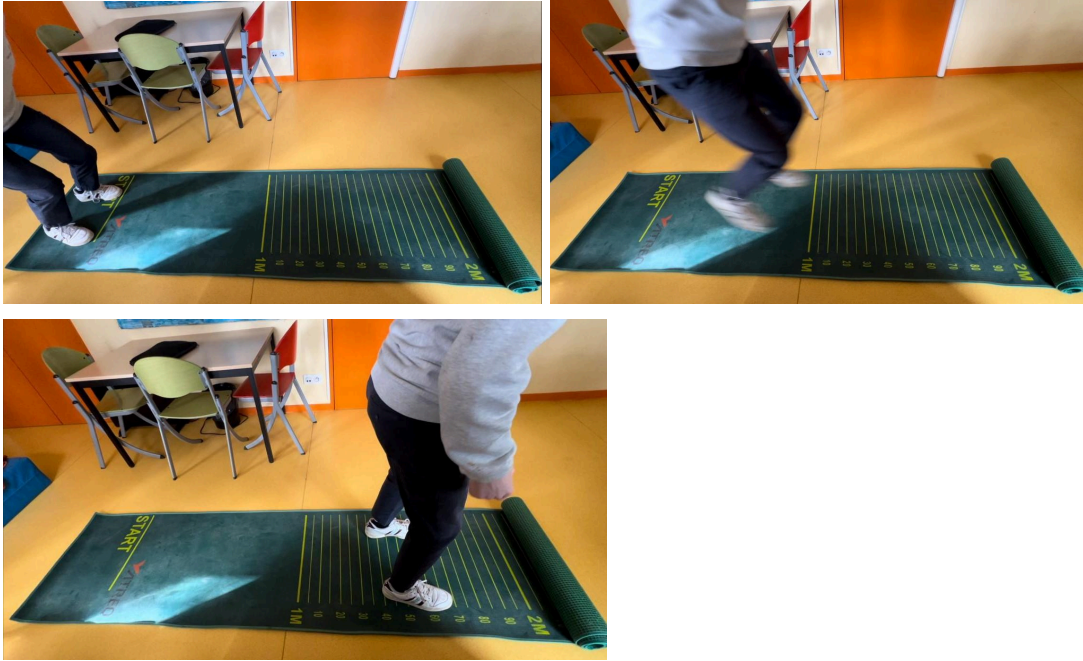
2) Horizontal Jump Test ('Standing broad jump'):

This test aims to measure leg strength by attempting to jump as far as possible, similar to the long jump.

Here's how to do it:

1. Stand with your feet together,
2. Try to jump as far as possible, not necessarily the highest,
3. To succeed, use your arms as much as possible, and bend your legs before jumping,
4. Mark the distance you reach,
5. Perform the test for 3 attempts,
6. It is very important to encourage the subjects, for example, "only 2 jumps left" or "go for the final jump"

The equipment needed is a measuring mat or a metre.



3) Half-Cooper Test

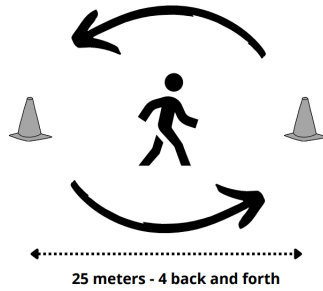
This test aims to assess your endurance by walking or running for 6 minutes, performing round trips over a distance of 30 to 100 metres, depending on the available space.

Here's how to do it:

1. Place cones or markers every 10 metres,
2. Start at the beginning of the course,
3. Walk or run as far as possible for 6 minutes,
4. Perform round trips once you reach the end and/or beginning of the course,
5. Maintain the activity for 6 minutes without stopping if possible,
6. At the end of the 6 minutes, stop to measure the distance covered,
7. Receive encouragement during the test, for example, "come on, you're halfway there!" or "you're almost done, just one more minute to go".

The necessary equipment for this activity includes cones or markers, a stopwatch, and a measuring tape to measure the distance.

Variant: The 200 metres walk/run test is also available, of which duration is on average half of the 6 min test.



4) **Fitts Task – Speed-accuracy trade-off:**

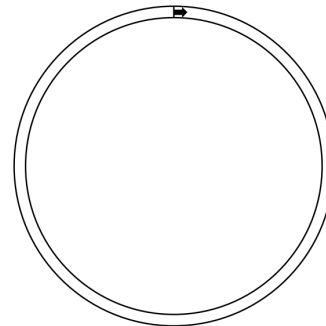
The objective of this test is to assess your speed and precision of movement, varying difficulty with different circle sizes and distances.

1. Take the standardised A4 sheet provided by the team,
2. Participants have to hold a pen,
3. Your goal is to quickly draw a circle from the starting point to this point again, following the path without touching the borders, as fast as possible,
4. Repeat this for each circle size, noting the time taken for each set of movements,
5. Use a stopwatch to measure the time taken for each trial,
6. Ensure accurate touch on each circle. To perform this test, you only need an A4 sheet (provided) and a stopwatch,
7. Receive encouragement during the test, for example, "It's very good, you have hit multiple targets" or "you are very precise".

ID 1



ID 4



5) **Box and Block Test**

The objective of this test is to measure your ability to use a single hand.

Here's how to do it:

1. In a box with objects inside (usually small cubes), move them one by one from one side to the other of the box,
2. Perform the exercise with your dominant hand,
3. Use the dominant hand to move the blocks from one side of the box to the other within a time limit of 60 seconds,
4. Begin timing as soon as the subject touches the first block,
5. Repeat the same exercise with the other hand,
6. Note the time it takes you to complete the test,



7. It is very important to encourage the subjects, for example, "well done, keep it up! You're halfway through the time" or "you've understood the instructions very well"

To perform this test, you will need a 'Box and Block' box and a stopwatch.

6) **Balance Test:**

Test objective : Evaluate your balance in three different positions.

1. Maintain balance for 10 seconds in the following positions:
 - a. Feet together
 - b. Feet in semi-tandem (one foot slightly in front of the other)
 - c. Feet in tandem (one foot in front of the other)
2. Receive encouragement during the test, for example, "you hold your balance very well!" or "come on, it's already been 5 seconds that you've held this position"

Simply use a stopwatch to measure the time in each position.



7) **Trail Making Test (TMT):**

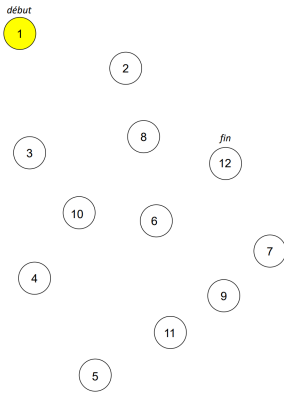
The objective is to connect the numbers as quickly as possible.

1. Use a pencil or pen to connect the numbers from 1 to 25 in ascending order on sheet of paper (provided by the team),
2. If you make a mistake, correct it and continue,
3. The time taken to complete the task is recorded,
4. Receive encouragement during the test, for example, "that's excellent, you've already found 20 numbers" or "come on, courage! You've just surpassed the halfway point".

For this test, you need sheets of paper and a stopwatch.



TRAIL MAKING TEST - A



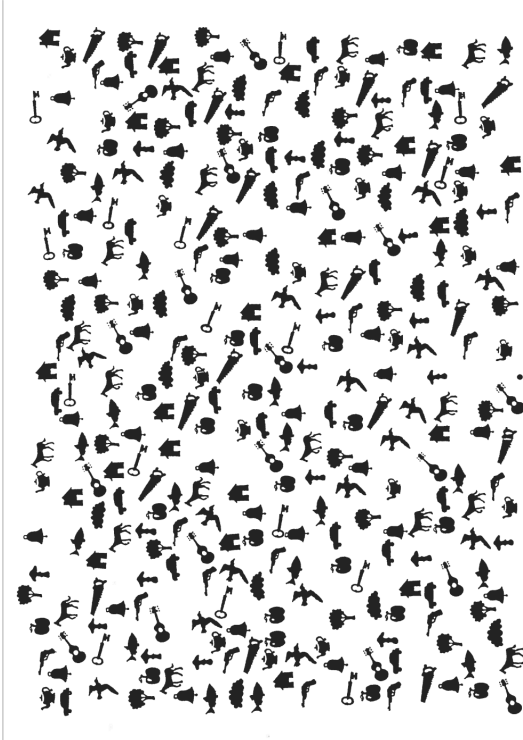
8) Bell Test

The objective of this test is to assess how well you can concentrate on a visual task.

Here's how to do it:

1. Take a sheet with many different drawings (provided),
2. Use a pencil or pen to circle only the bells among the drawings,
3. Try to do it as quickly as possible,
4. The time it takes you to finish is recorded,
5. It is very important to encourage the subjects, for example, "that's great, you've found a lot of bells" or "yes, you're almost done with the exercise".

For this test, you will need sheets with drawings (provided by the team) and a stopwatch.





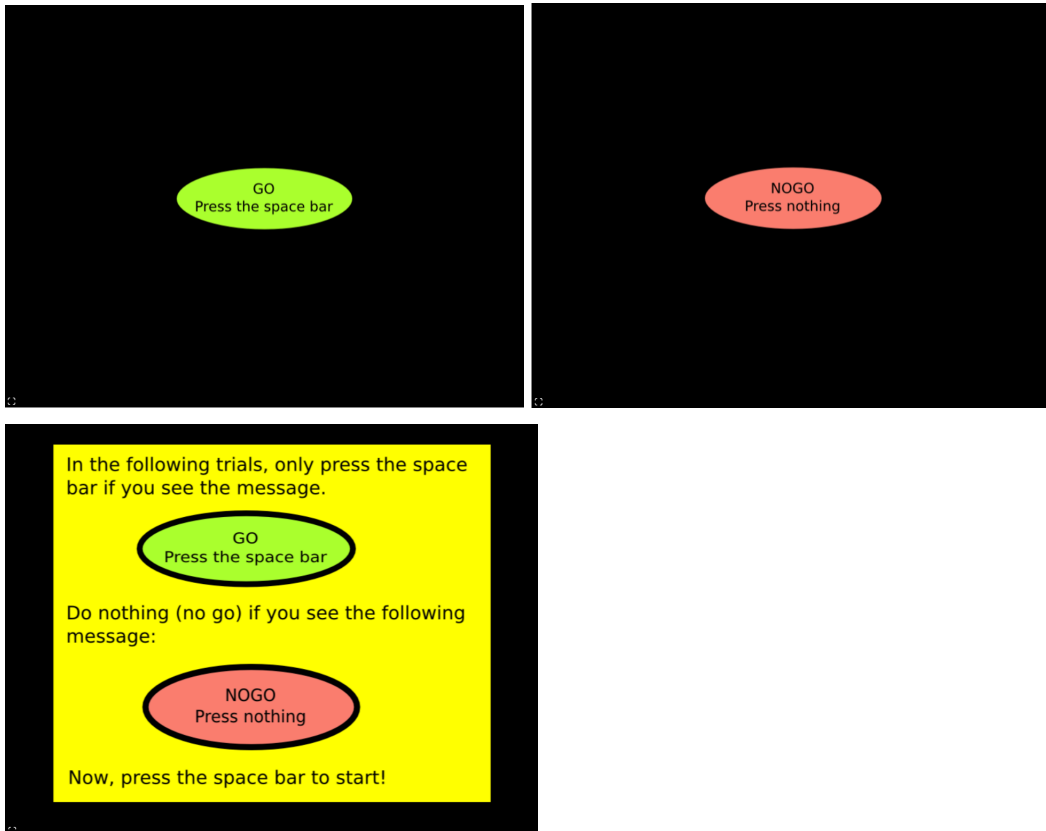
9) Go-NoGo Test tasks

The objective of this test is to measure your ability to stop an action quickly.

Here's how to do it:

1. Use a computer or tablet to perform the test,
2. Go to the « PsyToolkit » website by following this link: <https://www.psychtoolkit.org/experiment-library/go-no-go.html>,
3. Click on the link "click here to run a demo",
4. Press the space key only when the word « GO » is displayed in green on the screen,
5. Do not press the space key when the word « No GO » is displayed in red,
6. Try to complete the test as quickly as possible, reacting instantly when the green « GO » word appears,
7. It is very important to encourage the subjects, for example, "the test is not easy, it's okay if you can't do it" or "very good, you didn't press « No GO »".

You will need a computer or tablet to perform this test.



3.2.2 Results of the research

The results of the tests will be presented in the final version of the model.

3.3 Individual preferences

Here are the key points to consider:



1) No sport is contraindicated for autistic individuals, although each sport offers specific benefits and may require adaptations.

It's essential to recognize that while one activity may be suitable for one autistic person, it may not be for another.

This is illustrated by the results of a questionnaire campaign in which autistic people were asked about the sport they practise (from most practised to least practised among respondents): swimming, fitness, multisports, soccer, walking, biking, martial art, climbing, running, horse riding, rugby, track and field, basket-ball, dance, yoga, tennis, fencing, table tennis, golf, handball, volleyball, archery, badminton, boxing, surf, parkour, etc.

2) Regardless of the level of support required, all autistic individuals can benefit from sport to a similar extent, even if they need significant assistance and attention.

To have more information, we invite you to wait for the publication of a narrative review on the effect of sport on autistic people, written by the University of Franche Comté, one of the partners of the Sacree project. The link to the article will be included in the final version of this guide.

3) Therefore, the most important step is to find a sport that fits your needs and preferences.

To aid you in this process, we have created a "Sport Preference Questionnaire" tailored for Autistic Individuals, along with a complementary "Guide to Making the Right Choice". These resources are accessible on our website and included in the appendix of this document, providing valuable insights to guide you towards finding the perfect sport for your needs and preferences.



CHAPTER 4: ESSENTIAL KNOWLEDGE FOR PROFESSIONALS IN THE FIELDS OF SPORTS AND AUTISM

4.1 Fundamental aspects of autism to know when working in the field of sports

4.1.1 What is the autism spectrum?

- Autism is a spectrum condition: While common characteristics are shared among autistic individuals, each person's experience is inherently unique (Garratt & Abreu, 2023). Because autism is a spectrum, autistic people will have a wide variety of support needs in different areas such as communication, executive functions, social interaction, sensory processing and perception, etc. So, there is not just one way for a person to be autistic. For example, certain autistic individuals:

- Can speak and some of them communicate in other ways,
- Have intellectual disabilities and some of them do not,
- Need a lot of help in everyday life, while others just need a little support.

- The perception of autism as a linear scale, ranging from "mildly autistic" individuals with minor challenges to those significantly impacted in various aspects of life, doesn't capture the full complexity of the autism spectrum. The autism spectrum signifies the diverse ways autism manifests. While autistic individuals may function differently in certain areas, these differences aren't uniform across all individuals (Happé & Frith, 2020).

- Understanding the unique nature of each individual's experiences and avoiding presumptions is paramount.

- Autism is sometimes combined with other disabilities and conditions that need to be taken into account such as attention deficit hyperactivity disorder (ADHD), Down syndrome, epilepsy, Rett syndrome, tuberous sclerosis, anxiety, digestive disorders, sleep disorders, intellectual disabilities, learning disability, being overweight, Tics, OCD (Obsessive compulsive disorder), schizophrenia, immunological problems (asthma, diabetes type 1, urticaria, etc.).

- Executive functions (encompassing the mental activities governing planning, directing behaviour, and adapting to social contexts) challenges manifest in diverse ways, from information processing and attention difficulties to emotional self-regulation (van der Gaag, 2017). Research shows that executive functions in autistic people are often less developed, so it is not surprising that this is offered as one of the possible explanations of the variations observed in the functioning of this population (van der Gaag, 2017).



- Autistic people may require adaptations to be made to their living, learning and working environments to accommodate their individual difficulties.
- To calm down or concentrate, autistic individuals, as well as the general population, may engage in self-stimulating behaviours, commonly referred to as "stimming." In the autistic community, stimming is more prevalent and pronounced. It is a natural behaviour that is neither inherently negative nor positive but serves as a form of self-regulation, either amplifying or dampening sensory inputs from the body and surroundings. Stimming typically manifests as repetitive body movements (e.g., hand flapping, finger tapping, hair pulling, toe tapping, spinning, etc.) and vocalisations (e.g., muttering, grumbling, stuttering, whistling, singing, etc.). These actions often increase during stressful periods or when engaged in demanding activities (Kapp et al., 2019). One of the best practices is to promptly identify and acknowledge stimming behaviours, then observe the environment to identify and address potential sources of stress to mitigate their impact.
- When an autistic individual becomes overwhelmed by their current situation, they may experience a temporary and involuntary loss of control known as a 'meltdown.' Meltdowns can manifest through verbal expressions (e.g., shouting, screaming, crying), physical actions (e.g., kicking, hitting, biting), or a combination of both. It is crucial to differentiate meltdowns from tantrums or deliberate anger outbursts, as meltdowns are uncontrolled and not motivated by a desire to achieve or avoid something (Welch et al., 2020). The manifestation of a meltdown and potential solutions vary greatly from one individual to another. Therefore, it is essential to discuss meltdowns with autistic individuals beforehand using simple questions such as 'What would you like me to do if you have a meltdown?' and 'What helps you feel better?'
- Sport can offer significant benefits to all autistic individuals, including those requiring substantial support and additional attention.
- The single focus attention, characteristic, of many autistic individuals can significantly impact participation and engagement (Webster, 2018). Flexible thinking greatly influences life, affecting the ability to predict behaviour and cope with change.

4.1.2 The misconceptions that need to be deconstructed about autism

We are aware that misconceptions, myths, and stereotypes about autism prevail, often leading to stigmatisation, discrimination, and violence against autistic individuals and their families. It's imperative to debunk these stereotypes and promote an inclusive society that respects neurodiversity.

-Autism is not a disease: It's a neurodevelopmental condition. Unlike a disease, autism cannot be transmitted or cured, but there are ways to improve quality of life and manage certain challenging aspects of this condition.

- There is no causal link between styles of parenting and the development of autism. The causes of autism are genetic and environmental. Not all autistic individuals have an intellectual disability, and conversely, not all individuals with an intellectual disability are autistic.



- Autistic individuals may experience crises, which are not acts of caprice but often their way of expressing discomfort in response to overwhelming situations.
- Just because an autistic person is non-speaking does not imply a lack of intelligence or the inability to communicate.
- While autism may impact learning, it is not synonymous with a learning disability.
- No sport is off-limits for autistic individuals, although each sport offers specific benefits and may require adaptations. The suitability of an activity varies from person to person.

4.1.3 Sensory differences

In any learning environment, individuals depend on their senses to comprehend the surroundings and effectively engage or function within it. This process is termed sensory integration (Stevenson, 2008) and revolves around the commonly recognized five senses: hearing, vision, touch, smell, and taste. Additionally, it encompasses other equally vital sensory systems essential for normal functioning, including the proprioceptive system (perception of the position of different parts of the body) and vestibular system (contributes to a sense of movement and balance) (NAT, 2019).

- Autistic individuals may face challenges in processing everyday sensory information. Any of their senses may be over-sensitive or under-sensitive or both, at different times.
- These sensory differences significantly influence their feelings and behaviours, impacting their daily lives (NAT, 2021). These challenges can also intensify anxiety, stress, hinder community participation, and at times, even cause discomfort (Iemmi et al., 2017). Sometimes, the sensory differences may generate behaviours that may be perceived as challenging, disruptive, aggressive, or impolite by others (Stevenson, 2008).
- These difficulties are also considered fundamental factors associated with occurrence of behaviours that challenge (Case-Smith et al., 2014).
- Sensory features are often described as constellating into distinctive behavioural constructs or sensory response patterns across modalities, including: hypo-sensitivity (slow or lack of response); hyper-sensitivity (exaggerated or avoidant response); sensory seeking behaviours; and enhanced perception (Ausderau et al., 2014).
- They may struggle to filter out sensory information, potentially evoking feelings of fear and sometimes resulting in behaviours that may be perceived as challenging, disruptive, aggressive, or impolite by others (Stevenson, 2008).
- Due to the differences of the sensory experience, the experience of sports and physical activity for autistic individuals can vary significantly.
- Autistic individuals may encounter challenges in processing sensory signals related to their own bodies.



- Prolonged exposure to stress and sensory overload may lead to a condition known as autistic burnout. This syndrome emerges from chronic life stress and excessive expectations surpassing an individual's capacity to manage (Raymaker et al., 2020). It is marked by extreme exhaustion, regression in previously acquired skills (e.g., self-care, speech), heightened sensitivity to sensory stimuli, impaired executive function regulation, attention, emotions, negative effects on mental health, and potentially, thoughts of self-harm (Mantzalas et al., 2022).

4.1.4 Communication differences

Language and communication development are fundamental components of a child's overall growth, intricately interlinked with cognition, social development, and the comprehension of the world. Acquiring communication skills and language presents one of the most complex challenges for children, particularly for autistic individuals (Vuksan and Stošić, 2018). In the context of sports, proficient communication is an essential pillar for the comprehensive growth and overall well-being of autistic individuals. The capacity to convey their requirements, ideas, and feelings through diverse modes of communication holds paramount significance, facilitating their autonomy, forging social bonds, and enabling them to actively participate in sporting activities.

- Autistic individuals often face communication difficulties with delayed language development or loss of language skills (Carlsson, 2019).

- Verbal language may be absent.

- Many autistic children develop speech and language skills but not to a typical level, and progress tends to be uneven.

- While they may rapidly acquire a rich vocabulary in particular areas of interest, comprehension might lag.

- They may have a good memory for heard or seen information, reading words at an early age but not understanding their meaning.

- They might not respond to others' speech or their own names, leading to misconceptions of hearing difficulties (NIDCD, 2020).

- They may exhibit repetitive speech that lacks relevance to ongoing conversations, they may repeat phrases they've heard before – a condition called echolalia. This can manifest in immediate echolalia (repeating words just spoken) or delayed echolalia (repeating words heard at an earlier time).

- Some may speak in a high-pitched or sing-song voice, use robot-like speech, or employ stock phrases to initiate conversations, even in inappropriate contexts (NIDCD, 2020).

- Autistic individuals might encounter challenges in finding appropriate words, although they can excel in discussing their favoured topics. They may showcase highly specialised interests,



allowing them to deliver detailed monologues on specific topics of interest, yet may struggle with reciprocal conversations on the same subject (Greaves-Lord et al., 2022).

- Pragmatic language difficulties in autism often lead to literal interpretations of language and variations in prosody, where speech may lack typical emotional expressiveness, manifesting in notably monotonous or exaggerated tones (Greaves-Lord et al., 2022). These difficulties can also manifest as challenges in interpreting figurative language and non-literal expressions, impacting the understanding of sarcasm or metaphors or irony (Hage et al., 2021).

- Autistic individuals might face challenges in verbal and non-verbal communication, including interpreting facial expressions, body language, and nuances in tone of voice, resulting in:

- Potential confusion and increased anxiety in social situations: They may struggle to use gestures to enhance their speech's meaning or avoid eye contact, leading to misunderstandings of rudeness or disinterest (Greaves-Lord et al., 2022).
- Difficulties comprehending non-verbal social cues and maintaining reciprocal social conversations, exemplified by challenges in initiating or sustaining back-and-forth interactions, a core characteristic observed in autism (Greaves-Lord et al., 2022).

- Autistic individuals communicate in diverse and varied ways.

- When children exhibit a lack of spontaneous speech, augmentative and alternative communication (AAC) can be introduced as a valuable solution. AAC encompasses a variety of modalities, including gestures, sign language, images, photographs, objects, videos, and written words. Indeed, communication tools, whether in physical or electronic formats (e.g., mobile phones, tablets, or computers), are often employed. The adoption of AAC strategies holds the potential to foster social interaction and facilitate a deeper comprehension (Hyman et al., 2020).

- In sport activity, small talk serves as a gateway to social bonding and establishing connections among teammates, yet some autistic individuals find difficulty in engaging in small talk, often viewing it as irrelevant to their specific interests. This struggle to initiate or participate in casual conversations can inadvertently lead to misunderstandings, as the absence of small talk may be misinterpreted as disinterest or rudeness.

- Interpreting banter, which frequently hinges on sarcasm or undertone, becomes an intricate task for individuals on the spectrum due to literal interpretation of language, difficulties in deciphering facial expressions, and body language.

- There may be deficits in non-verbal communicative behaviour: body language, gestures, visual contacts...By the way, the deviations from conventional eye contact rules, whether due to sensory discomfort or difficulty consciously adhering to social norms, can hinder the sense of being understood or listened to in conversation settings (Webster, 2018).



4.1.5 Social interaction

- The area of social interaction is one context in which autistic individuals most often and clearly show challenges (Walker, 2021).
- Engaging successfully with others requires the development of various skills over time, including the ability to pay attention to social cues, understand social situations, solve problems, and provide appropriate responses (The Spectrum, n.d.).
- Social skills differences among autistic individuals can manifest diversely based on language abilities, developmental stage, and age.
- These may include challenges in initiating, sustaining, and concluding interactions, difficulty comprehending and using verbal and nonverbal cues, such as eye contact and gestures, and struggling to grasp unspoken social conventions in a given setting (Hyman et al., 2020).
- Engaging in social interaction can provoke anxiety, as understanding social appropriateness depends on situations and the individuals involved, without definite right or wrong answers (Greaves-Lord et al., 2022).
- Autistic individuals demonstrate loyalty, care, and honesty in friendships, yet encounter persistent challenges initiating, understanding, and maintaining social connections due to communication and interaction issues. These difficulties encompass initiating friendships, differentiating between casual friendliness and genuine connections, identifying sincere friendships to prevent exploitation, and sustaining these relationships (NAT, 2019).
- The "problem of double empathy," (Milton, 2012): communication challenges between autistic and non-autistic individuals stem from reciprocal differences in communication styles and understanding.
- Contrary to the misconception that autistic people do not seek social interaction or friendship, recent research indicates that autistic individuals often find greater ease and enjoyment in interacting with fellow autistic individuals. Studies show that these interactions are marked by alignment, enthusiasm, and shared affect, highlighting the significance of similar thinking and interests in fostering strong social connections among autistic individuals (Crompton et al., 2020; Williams et al., 2021). These findings challenge the traditional notion of autistic individuals lacking social skills or a desire to socialise, emphasising that differences in neurotypes can impact the quality of relationships and communication (Crompton et al., 2020).



4.1.6 Motor skills

- It's frequent that autistic people have repetitive and stereotypical movements.
- While stereotyped and repetitive movements like rocking or hand flapping are recognized as core symptoms, atypical gait and clumsiness are regarded as "associated features," co-occurring but separate from the primary autism phenotype (APA, 2013).
- Motor skill deficits are a significant and often under-recognized aspect of autism. These deficits are present in up to 87% of autistic people (Zampella et al., 2021).
- Specific motor skill domains such as praxis, object manipulation, and postural stability could be selectively impaired in autistic individuals (Zampella et al., 2021). Indeed, studies have demonstrated that autistic adolescents perform significantly poorer in various motor proficiency measures, including cardiovascular endurance, muscular strength and endurance, and flexibility, when compared to their non-autistic counterparts (Pan, 2012). These motor challenges can extend to areas like gait, postural control, and motor planning, contributing to difficulties in daily activities (Lloyd et al., 2013).
- Specific motor activities such as ball throwing and catching, using stairs, jumping, and bicycling can be particularly challenging for autistic individuals (Pusponogoro et al., 2016).
- These difficulties may stem from deficits in perception-action strategies, especially in tasks requiring anticipatory control, such as catching a ball in motion (Whyatt & Craig, 2011).
- The impact of motor coordination challenges can extend beyond physical limitations. For autistic individuals, keeping up with their peers in physical activities can be frustrating, leading to potential social and emotional consequences as they may fall behind in group activities due to the competitive or ongoing nature of these interactions (Menear & Neumeier, 2015).
- Research indicates that gross motor skills, especially object control/aiming and catching skills like ball throwing and kicking, may be related to social skills in autistic children (Ohara et al., 2019). Children facing gross motor impairments tend to exhibit lower socialisation skills compared to those without such impairments (MacDonald et al., 2014; Pusponogoro et al., 2016). This emphasises the intricate connection between motor skill deficits and various aspects of an autistic individual's life, including their social interactions and overall well-being.

4.1.7 Psychological and cognitive differences

- Autistic individuals demonstrate a varied profile of cognitive strengths and weaknesses known as a "spikey profile." While they may excel in certain areas, such as observation and attention to detail, they also experience challenges in other domains. Notable challenges include slow or different processing styles, limited working memory, and isolated difficulties in intellectual functioning (Greaves-Lord et al., 2022).
- Sports demand multitasking, posing unique challenges for autistic individuals. Their characteristic "single focus" attention may make it difficult to manage multiple tasks



simultaneously during training sessions. This can lead to increased susceptibility to distractions and difficulties in regaining focus after interruptions. Additionally, some autistic athletes may struggle to switch between tasks or follow multi-step instructions, potentially focusing primarily on the initial task and overlooking subsequent steps (Webster, 2018).

- Autistic individuals often encounter heightened stress and anxiety when facing changes in sports environments. This can include adjustments to the playing field, shifts in team dynamics due to new participants or coaches, or adapting to different rules enforced by various referees in tournaments. Many autistic athletes rely heavily on routines and structured frameworks to effectively navigate these challenges.

- In some cases, autistic individuals may develop a heightened risk of depression due to challenges in emotion regulation, anxiety, and subsequent social isolation.

- They may also experience high stress and anxiety in response to unexpected changes, highlighting the importance of structure and advanced notice to manage these challenges (Webster, 2018).



CHAPTER 5: ENHANCING SPORTS FOR AUTISTIC PEOPLE CONSIDERATIONS AND TIPS FOR COACHES AND TRAINERS

5.1 General mindset to have

Motivation and enthusiasm:

- It's important to offer the minimum essential level of support and encouragement to ensure the athlete's advancement, emphasising both progress and independence.
- Establishing a profound and supportive relationship between the coach and the athlete plays a pivotal role in enhancing the involvement of autistic individuals in sports.
- The duty of the coaches encompasses ensuring that sports activities are not only enjoyable but also tailored to meet the unique needs of each individual.
- To provide effective support for autistic individuals, having a skilled, motivated, and enthusiastic staff team is essential. These staff members should be deeply committed to their work and genuinely enjoy working with individuals who can have complex needs. It's crucial for the staff to be able to see beyond the complexities of these needs and focus on the person at the core. Empathy and understanding play a vital role in their interactions.

Routine and predictability:

- You shouldn't try to create something new and different all the time. Autistic individuals often encounter heightened stress and anxiety when facing change, notably in the context of sports. This change can encompass various aspects, including alterations to the playing environment, shifts in team dynamics with new participants or coaches, or adapting to different rules imposed by a different referee in tournaments.
- Many autistic athletes express a strong reliance on routines and structured frameworks in their lives to navigate these challenges effectively.

Open-mindedness and understanding:

- Be aware that what might be considered "normal" or "good" for non-autistic individuals may not be suitable or right for autistic persons.
- Instead of labelling individuals as "complex", seek to understand and empathise with their unique perspective.



- It's important to implement a person-centred approach which understands the unique needs and characteristics of individuals and fosters trust-based relationships not only with the athletes but also with their families, notably the communication and interaction preferences.

- Understand the "spikey profile" of the autistic person. Indeed, autistic individuals demonstrate a varied profile of cognitive strengths and weaknesses, referred to as a "spikey profile". This profile highlights where they might excel in certain areas while experiencing challenges or deficits in others. This profoundly impacts learning and adaptive functioning. Notable challenges include slow/different processing styles, limited working memory, and isolated difficulties in intellectual functioning (Greaves-Lord et al., 2022). Among the areas in which they regularly have positive experiences there are for example the good quality of observation, the better attention to details, etc.

Adaptability and flexibility:

- Enable opportunities for breaks, rest, and personal downtime.
- It is important to find the right balance between the need for repetition, familiarity, and sameness versus exposure to change, variety, and new experiences.

5.2 Approaches to adopt

5.2.1 Individualised approach

TO DO:

- Help athletes in establishing individualised, attainable goals that allow frequent opportunities for success and growth across various timeframes, such as training sessions, weeks, months, and years...
- Offer different levels of sports programs (beginner/recreational/advanced) enabling athletes to progress from foundational skills to more advanced ones. These levels should align with an individual's skills and abilities rather than solely considering age.
- Simplify complex skills into manageable steps, adjusting activities to accommodate each athlete's unique abilities.
- Utilise modified equipment or activity variations to suit individual needs.
- Avoid underestimating an athlete's capabilities. You can modify activities to match their current abilities, ensuring adjustments as required over time.
- Ensure each training session includes at least one activity in which the athlete finds success and enjoyment.



- Encourage the expansion of mastered skills to maintain motivation for further development. For instance, if an athlete adeptly handles a basketball, encourage them to practise with their non-dominant hand.
- Ease athletes into activities gradually, whether by observing others participate, visiting the training area, or starting with individual tasks before integrating into group activities.
- Offer ample space and support for athletes to attempt new activities from the sidelines or in private settings if they initially feel uncertain about performing in a group environment.
- Tailor activities to match the athlete's interests by introducing themed elements, such as animals, superheroes, characters from various media, or favourite toys. Encourage athlete input for making activities more engaging.
- Provide extra time as needed. Avoid rushing your students allowing them the necessary time to adapt and process the transitions and the changes in their environment.

5.2.2 Empowering decision-making

TO DO:

- It's important to actively promote the development of self-advocacy skills in autistic individuals, encouraging them to voice their needs, preferences, and opinions. Avoid fostering unquestioning compliance and instead empower them to express themselves and make choices independently. Finally, respect an autistic person's right to say "no".
- Give athletes the freedom to select from various options, such as activity sequences, repetitions, team roles, colours, equipment, partnerships, or break times.
- If an athlete shows disinterest in a specific activity, provide alternative but similar tasks that target the same skill set.
- Promote creativity by allowing athletes to explore skills in their unique way. If an athlete wants to attempt a skill differently, permit them to experiment before gently guiding them back to the task.
- Adapt the activity lengths to suit individual attention spans, especially for those with shorter attention spans. Frequent changes in activities help sustain motivation, while overly prolonged tasks may lead to boredom and disengagement.
- Ensure athletes are aware they can take breaks whenever necessary to recharge or regroup, encouraging a healthy balance between engagement and rest.
- Offer opportunities for athletes to take on added responsibilities, such as serving as "assistant coaches," demonstrating exercises, setting up equipment, encouraging peers, or even teaching others new skills, not exclusively related to sports.



5.2.3 Fostering motivation and celebrating progress

TO DO:

- Encourage autistic individuals to explore new experiences that align with their preferences and interests, without restricting them to their current comfort zone. It's important to promote a balance between familiarity and new opportunities that can enrich their lives and help them grow.
- It's important to recognize the significance of both intrinsic motivation (when it derives from one's own will) and extrinsic motivation (when motivation derives from an external reward) in engaging individuals in sports and physical activities. While external rewards can be useful for those lacking internal drive, intrinsic motivation fosters more sustained engagement in these activities. It is important to examine the preferences of the child as this is likely to serve as the biggest motivator for engagement.
- Make regular, diverse, and constructive feedback as athletes learn new skills, acknowledging and positively reinforcing each step they take in their progress.
- Utilise praise that resonates positively with the athlete, employing methods such as verbal encouragement, smiles, clapping, thumbs up, or high-fives, tailored to the individual's preferences and comfort.
- It's important to offer the minimum essential level of support and encouragement to ensure the athlete's advancement, emphasising both progress and independence. Encourage independent attempts at activities while providing support only as needed.
- Personal narratives can inspire and connect, emphasising the value of participation. So encourage participants to tell anecdotes about the place of sport in their lives.

5.2.4 Cultivating relationships and establishing trust with autistic athletes

TO DO:

- Learn about the autistic person: Understand the reasons for their participation in the sports program, their interests, and the coaching style that suits the athlete best. This knowledge is crucial for adapting coaching practices to accommodate the individual athlete's needs (CAN, 2022). Take also the time to understand each individual, learning about their unique abilities, interests, needs, and preferred methods of communication.
- If necessary, seek guidance and insights from the individual's parents. Parents often possess valuable knowledge about their child's preferences, strengths, and challenges. This information can help in tailoring approaches.
- Interact with athletes in a manner that demonstrates respect, acknowledging their dignity and autonomy.



- Foster connections by pairing athletes with similar abilities, interests, and communication styles. Encourage coherent pairs, this facilitates the development of bonds between peers, which can enhance their comfort and social interactions.

5.3 Consideration of security and crisis management

5.3.1 Enhancing safety measures

TO KNOW:

- In some cases autistic people do not manifest the pain as neurotypical people.
- Some autistic people don't always foresee the consequences of their actions and some have a limited sense of danger.
- It's crucial to recognise that individuals on the autism spectrum are more prone to being victims of violence rather than being the ones displaying aggressive behaviour (Holingue et al., 2021). As the autistic people victims of bullying and aggressions are a really frequent case, the coach has to take action against the violence. Including an autistic person in a sports program doesn't just mean behaving in a specific way towards that person, it really means changing the way the whole group is coached.

TO DO:

Take care of their safety rules:

- Keep an eye out for injuries, as some autistic people may continue to take part without realising that they have suffered an injury.
- Being particularly vigilant about the aggressions suffered by and, above all, systematically and firmly reframing any exclusionary behaviour or aggression (verbal or physical) that you witness. Not letting mockery go unchallenged (even under the guise of "humour") and setting a good example of a caring attitude that values all differences, whatever they may be.
- Ensure athletes are aware they can take breaks whenever necessary to recharge, encouraging a healthy balance between engagement and rest.
- Ensure that you have clear physical boundaries for each session and explain safety rules in a way that the person understands.
- If there are stairs, mark them with contrasting coloured non-slip strips.
- Visually reinforce rules of expected behaviour, both during training sessions and before/after training, promoting consistency and understanding.



5.3.2 Handling challenging situations

TO KNOW:

- In working with autistic individuals, there are instances that may lead to high stress levels, especially during crises when he/she engages in distress, self-harming or aggressive behaviour that evokes fear or concern. These situations are often multifaceted and challenging for us to fully understand, as they are frequently linked to factors that are mostly beyond our immediate control. It's crucial to approach such "challenging" situations with a focus on identifying and removing environmental and other addressing unmet and not expressed urgent needs.

- When an autistic person becomes utterly overwhelmed by their current situation, she may experience a temporary and involuntary loss of control, referred to as a "meltdown". Meltdowns can manifest through verbal expressions (e.g., shouting, screaming, crying), physical actions (e.g., kicking, hitting, biting), or a combination of both. It's crucial to distinguish meltdowns from tantrums, as meltdowns are uncontrolled and not motivated by a desire to achieve or avoid something (Welch et al., 2020). The manifestation of the meltdown and the solutions vary enormously from one individual to another.

- Prolonged exposure to stress and sensory overload may lead to a condition known as autistic burnout (Raymaker et al., 2020). It is marked by extreme exhaustion, regression in previously acquired skills (e.g., self-care, speech), heightened sensitivity to sensory stimuli, impaired executive functions regulation, attention, emotions, negative effects on mental health, and potentially, thoughts of self-harm (Mantzas et al., 2022).

- Autistic people may develop a high risk of depression because of their deficits in emotion regulation, anxiety and consequently social isolation. They also may experience high stress and anxiety in response to unexpected changes, emphasising the need for structure and advance notice to manage these challenges (Webster, 2018).

- In case of a challenging situation, it's important to recognise when behaviour is linked to unmet needs and take steps to address those needs and the best way to reduce such behaviours is to ensure that you understand why it is happening in the first place (NAT, 2019). Assess factors that may increase the risk of challenging situations, including (NICE, 2013):

- Communication barriers: difficulties in understanding situations or expressing needs can lead to frustration or anxiety,
- Associated conditions: other conditions like pain, gastrointestinal disorders, anxiety, depression, or neurodevelopmental issues like ADHD (Attention deficit hyperactivity disorder),
- Physical environment and sensory factors: sensory overload, discomfort, or an unsuitable environment can trigger distress,
- Social environment: issues at home, school, work, or leisure settings can cause stress,



- Change in routines and lack of predictability: sudden changes or lack of structure can cause distress,
- Developmental changes: transitional periods, such as puberty, can trigger emotional, physical, and hormonal changes,
- Abuse: experiencing exploitation or abuse can lead to emotional distress.

TO DO:

Be attentive to emotional, sensory and information overload:

- Have a chat beforehand with autistic individuals about meltdowns. Ask them: "What should I do if you have a meltdown?" and "What helps you feel better?" This way, they can share their preferences and needs, making it easier to support them when they need it.
- Avoid crowding around the person in crisis: the fewer people around, the better.
- If the person has a comfort item or other objects that reassure them, give it to them.
- Don't touch the person if they haven't asked you to (not even a hand on the shoulder to comfort them).
- Encourage self-stimulatory behaviours (commonly referred to as "stimming"), intervening only if the individual experiences distress or harm. For recall, these behaviours serve a purpose and, if they don't cause harm or discomfort, allowing individuals to self-regulate is crucial.
- Stay calm.
- Do not insist on re-establishing a verbal conversation.
- A common practice, which often works well, is to communicate with the person by text message (or to write a short message on a word processing application and show the person your phone): the written word is generally more effective than the spoken word.
- Once the stim is detected, it's important to observe the environment to search for the source of stress and eliminate this source of stress.
- Provide a designated withdrawal room or area where individuals can retreat or access as needed.
- Engage in conversations and discussions rather than resorting to public punishment, singling out, or criticism, which can adversely affect trust and self-esteem.



5.4 Directory of advice

5.4.1 Optimising the environment: essential considerations and strategies for understanding and addressing sensory differences in autistic individuals

TO DO:

- First and foremost, we recommend distributing a form at the beginning of the sports season. This form should include a section focusing on sensory characteristics to better understand the profile of autistic individuals. An example of such a form, Sheet 2 (provided in the appendix), is used by the ASPTT and can be tailored to collect the specific information you need.

Creating a calm auditory environment:

- If you put music on, verify that it's not a problem.
- Just in case, prepare some noise-cancelling headphones or earplugs.
- Avoid using sharp or startling sounds like whistles or shouting that might overwhelm individuals with sensory sensitivities.
- For indoor activities, reduce noise using curtains on walls, carpets on floor, high or sound-absorbing ceilings, close the doors if outside there is noise, etc.
- To mask offensive sounds, "white noise" can be utilised. This randomly generated tone blends all sound frequencies simultaneously, effectively saturating the hearing system and covering up unwanted noise.
- Have a calm place if the person needs to be alone for a moment.
- If the activity is outdoors, be careful of the movements (bikes, cars, etc.).
- Avoid overcrowded settings.
- Be aware of noises such as clocks ticking, humming from lights, road noises, building/gardening work in the distance. The slightest inconspicuous sound can be irritating and distracting (Simpson, 2016).

Mindful lighting considerations:

- Just in case, prepare some sunglasses.
- If you are taking photos, be careful with the flashes.
- Utilise natural light whenever possible to create a soothing atmosphere.



- Adjust the brightness of overhead lights to reduce glare and harshness.
- Provide shaded areas or options for individuals who may be sensitive to bright sunlight.
- Try to ensure that there are not too many bright or fluorescent lights.
- Create zones with different lighting levels to cater to varying sensory needs.

Managing smells in sports environments:

- Regularly clean and maintain sports equipment, mats, and other surfaces to prevent the buildup of odours.
- Ensure proper ventilation prior to each session.
- Consider using odour-neutralising products (air fresheners or diffusers with neutral scents).
- Consider implementing scent-free policies.

Use relaxation strategies in sport activities:

- Start with simple breathing: begin each session with a few minutes of deep breathing exercises. Practice slow inhaled through the nose and gentle exhaled through the mouth to promote relaxation.
- Stretch it out: incorporate gentle stretching exercises into warm-ups. Engage in movements that release tension in the muscles, such as reaching for the sky, touching toes, and stretching arms and legs.
- Quiet ball games: engage in quiet ball games like rolling or tossing soft balls. These low-key activities promote coordination and social interaction without overwhelming sensory input.
- Sensory stations: create sensory stations with tactile materials like textured balls, squishy toys, or sensory bins filled with rice or beans. Allow individuals to explore these stations to regulate sensory input and reduce stress.
- Nature breaks: take sports activities outdoors and incorporate nature walks or outdoor games. Connect with the natural environment and enjoy the calming effects of fresh air and natural surroundings.
- Massage circles: form small groups and practise simple massage techniques on each other's shoulders, arms, and hands. Enjoy the calming effects of touch and positive social interaction.



- Bubble fun: blow bubbles during breaks or cool-down periods. Engage in the soothing sensory experience of blowing bubbles and watch them float away.
- Relaxation techniques: experiment with incorporating elements of yoga, meditation, and progressive muscle relaxation into sports activities. These techniques have been shown to have relaxing effects for some individuals.

5.4.2 Understanding communication differences

TO DO:

Promote effective communication:

- Before starting sessions, gather information about the individual's communication preferences, including speech, tablet use, sign language, or pictograms. Utilise forms like the one provided by ASPTT, such as Sheet 2 in the appendix, to understand their communication profile and adapt accordingly.
- Use simple, unambiguous language without undertones, metaphors, or jargon, considering the central coherence deficit common in autistic individuals.
- Frame instructions affirmatively (for example say "Continue" rather than "Don't stop") and personalise interactions by addressing the individual by name to establish rapport.
- Initiate engagement by asking the individual to perform a simple task, like touching their nose, before delivering instructions, to redirect their focus.
- Present instructions sequentially, demonstrating each step physically to provide visual reference and prevent overwhelm.
- Physically demonstrate each step of the activity or task to provide a visual reference for the individual.
- Employ visual support and layouts with images, symbols, and colours to represent various activities, this helps people to better understand and follow instructions.
- Be flexible with time: be patient and allow enough time for the individual to assimilate the information and be aware that some people need to repeat instructions aloud in order to memorise them. The guide for sports coaches and clubs of the National Autistic Society advises to leave 6 seconds between each instruction to allow time for it to sink in.
- Respect eye contact: avoid insisting on eye contact during communication because some individuals may find it uncomfortable.
- Create an environment that encourages questions, and actively inquire if the individual comprehends the instructions, fostering a mutual understanding of the task at hand.



- Using Augmentative and Alternative Communication, including images, symbols, objects, digital apps, sensory tools, and written or text-based methods. To find pictograms you can for example visit the website <https://arasaac.org/pictograms/search>. To use the pictograms, respect the condition of use, notably the logo of ARASAAC and the citation: *The pictographic symbols used are the property of the Government of Aragon and were created by Sergio Palao for ARASAAC (<http://www.arasaac.org>), which distributes them under a Creative Commons BY-NC-SA Licence.*

5.4.3 Navigating social interactions

TO DO:

Use an individualised approach:

- Understand the reasons for their participation in the sport program, their interests, and the coaching style that suits the athlete best and take the time to get to know each athlete, learning about their unique abilities, interests, needs, and preferred methods of communication.
- Respect and accommodate the individual's preferred communication methods, whether verbal, non-verbal, or augmentative and alternative communication (AAC) tools. Provide access to tools and resources that facilitate effective communication.
- Verify with each individual their preferred language for referring to autism (Kenny et al. 2016, Keating et al., 2023). Respect their choice of identity-first language, such as "autistic person," or person-first language, such as "person on the autism spectrum" or "person with autism" considering that "person with autism" increases violence and stigma (Botha et al., 2023).

Empowering decision-making and supporting autonomy in autistic individuals:

- Respect an autistic person's right to say "no".
- Respect a desire to spend time alone and avoid pressuring them into group settings that might cause distress.
- Recognize and respect the personal boundaries of autistic individuals, including their need for personal space, privacy, and autonomy in decision-making.
- Avoid imposing physical contact or social expectations that may cause discomfort or distress.
- Encourage and assist autistic individuals in finding practical ways to fulfil their needs while minimising harm to themselves and respecting the rights of others.
- Incorporate choice-making opportunities into the sports program, allowing individuals to select activities, equipment, or participation levels based on their interests and comfort levels.
- Avoid fostering unquestioning compliance and instead empower them to express themselves and make choices independently.



- Provide resources and guidance to help autistic individuals develop self-advocacy skills, including assertiveness, self-expression, and the ability to articulate their needs and preferences.

Fostering motivation and celebrating progress:

- Make regular, diverse, and constructive feedback as athletes learn new skills, acknowledging and positively reinforcing each step they take in their progress.
- Utilise praise as verbal encouragement, smiles, clapping, thumbs up, or high-fives, tailored to the individual's preferences and comfort.
- Offer ample space and support for athletes to attempt new activities from the sidelines or in private settings if they initially feel uncertain about performing in a group environment.

5.4.4 Understanding motor and cognitive differences: tips for inclusive sports programs

TO DO:

Understanding the profile of the autistic individual:

- Assess the individual's awareness of their own body.
- Evaluate their physical abilities, such as running, climbing, arm and/or leg movements, and bending.
- Gather information about their preferences, interests, knowledge, and areas where they may require additional support.
- To assist with these assessments, we recommend distributing a form at the beginning of the sports season. This form should include a section on motor characteristics to help understand the individual's profile. Sheet 3 in the appendix provides an example of such a form used by ASPTT, which can be adapted to collect specific information as needed.
- Give athletes the freedom to select from various options, such as activity sequences, repetitions, team roles, colours, equipment, partnerships, or break times.
- Ensure athletes are aware they can take breaks whenever necessary to recharge or regroup, encouraging a healthy balance between engagement and rest.
- Ensure each training session includes at least one activity in which the athlete finds success and enjoyment, promoting positive experiences
- Tailor activities to match the athlete's interests by introducing themed elements, such as animals, superheroes, characters from various media, or favourite toys.
- Encourage autistic individuals to explore new experiences that align with their preferences and interests, without restricting them to their current comfort zone. It's important to promote a



balance between familiarity and new opportunities that can enrich their lives and help them grow.

Adapting sports for autistic athletes:

- Introduce more structured formats in activities to reduce complexity and increase the likelihood of positive involvement for all participants. However, it's essential to avoid making adaptations the primary focus to prevent stigmatisation of autistic individuals. Instead, prioritise minimal collective adaptations that benefit everyone in the session, ensuring inclusivity for both autistic and neurotypical participants. Specific adaptations should only be considered when necessary for autistic individuals.
- Implement zoning to designate spaces for different activities within the sports program. This approach helps prevent overcrowding and invasion of personal space, ensuring a more comfortable and inclusive experience for autistic individuals.
- Ease athletes into activities gradually, whether by observing others participate, visiting the training area, or starting with individual tasks before integrating into group activities.
- Offer different levels of sports programs (beginner/recreational/advanced) enabling athletes to progress from foundational skills to more advanced ones. These levels should align with an individual's skills and abilities rather than solely considering age.
- If an athlete shows disinterest in a specific activity, provide alternative but similar tasks that target the same skill set.
- Modifying game sequences can offer a clearer structure, for example by implementing a specific number of passes before shooting in a basketball-style game.
- Structuring games as a series of one-on-one challenges provides a high degree of organisation.
- Modified Activity: in this type of activity, the same task is carried out, but with adjustments to the rules, space, or equipment to ensure everyone can take part. For example, during a throwing and catching activity, participants are allowed to choose the type of ball they are comfortable with (an autistic participant might prefer a ripple ball for better grip due to proprioceptive differences).
- Utilise modified equipment or activity variations to suit individual needs.
- Parallel Activity: participants engage in the same activity but at varying levels suitable for their skills. For instance, in a netball game, while the majority play the standard game, a participant uncomfortable with larger groups may benefit from one-on-one coaching to practise essential skills.
- Alternate/Separate Activity: some individuals may need separate activities. For instance, an individual sensitive to loud noises might require a personalised program combining sensory integration activities and physical exercises, such as rocking activities or specific gripping exercises with specialised equipment.



- Disability Sport/Reverse Integration: this activity involves non-disabled individuals participating in disability sports like boccia, wheelchair basketball, goalball, or table cricket. This approach not only fosters participation among disabled individuals but also encourages non-disabled participants to learn new skills.
- Adapt the activity lengths to suit individual attention spans, especially for those with shorter attention spans. Frequent changes in activities help sustain motivation, while overly prolonged tasks may lead to boredom and disengagement

5.4.5 Embracing cognitive diversity

TO DO:

Make the environment familiar:

- Offer visual aids such as photos of the facility, changing rooms, equipment, and coaches, available on your website or in person.
- Offer flexibility in participation, allowing individuals to take breaks or modify activities as needed.
- Allow participants to visit and explore the environment before starting the activity.
- Implement consistent routines and structure within the sports program to promote predictability.
- Offer trial sport sessions to allow individuals to experience the activity in a comfortable setting.
- Create social stories or visual schedules detailing what to expect during the sports activity.

Ensuring consistency and structure:

- For any person engaging in a sports activity, a structure and routine aids learning. With autistic individuals, this structure needs to be more elaborate and well-defined. Providing them with precise expectations and consistency in their routine helps them to orientate themselves in the environment and in the task, which reinforces their concentration (Stevenson, 2008).
- Ensure that training sessions follow a predictable pattern, including an introduction, the main part of the session, and a conclusion. Indeed, to structure activities with well-defined beginnings and endings creates predictability and facilitates transitions within the training environment. For example, you can use timers to signal the start and conclusion of specific tasks.
- Offer transition cues to the group, such as "two more minutes, then we'll move on to the next activity".
- Offer advance preparation and information for upcoming events through a combination of written and visual materials in addition to verbal communication.



- Supply a written/visual schedule for your practice and review it with the group at the beginning and between activities.
- Remove unnecessary clutter and organise materials to minimise visual distractions
- Label individual activities, areas, and equipment with visual markers to enhance clarity and facilitate navigation.
- Use physical dividers or markers in the room, such as screens, movable walls, self-adhesive tapes, cones, flags, or chalk, to establish distinct visual boundaries between activity areas.
- Maintain consistent routines and structure between workouts.
- Provide a consistent and specific area for changing, you can for example mark it with a personal item or image that resonates with the individual.
- They are not used to share an area with others to store clothes, so it is very likely that they mix one's own clothes with those of others or that they forget an item of clothing, it is important to remind them to write one's initials on clothing labels, not to leave their clothes on the benches but to enclose them in their bags and place the bag on the rack, so as to leave the bench free for another athlete.
- Designate waiting areas, provide guidelines for equipment storage, and specify the placement of equipment or props.
- Visually reinforce rules of expected behaviour, both during training sessions and before/after training, promoting consistency and understanding.
- Implement visual cues or pathways to guide individuals from one activity to another, offering visual aids for transitions.
- Give a map of the building in accessible format.
- Ideally, have familiar individuals in proximity during changing times.
- Minimise staff rotation and aim to align staff with autistic individuals based on shared interests and mutual compatibility whenever feasible.
- Move away from the windows to keep away from outside distractions.
- Avoid multi-sports halls with many different lines on the floor, which can be very distracting.

Helping them progress:

- Repeat the different sequences of the exercise sufficiently in sequence.
- Make regular, diverse, and constructive feedback as athletes learn new skills, acknowledging and positively reinforcing each step they take in their progress.



- Utilise praise as verbal encouragement, smiles, clapping, thumbs up, or high-fives, tailored to the individual's preferences and comfort.
- Use physical guidance to enable a movement to be carried out when this is useful and physical contact is accepted by the autistic person.
- Help athletes in establishing individualised, attainable goals that allow frequent opportunities for success and growth across various timeframes (training sessions, weeks, months, and years...).
- Encourage the expansion of mastered skills to maintain motivation for further development. For instance, if an athlete adeptly handles a basketball, encourage them to practise with their non-dominant hand.
- Offer opportunities for athletes to take on added responsibilities, such as serving as "assistant coaches", demonstrating exercises, setting up equipment, encouraging peers, or even teaching others new skills, not exclusively related to sports.
- You can adapt and use the **sheet 4** and/or **sheet 5** used by the ASPTT available in the appendix.
- Simplify instructions by breaking down the task into successive sequences.
- Employ visual support and layouts with images, symbols, and colours to represent various activities, this helps people to better understand and follow instructions.
- Provide extra time as needed. Avoid rushing your students allowing them the necessary time to adapt and process the transitions and the changes.
- Offer ample space and support for athletes to attempt new activities from the sidelines or in private settings if they initially feel uncertain about performing in a group environment.
- Promote creativity by allowing athletes to explore skills in their unique way. If an athlete wants to attempt a skill differently, permit them to experiment before gently guiding them back to the task.
- Promote a balance between familiarity and new opportunities that can enrich their lives and help them grow.



5.5 Actors to be mobilised

5.5.1 Involving families

TO KNOW:

Families with autistic youngsters have shown that there are many difficulties and barriers when they try to enrol their children in sports. This section presents the experiences reported by Inovar Autismo's independent living support centres.

- Involvement and support of parents towards sports significantly influence the active engagement of their autistic children in sports. The positive approach adopted by parents, coupled with their active participation in these activities, contributes to the increased involvement of autistic children in sports. This involvement not only encourages participation but also creates a supportive and conducive environment for the development and enjoyment of sports among autistic youth. Engaging a close family member can facilitate the transfer of skills learned in sessions to real-life scenarios.

- According to families, many sports organisations are not adequately informed about autism or the needs of autistic people. This can lead to misunderstandings, a lack of adequate support and even a refusal to accept autistic participants into their sports programs.

- Sports can be expensive, and families of autistic people often face additional financial challenges related to therapies and support services.

- The families of autistic people know that in some cases, autistic people may be rejected or discriminated against by coaches, teammates, or other families, which creates a significant barrier to participation. Keep in mind that some parents have already dealt with a lot of rejection. Families need coaches to give them confidence and attention when explaining their child's needs. Creating a sense of security is important, because the fear that their child will be excluded contributes to parents not enrolling them in mainstream sports activities.

- According to the families, the scarcity of sports programs adapted for autistic people may limit their participation options.

- Constant mediation is necessary to bridge the differences in perspectives between service providers and families. By recognizing families not just as companions of autistic individuals, but as active participants in providing support, services can foster genuine experiences of inclusion, self-determination, and empowerment.

TO DO:

Building a trusting relationship with parents:

- Seek guidance and insights from the individual's parents. Parents often possess valuable knowledge about their child's preferences, strengths, and challenges. This information can help in tailoring approaches. For example, you can adapt and use sheet 2 on the presentation of the child and sheet 3 on the motor skills created and used by the ASPTT (available in the appendix).



- Be available, listen carefully to their concerns and show empathy.
- Communicate clearly and directly. Avoid complex or technical language and explain the information in a simple and accessible way.
- Establish a routine of regular communication with parents. This includes regular meetings, and messages via email or phone or even a messaging group to keep parents informed about events and activities.
- Use a notebook to record information so you don't talk in front of the autistic person about the situations that occurred. These notebooks can be double-sided: parents record useful information to give to the coach before training and the coach reports the most important information and passes it on to parents after training. It can be a digital notebook and exist in the form of an email exchange.
- Complete and provide the parents with a sheet on how the session went. The sheet 4 (available in the appendix) is an example of a sheet used by the ASPTT that you can adapt.
- Set clear expectations: ask them what they expect from their child's participation in the activity, and state your expectations as well, including times, behaviour and objectives.
- Be available to promptly respond to any concerns or questions parents may have. This helps to reassure parents and maintain open communication.
- Be willing to adapt communication to the specific needs of the family.
- Offer constructive feedback: provide constructive feedback on the autistic person's performance in a balanced way, highlighting strengths and identifying areas for improvement. Share what is working and not only the problems. You can adapt and use the [sheet 4](#) and/or [sheet 5](#) used by the ASPTT.
- Encourage parents to actively participate in sports activities with their children. This could include being a volunteer assistant, organising events or providing support during activities.
- To ease anxiety about new situations and meeting new people, consider an approach involving family members in the first couple of sessions.

5.5.2 Teammates: fostering collaboration and supportive relationships

TO KNOW:

- Participation in team games can present various challenges for autistic individuals due to the multiple aspects involved – such as understanding numerous rules, handling different types of equipment, interacting with both their own team and opponents, and operating within a specific space or multiple designated areas. The cumulative effect of these factors in quick succession can overwhelm an autistic person.



- Furthermore, the concept of winning and losing, although not to be entirely avoided, can be a difficult area to navigate. Invasive team games might be especially problematic for some autistic individuals, and they should not be compelled to engage in such activities.

- For recall, autistic individuals are more prone to being victims of violence rather than being the ones displaying aggressive behaviour (Holingue et al., 2021). As the autistic people victims of bullying and aggressions are a really frequent case, the coach has to take action against the violence. Including an autistic person in a sports group doesn't just mean behaving in a specific way towards that person, it really means changing the way the whole group is coached.

Building an inclusive team dynamic:

- Determine with the autistic individuals if they want to discuss their diagnosis with the group and how they prefer to do so (such as having the coach talk on their behalf, deciding whether they want to be present or not, etc.).

- Involve the participants in the process of choosing a team name. This encourages a sense of ownership and unity within the group.

- Respect an individual's desire to spend time alone.

- Demonstrating cooperative behaviour and working harmoniously with others can set a positive example for the participants.

- Discourage comparisons between athletes.

- Promote positive encouragement and celebration of both individual and team achievements.

- Remain vigilant for any signs of violence or bullying, addressing such behaviour promptly and firmly. Don't hesitate to intervene and reframe exclusionary actions or aggression, whether verbal or physical. Mockery should never be tolerated, regardless of its guise as "humour".

- Ensure that all participants have the opportunity to contribute to the team's success.

- Explicitly instruct athletes on effective teamwork strategies, emphasising the importance of working collectively towards a shared goal.

- Foster cooperation and communication skills through group-based games and exercises.

- Foster connections by pairing athletes with similar abilities, interests, and communication styles.

- Educate athletes on appropriate behavioural responses in challenging scenarios, such as telling them to demonstrate sportsmanship by recognizing opponents' successes and handling defeat gracefully without arguing with referees.



- Fairplay is an essential component in sport, basically autistic athletes already tend to faithfully abide by the rules and avoid foul play, but they need guidance in offering help to a falling opponent player and generally interact socially during the game.
- Introduce a gradual integration method when involving participants in larger groups. You can for example initiate activities in a one-to-one setting, potentially with the aid of a support worker or assistant to ensure a comfortable transition.
- Emphasise that each team member has their unique strengths and contributions, fostering an environment free from unnecessary competition or comparisons.
- Provide team t-shirts or jerseys to instil a sense of belonging and unity among the participants. It helps them feel like an integral part of the team.
- Personal narratives can inspire and connect, emphasising the value of participation. So encourage participants to tell anecdotes about the place of sport in their lives.

About competitive sports:

When considering participation in sporting competitions, it's essential to recognize that not all autistic individuals may enjoy or excel in competitive settings. Factors such as physical limitations, emotional challenges, or difficulty coping with social and competitive pressures may impact their ability to engage in traditional competitive sports. Rather than excluding them from activities, it's important to explore alternative ways for them to participate without the pressure of competition.

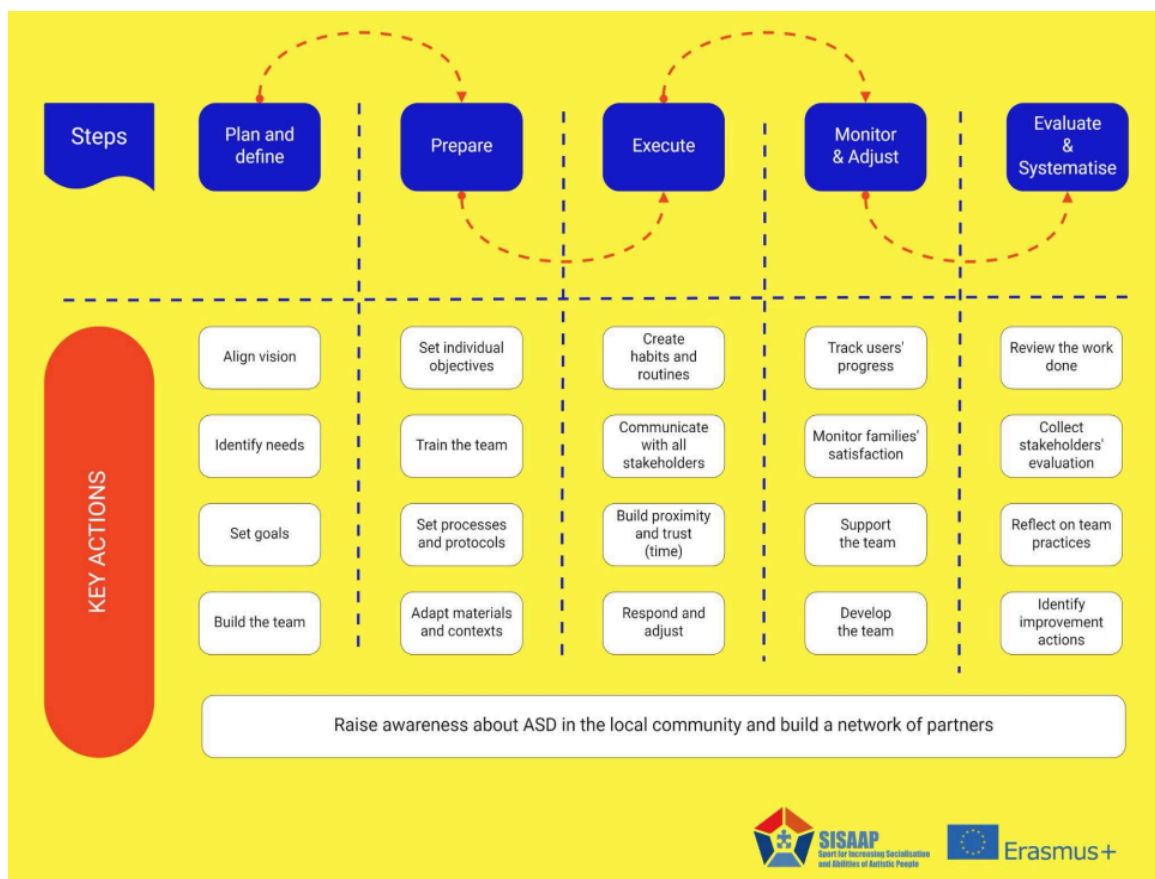
For instance, if an autistic individual prefers not to compete, they could still engage in training sessions to benefit from physical activity and skill development. Additionally, if they wish to support the team without participating in competitions, they could contribute to logistical tasks or provide assistance to teammates, fostering a sense of inclusion and participation within the sports community. Ultimately, prioritising individual preferences and providing flexible options ensures that all individuals can enjoy the benefits of sports participation in a way that suits their unique needs and abilities.

CHAPTER 6: ENHANCING SPORT FOR AUTISTIC PEOPLE, TIPS FOR SERVICE PROVIDERS

6.1 Guidelines and organisational strategies for establishing inclusive sports programs for autistic individuals

This section draws upon insights from [*The Beginners Guide on Sport on the Spectrum*](#), a handbook developed by the partners of the SISAAP project. While this serves as a summary, for more in-depth information, we encourage you to explore the full handbook of the SISAAP project.

According to the guide of the SISAAP project, to set up a sports program for autistic people there are 5 steps:



Each step is composed of different key actions:



Step 1: Plan and define:

1. Needs' Analysis
 - Speak to all the relevant people: users, users' families, relevant stakeholders
 - Analyse the resources available both in the organisation and in the local community
 - Review the legal framework and the associated policies

2. Set goals
 - Define the professional profiles you are looking for
 - Identify the benefits of your initiative

3. Draft communication plan
 - Design an awareness raising campaign towards civil society
 - Involve users and reference persons
 - Involve media (Social networks, web, TV)
 - Improve communication

4. Prepare a budget

5. Build a Business Plan
 - Identify possible sources of income
 - Public funds
 - Private donations
 - Sponsorships
 - Partnerships
 - Non-monetary contributions (equipment, infrastructures, etc)

6. Assign a team to the project (Human Resources)
 - Define the competences of the team (Skills, Knowledge, Attitudes)



Step 2: Prepare

1. Needs' Analysis
 - Stakeholders' needs' analysis
 - Structure individual objectives for each participant

2. Train the team
 - Professionals
 - Volunteers (short trainings and workshops)
 - Onboarding for newcomers

3. Create processes and protocols
 - Organisation chart with clear roles and responsibilities
 - Have a specific methodology to progress gradually in the activities (propaedeutic)
 - Group protocol - specific group/activity briefing
 - Team programme to monitor the team itself and the activities

4. Adapt materials and context

5. Communication and dissemination
 - Meet the family in the context
 - Offer trial lessons
 - Organise an "open day"
 - Name a communications manager to plan a communication strategy
 - Have an updated website / social media channels



Step 3: Execute

1. Coordination
 - Good coordination is key
 - A good team has experience, motivation and technical knowledge
 - Involve families at every step
 - Create opportunities for social gathering

2. Communication
 - Keep a smooth and continuous communication with everyone involved (partners, families, supporters, sponsors, etc.)
 - Promote project visibility (Media, TV, etc.) and dissemination

3. Deliver
 - Respect the timing of actions
 - Prepare different briefings for different users
 - Give a test run of the activity to the users
 - Respect the rules of your local/national administration
 - Monitor the activities constantly
 - Be flexible

Step 4: Monitor and Adjust

1. Users' progress and fulfilment
 - Basic observation of the skills that are targeted by the activities
 - Importance to set individual objectives for each participant to measure her/his progress

2. Family satisfaction
 - Simple satisfaction questionnaires
 - Involve and communicate frequently with families

3. Teamwork and team wellbeing



- Individual feedback from the leader every three months
- Questionnaires about the wellbeing of the team and activities
- Offer psychological supervision
- Expert or structured team meetings open to all topics
- Team-building activity twice a year (leaders, experts, staff, volunteers)
- Emphasise open communication in the team with the goal of having good feedback and adjust the program
- Provide autism trainings with experts on Autism at least twice a year

Step 5: Evaluate and systematise

1. Review the work done
 - Assess the results achieved in light of the achieved objectives
 - Collect stakeholders' feedback:
 - Users
 - Users' families
 - Partner organisations
 - Sponsors
 - Identify adjustments and improvements needed
 - Celebrate the achievements as a team

2. Reflect on the work done
 - Focus on transversal competences and teamwork
 - Identify opportunities for individual and team training and development
 - Identify possible changes and innovation in team organisation and management
 - Identify improvements in the service

3. Plan the new initiative / Project
 - Include improvement actions into the design of the new project
 - Design a strategy to maintain the connection with stakeholders and keep the network alive



6.2 Find financial support for your sports program

In France:

In France, there are various ways of **raising funds for your sports programs**. We advise you to **create a monitoring table** in which you put the links of the sites to be monitored. We advise you to keep an eye on:

Public funding:

- Departmental grants
- Regional grants
- National grants
- European grants

Private funding:

- Foundations, particularly company foundations
- Associations

There are a **number of sites that list existing grants** (public and private) and are very useful in helping you to keep an eye on them:

- [Aides et territoires](#)
- [Subventions.fr](#)
- [Sport en commun](#)
- [Territoires solidaires](#)
- [Appelàprojets.org](#)
- Etc.

To note: The above list is not exhaustive and includes sites used by the ASPTT.

For example, to finance its SOLIDARITÉ autisme by ASPTT programme, the ASPTT Fédération Omnisports has received grants from the Orange Foundation, the AG2R La Mondiale Foundation and the Fondation Initiative Autisme.

Finally, in parallel with the financial support, in France we advise you to make contact with the autism resource centres (CRA) of your region from the very start of your project. They are the key actors in the field of autism in France and can help you with your project. They are organised at regional level and work in coordination with professionals and autistic people. You can find the contact for each region [here](#).

In Italy:

In Italy, there is currently no aggregator for funds and financing dedicated to sports activities for autistic people. However, there are several annual project funding opportunities offered by private foundations and public entities that allow individuals to submit their sports project and receive non-repayable funding, in addition to direct support from private families associations



and volunteer organisations. We are not currently aware of specific websites that list existing contributions, except for some public administrations, such as the City of Rome, which lists agreements and available bonuses on their website to ensure disadvantaged citizens have access to sports activities.

Some of these include:

Public funding:

- National contributions
- Regional contributions
- City administrations

Private funding:

- Vodafone OSO, Ogni sport oltre
- Tim Foundation
- Baroni Foundation
- Con il Sud Foundation
- National and regional associations

It should be noted that these mentioned lists are not exhaustive and primarily include options, websites and funding used by SS Romulea. For example, in previous years, SS Romulea has used contributions provided by the Baroni Foundation to finance the implementation of the Autistic Football Club sports program and donation of a regional association of families of autistic people.

In Italy, the majority of sports programs and projects for autism are promoted by private associations, informal groups, or small local entities primarily funded by the registration fees of the athletes themselves and only to a small extent by public or private grants, with the support of local volunteers. There are still very few sports clubs that have developed specialised programs and made adjustments to their facilities, as they cannot benefit from direct support from the national government, local administrations, or large sports federations.

Finally, in addition to financial support, we recommend contacting the main private volunteer organisations promoting the rights of people on the autism spectrum in Italy with regional offices: **Gruppo Asperger**, **Angsa**, **Anffas**. They are key players in the field of autism in Italy and can support new projects on national and regional level, working in coordination with associations of professionals and individuals on the autism spectrum.

Here are the contacts for the national offices

- [Gruppo Asperger onlus](#)
- [Angsa aps onlus](#)
- [ANFFAS ets-aps](#)

To date, unfortunately, there are still few projects that involve autism and sports. However, thanks to the support of the **Lega Calcio a 8** (8-a-side Football League) and the **Lega Nazionale Dilettanti** (National Amateur League) and in collaboration with other dedicated football organisations (Insuperabili, Meraki APS Empoli FS, Albano Primavera, SS Lazio, AS Roma FS Meta Coop), SS Romulea has managed to implement an ambitious project in the 2023/2024 sports season; an entire league and first championship dedicated to inclusive and integrated teams,



with autistic and not autistic players, with and without intellectual disabilities, the championship [Lega Calcio a 8 Unica](#).

In Croatia:

In Croatia, sports programs and projects catering to autistic individuals generally fall into two main categories.

The first category comprises programs developed and managed by NGOs specialising in autism. These initiatives are typically funded by small grants from local government bodies and receive substantial support from local volunteers and the community. Funding for these programs is often a combination of small local grants, agreements allowing free use of local sports facilities, and modest membership fees from participants and their families.

In the second category are sports clubs that have established specialised programs and made necessary adjustments to their facilities. While these clubs may receive some support from national and local governments as well as sports associations, the bulk of their funding comes from membership fees.

Currently, there is no centralised website or government office providing comprehensive information on funding for sports and autism programs in Croatia.

In Portugal:

There are still not many projects that involve autism and sport. However, Inovar Autismo managed to implement a project in 2021, through a partnership with a Portuguese tennis club, which was funded by the [Portuguese Institute for Sport and Youth - IPDJ](#), as part of a program run by this institute called the "[National Sport for All Program](#)".

As far as the national theme is concerned, presenting project proposals to local councils, in particular to councillors responsible for sport and social rights, is not only a way of publicising the need for projects in the field of inclusive sport but also to find out about possible ways of requesting funding from local councils.

The legal nature is very important in Portugal: for example, a federation that wants to apply for funding from the "Sport for All Program" mentioned above, must ensure that it meets the requirements of the beneficiaries of this source of funding, i.e. that is a federation with a public sporting utility. Another alternative is for sports clubs to look for associations that are developing programs in the field of sport and inclusion. As long as these associations (such as Private Institutions of Social Solidarity - IPSS) are financed by funds that are looking for IPSS projects in the area of sports.



6.3 Which sports and how

This section will be available in the final version of the program.

6.4 Knowledge of staff members

This guide provides the basic knowledge needed to set up a sports activity accessible to autistic people. However, to enhance the quality of the offer and to facilitate the activity of the staff, it is important to follow one or more training courses.

Staff members should possess knowledge about autism, particularly understanding difficulties that environments generate and the kinds of support, changes and precautions that may be necessary. Supporting autistic individuals is a specialised role that can be challenging, and as such, staff members should receive thorough training and ongoing support. This training should cover essential areas such as (NAT, 2019):

- Understanding and empathising with the day-to-day needs of autistic people.
- Practical communication techniques for interacting with autistic individuals and supporting their communication.
- Assisting in decision-making with autistic individuals and promoting their autonomy.
- Recognising sensory needs and learning how to meet them effectively.
- Preparing and supporting autistic individuals in coping with change and transitions.
- Understanding, preventing, and responding to distress, including behaviours caused by challenging situations.

Compensation for their work should reflect the significance of their role (NAT, 2019).

In France:

In France, the [Autisme Info Service website](#) has a Training section which includes [professional training](#) courses as well as [free training courses](#). We advise you to browse their website to find the training course that suits your profile and your needs, availability, prices, and so on.

We are placing particular emphasis on the autism resource centres (CRA), which are the key players in the field of autism in France. They are organised at regional level and work in coordination with professionals, the people concerned, etc. They offer [training courses](#) and [E-learning tools](#).

In Italy:

In Italy, there is the [Osservatorio Nazionale Autismo](#) (National Autism Observatory) that promotes training activities dedicated to professionals in the healthcare, social and educational sectors, and collaborates with university institutions and professionals with documented



experience in autism. It also has a platform dedicated to distance learning, [EDUISS](#) of the ISS, **Istituto Superiore di Sanità** (Higher Institute of Health). ISS publishes National Guidelines about autism with recommendations based on scientific evidence.

Additionally, almost all Italian public and private universities offer autism training courses, first and second level masters, conferences on specific topics, and study days with professionals from the international panorama. They also set up observation, research, and training laboratories on social and cognitive neuroscience. Similar trainings are organised by private volunteer organisations promoting the rights of people on the autism spectrum too.

Finally, [Edizioni Centro Studi Erickson](#), a renowned publishing house and disability training centre in Italy, offers training and updating activities for teachers, school principals, pedagogues, professional educators, social workers, psychologists, psychotherapists, speech therapists, and other social and healthcare operators. They are accredited by the Ministry of Education, University and Research for school personnel training, by the Ministry of Health as an ECM (Continuing Education in Medicine) provider, and by the National Council of Social Workers (CNOAS).

In Portugal:

There are some resources such as a course [manual for sports coaches](#) drawn up by the Portuguese Federation of Sport for People with Disabilities available on the internet and in this case published by the Portuguese Institute for Sport and Youth, although it doesn't focus exclusively on autism. This manual includes tips such as: "See the person and not their disability"; "Listen to the athletes, as they are experts in their disability and know what the best adaptations are for them".

Concerning training, Inovar trained tennis coaches and the training modules were:

- Human Rights, Disability and Inclusion - a new approach;
- Barriers to participation and inclusion - how to deal with them;
- Emotional Intelligence and Communication;
- Mediation for Inclusion;
- Autism.

These themes proved crucial for gaining a better understanding of autism and inclusion and, above all, for preparing the coaches to work with autistic people, since they realised the main characteristics, difficulties and strategies for including them. For their part, the coaches also helped the trainers realise what the main challenges are in the context of sports.

In EU in general:



[IPA, Autism - training for inclusion](#): The IPA+ project has developed and trialled two online trainings to cover the educational requirements of professionals with different levels of experience and know-how:

- Module 1: Introduction
- Module 2: Definition and conceptualization of ASD & Aetiology of autism and associated conditions
- Module 3: Basic principles and strategies of intervention & Specific support and intervention programs
- Module 4: Intervention models of reference & Strategies to design and evaluate the Personal Development Plans
- Module 5: Specific knowledge of the concrete characteristics of each autistic people
- Module 6: Characteristics and needs in different contexts and stages of life
- Module 7: Competences and professional profile

[SISAAP - The beginners guide on Sport on the Spectrum](#): This guide/handbook has been developed with an intention to provide an easy to use tool that can be a starting point for developing sports programs, showing some important steps and factors in this journey. In two years that this resource was developed they met to discuss their experiences in this field and to exchange ideas and knowledge.

We also invite you to discover the [analysis of existing sports programs](#) drawn up as part of this project, so that you can find out more about existing sports models and the different learning methods that can be used with autistic people.



6.5 Practical insights: experiences from organisations and service providers that have successfully established and run sports activities tailored for autistic individuals

6.5.1 ASPTT Fédération Omnisports experience (FSASPTT)

In 2016, one of the ASPTT's clubs, [ASPTT Montpellier](#) (200 volunteers and 25 employees) set up a sport project for the inclusion of autistic children. This project was born from an observation: autistic children are excluded from sports and practising sport enables people to improve their self-esteem, relationships with other people and the development of coordination and motor skills. Thereby, the [ASPTT club of Montpellier](#) created a program based on inclusion and on the 1 to 1 approach: one autistic child is included to exercise in a group of neurotypical children with the support of an educator specialised in Adapted Physical Activity.

The [ASPTT club of Montpellier](#) developed this project with the financial support of a corporate foundation: [the Orange Foundation](#) (Fondation Orange). Quickly, in the same year, the [ASPTT Federation Omnisports \(FSASPTT\)](#) signed a convention with the French National Olympic and Sports Committee (CNOSF) and the [Orange Foundation](#) to share this pilot project in other ASPTT clubs around France, allowing autistic children to exercise with neurotypical children. It's the start of the program [SOLIDARITE autisme by ASPTT](#). In 2024, this program is available in 20 ASPTT clubs around France, which represents 175 children (versus 27 in 2016). [ASPTT Brest](#) also shares this program in Africa (Dakar, Cape Verde, Gambia and Morocco), thus allowing more than a hundred autistic people to play inclusive sport.

To diffuse the program, the ASPTT Fédération Omnisports (FSASPTT) support financially supports the ASPTT clubs. For that, the FSASPTT searches for grants. Some structures have helped us to finance this program, for example: the [Foundation Initiative Autisme](#), the [Foundation AG2R la Mondiale](#), [the Orange Foundation](#) etc. The [ASPTT Fédération Omnisports](#) also helps the clubs to set up the project with different tools.

To summarise, the ASPTT club must be voluntary to set up the program. The project has to be validated during the club management committee. Upon validation, an Adapted Physical Activity educator is hired. There are two possibilities: either work with an educator of the club who already has this qualification and in this case there is an adaptation of their employment contract, or to employ an educator with the support of the Profession Sport and Leisure federation or the French society of professionals in adapted physical activity. It's also possible to obtain support from the State by the intermediary of an Employment support contract (Contrat d'Accompagnement à l'Emploi, CUI-CAE). Then, the educator employed and the project manager are trained by the ASPTT Fédération Omnisports (FSASPTT). We recommend a basic training in autism for the educational team and a more specific training for the supervisor who will welcome the child in its group.



The success of this program is also due to the tools made available by the ASPTT Fédération Omnisports (FSASPTT). Some of the tools are available in chapter 5 of this program.

Website: <https://asptt.com/>

Email: contact@asptt.com

6.5.2 SS Romulea – Romulea Autistic Football Club’s experience – Italy (SSR)

The team was originally founded during the World Autism Awareness Day (WAAD) tournament in 2015 with the support of:

- [Gruppo Asperger Lazio](#) (volunteer organisation of families and persons on the autism spectrum)
- [Giuliaparla onlus](#) (cooperative providing services)
- [Cooperativa Garibaldi](#) (a cooperative of workers on the autism spectrum)

We created the Autistic Football Club because despite the existence of several important football and disability-related sporting events many exclude much of the autism spectrum:

- Paralympic Games: football is for blind or players with cerebral palsy.
- Special Olympics: Intellectual disability requirement.
- Special federations of integrated football teams: with modified FIFA rules that are not fully inclusive and intellectual disability requirement.

We know that only one third of people on the autism spectrum have an intellectual disability. Even players on the autism spectrum without an intellectual disability face difficulties in inclusion and sports practice.

In 2018, the Autistic Football Club became an official team of [SS Romulea](#) (SSR), which is a historic Italian football club, founded in 1922, for all youth categories accompanying them into professional football.

SSR now fosters social inclusion through sport at four levels:

1. Through the Romulea Autistic Football Club where 2/3 of players are young adults and adults on the autism spectrum who play in ordinary championships together with other players, who also have additional support functions: volunteer educators, parents and friends.
2. Children on the autism spectrum are playing in the mainstream football teams of SSR, including the summer camp, in the context of "Elite Football School", collaborating with the cooperative of professionals Giuliaparla.
3. Players on the autism spectrum included in Romulea eSports: electronic sports practised at a competitive and organised level (the new Olympic discipline), collaborating with MCES Academy Roma;
4. A traineeship for workers on the autism spectrum as part of our staff.



At SSR, inclusive football aims to improve social inclusion and psycho-motor skills through a structured sports activity, tailoring interventions to the characteristics and needs of each individual, including motor profiles, while fostering inclusive social interactions and events.

The game is inclusive because it strictly adopts FIFA rules, unlike other special projects that modify the rules of the game and are limited to a separate special sport context, involving only special teams (the so-called integrated football). In contrast, in inclusive football all players have to follow the same rules of the game and play a genuine competitive game against any team, but teammates help each other to understand and follow the rules of the game, as well as social rules.

The captain of Romulea Autistic Football Club, Pietro Cirrincione, says: *"In my life I practised sport since childhood, but always facing difficulties of accessibility and inclusion, now I can finally play sport removing all barriers and with the feeling of being at ease, enjoying to be a part of a social context"*.

Website: <https://autisticfootball.club/en/>

Email: calcioinclusivo@ssromulea.it

6.5.3 Feedback of some coaches

During the construction of this guide, it was possible to contact some coaches of autistic people and gather some testimonies.

One tennis coach, who already has experience working with autistic youngsters, pointed out that in the beginning he experienced some difficulties: *"I began to feel that although the students were prepared to integrate the autistic student into the lessons and help him as much as possible, as time went by, they themselves also began to get a little tired of having to wait a long time, in other words, they felt that they were being harmed by the fact that the lesson couldn't have a 'normal' dynamic, like the others, when the autistic colleague was there. I began to feel this difficulty over time"*.

Despite this difficulty, he recognises that in the case of one youngster he worked with as part of an Inovar Autismo project, there was progress when the training was one-to-one: *"(...) in a more individual context of one-to-one work, this doesn't happen any more, it's closer work, you notice faster progress"*. However, autism is a spectrum and what works for one youngster is different for others, as was the case with two autistic youngsters who preferred to train together: *"(...) they started off individually and then ended up working together (...). They had more or less the same 'limitations' for practice and had similar needs in terms of what the development of the practice would be. I ended up putting them together and it worked out very well! (...) when one of them couldn't go and only the other one went, it was much more difficult without the colleague. They wanted to do it with their colleague (...)"*.

In the case of the surf instructor, knowledge about the person is a key skill when training autistic people: *"(...) we have a few tips that we learnt from Inovar as well, but it's very much a matter of*



'getting to know them', seeing how they react to this or that and understanding how we can deal with each of them, because each of them has their own characteristics and each has their own way of dealing with people."

For a handball and swimming coach, his advice to other coaches is to look at the person regardless of whether they are autistic or not, as reflected in the following words: *"I don't care about any of that. I'm only interested in two things: realising what limitations he has and what potential he has. In other words, the limitations... I can try to go there to see if it's possible to 'move' anything; if I realise that it's not possible to 'move', forget it. And the abilities he has, I'll try to make the most of them".*



CHAPTER 7: CONCLUSION AND RESOURCES

7.1 Conclusion and the impact of the project

This document is the version 1.2 of our model, and this concluding section will therefore be reworked in future versions. We hope that the final version of this model will encourage organisations to take their first steps in developing new and innovative sports programs accessible to autistic people, and will encourage people on the spectrum to participate. A wide range of resources were used to create this model, which can be found in the bibliography and appendices.

Among the tools you can discover, we particularly invite you to take a look at the Guide to make the right choice which we will also be converting into a questionnaire for future versions.

We would like to express our sincere thanks to all those who helped us to develop this project, in particular those who responded to the questionnaire and to the organisations that made it possible to distribute it, as well as the numerous people interviewed as part of this project. We would also like to extend our sincere thanks to all the people who have read this model and responded to the questionnaire to help us improve this first version.

7.2 Resources

7.2.1 Internal tools

Tools Sacree:

- [Analysis of existing sport programmes](#)
- [Guide to choose the appropriate activity](#)
- [Sacree website](#)
- Literature review being submitted to a scientific journal

Tool developed by SUZAH and its partners:

- [Handbook SISAAP](#)

Tool developed by Inovar Autismo and its partners:

- [European Guide for the inclusion of persons on the autism spectrum.](#)

Tools created and used by the ASPTT Fédération Omnisports (FSASPTT):

- Sheet n°1: First contact
- Sheet n°2: General presentation of the child
- Sheet n°3: Motor skills



- Sheet n°4: Evaluation of the session
- Sheet n°5: End of season update

7.2.2 External tools

- Pictograms: <https://arasaac.org/pictograms/search>. To use the pictograms, respect the condition of use, notably the logo of ARASAAC and the citation: *The pictographic symbols used are the property of the Government of Aragon and were created by Sergio Palao for ARASAAC (http://www.arasaac.org), which distributes them under a Creative Commons BY-NC-SA Licence.*
- See below in our bibliography and list of website links the sources used to write this model.



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APPENDIX - Sacree model V1.2:

- Appendix 1: Sheets developed and used by the ASPTT
- Appendix 2: Sport Preference Questionnaire for Autistic Individuals
- Appendix 3: Guide to choose the appropriate sports activity



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APPENDIX 1- Sheets developed and used by the ASPTT:

Sheet n°1: First contact

Sheet n°2: General presentation of the child

Sheet n°3: Motor skills

Sheet n°4: Evaluation of the session

Sheet n°5: End of season update



**Fiche 1:
First contact**

Name and surname :

Date of birth:/...../.....

Chosen activity :

- Kidsport Swimming Babysport
- Other:.....

Availabilities to practise the activity (several possible choices):

- Monday Tuesday Wednesday Thursday Friday
- Saturday

Contacts parents :

Tel 1:

Tel 2:

Mail 1:

Mail 2:

Fiche 2: General presentation of the child

My name is: Year of birth :

My mother: /...../.....

My dad:

My brothers and sisters:

In case of emergency:

Person to contact:

Phone number:

Host structure

Type (Sessad, Ulis, MPEA, CAMPS, IME...)	
Name of the structure	
Name and contact details of the referent	

Follow up of the child

	Name and surname	Contact details
Psychomotrician		
Psychologist		
Neurologist		
Occupational therapist		
Speech therapist		
Physiotherapist		
Others, specify :		

Treatment and/or diagnosis of the child: :

.....

.....

Mode of communication with the child :

- FSL PECS MAKATON Personal mode
 Tablet Written No or little communication

Others, specify :.....

The child's mode of expression:

- Words Sentences Sounds Cry
 Gestures Pointed PECS workbook

Others, specify :.....

Sensory considerations:

- Hypo sensitivities Hearing Visual Gustative
 Hypersensitivities Epidermic Vestibular
 Search for sensory sensations:.....

Relationship with others (Physical, sensory and social interaction) :

- Avoid contact Doesn't know how to deal with peers Physical contact possible
 Search the contact Imitation of peers

How I manifest my desires:

CLEANLINESS (autonomy)	
FEAR	
HUNGER (particularity)	
PAIN	
COLD	
FATIGUE (sleep well at night)	
THIRST	

How I manifest my emotions :

JOY	
SATISFACTION	
DISAPPOINTMENT	
SADNESS	
ANGER	
FRUSTRATION	

Others important informations to communicate to us (allergy, phobia) :

.....

Fiche 3: Motor skills

Knowledge of the body: *Does your child know where they are ?*

- Head Hair Eyes Ears Nose Mouth
 Arms Hands Belly Back Legs Feet

Physical skills: *Does your child know how to ?*

- Running Climbing Blowing Opening/closing the mouth Stretching out the arms
 Bending the arms Stretching out the legs Bending the legs
 Looking at a specific point (floor, ceiling, wall...)

Motor development:

- Good Medium To develop Hypotonic

Additional information:

I like	I don't like
- - -	- - -
I know	I don't know
- - -	- - -

In case of a crisis what are the elements or strategies which permit to calm your child? (example: a song, a nursery rhyme, a comforter...)

.....

.....

.....

.....

.....

.....

.....

Date:

Supervisor(s) :

Surname and first name of child:

Activity practised:

Child behaviour :

Enthusiast Cooperative Tired Refuses to practice

Comment:.....

Control of emotion:

No control, sharp, impulsive reactions Good control

Low/Medium control, comments taken into account Full control

Comment:.....

Relationships with others:

No or few relationships Relations conflictuelles

Relation exclusive avec l'adulte Confiante (coopération et échanges)

Comment:.....

Understanding instructions:

Does not understand To be developed Good

Comment :.....

Axis of work:

.....
.....
.....

Surname and first name of child:

Activity chosen:

- Kidisport
 Swimming
 Babysport

 Other:.....

Practice day:

- Monday
 Tuesday
 Wednesday
 Thursday
 Friday
 Saturday

Regular attendance:

- Yes
 No

1st year	
Balance	
Jump	
Catch	
Launch	
Opposition	

Move	
Flotation	
Jump	
Immersion	
Breath	
Beat Leg to wall	

Recap	
Recommandation	
Integration	

2nd year	
Balance	
Jump	
Catch	
Launch	
Opposition	

Move	
Flotation	
Jump	
Immersion	
Breath	
Beat Leg to wall	

Recap	
Recommandation	
Integration	

3rd year	
Balance	
Jump	
Catch	
Launch	
Opposition	

Move	
Flotation	
Jump	
Immersion	
Breath	
Beat Leg to wall	

Recap	
Recommandation	
Integration	



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APPENDIX 2 - Sport Preference Questionnaire for Autistic Individuals



Sport Preference Questionnaire for Autistic Individuals

This questionnaire is all **about you and your personal preferences** when it comes to sports and physical activities. There are no right or wrong answers, so please answer honestly based on what you enjoy and feel comfortable with.

By completing this questionnaire, you'll gain valuable insights into the types of sports that best suit your needs and interests. Whether you're looking for a team sport, individual activity, or something in between, this questionnaire will help guide you in the right direction.

After completing this questionnaire, we invite you to explore our [“Guide to Making the Right Choice”](#). This resource is designed to help you discover the sport that best aligns with your preferences and interests.

1. What types of physical activities do you enjoy participating in?

- Team sports (e.g., soccer, basketball, volleyball)
- Individual sports (e.g., swimming, running, cycling)
- Martial arts (e.g., karate, taekwondo)
- Gymnastics or dance
- Outdoor activities (e.g., hiking, rock climbing, kayaking)
- Other (please specify): _____

2. Are there any sports or physical activities you have tried in the past and enjoyed?

- Yes
- No
- If yes, please list: _____

3. Do you prefer team sports, individual sports, or activities that can be done alone?

- Team sports
- Individual sports
- Activities that can be done alone



No preference

4. Are there any specific sports or activities you have always wanted to try?

Yes

No

If yes, please list: _____

5. How do you feel about competitive sports versus non-competitive activities?

Prefer competitive sports

Prefer non-competitive activities

No preference

6. Do you have any physical limitations or health concerns that may affect your choice of sport?

Yes (please specify): _____

No

7. Are there any sensory sensitivities or preferences that should be considered when choosing a sport?

Yes (please specify): _____

No

8. Do you prefer sports or activities that involve structured routines and rules, or ones that allow for more flexibility and creativity?

Prefer structured routines and rules

Prefer flexibility and creativity

No preference

9. Are you interested in learning new skills and techniques, or do you prefer activities that are more familiar and comfortable?

Interested in learning new skills

Prefer activities that are familiar and comfortable



No preference

10. Do you have any preferences regarding the environment where the sport is played (indoors/outdoors, noisy/quiet, crowded/uncrowded)? Circle what you prefer.

- Indoors/outdoors
- Noisy/quiet
- Crowded/uncrowded
- No preference

11. How do you feel about social interaction during sports activities? Do you prefer working independently or interacting with others?

- Prefer working independently
- Prefer interacting with others
- No preference

12. Are there any specific goals or outcomes you hope to achieve through participating in sports or physical activities?

- Yes (please specify): _____
- No

13. How do you typically cope with stress or anxiety? Are there any sports or activities that help you feel calm and relaxed?

- Yes (please specify): _____
- No

14. Do you have any preferences regarding the duration and intensity of physical activity sessions? Circle what you prefer.

- Short duration, low intensity
- Long duration, high intensity
- No preference



15. Are there any logistical considerations (such as transportation, cost, or scheduling) that may impact your ability to participate in certain sports or activities?

Yes (please specify): _____

No



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APPENDIX 3 - Guide to choose the appropriate sports activity

A GUIDE TO THE RIGHT CHOICE

Appendix to the Sacree model



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Disclaimer:

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This guide, attached to the project Sacree, aims to provide a simple tool for parents, siblings, coaches, autistic persons, to select the best activity that suits them.

Because there is no universal recipe to find the sport activity that would make you enjoy practicing, here are some tips on which criteria to focus on.

DIRECTORY

How to read the directory?

The directory is based on the classification of sports on two (or three) categories of criteria.

CHARACTERISTICS OF THE ACTIVITY

INDOOR OUTDOOR	Does the activity is mostly played outside (e.g. natural environment) or inside (e.g. gymnasium)
TEAM INDIVIDUAL	Whether the activity is a team or an individual sport
TOOL FREE HAND	If the activity involves to manipulate a tool during the whole activity (e.g. a racket), or ponctually (e.g. a ball)
FACE-TO-FACE OPPOSITION	If the activity involves a direct confrontation to any/several oponents
CONTACT	The degree of which the activity involves to get in contact with partners/opponents
OPEN CLOSED	Open practices : high levels of uncertainty, regarding the environment and/or the type of actions to perform. Closed activities : participants develop their skills within a very stable environment designed for their sport.

DIRECTORY

How to read the directory?

The directory is based on the classification of sports on two (or three) categories of criteria.

SPECIFIC NEEDS

Motor	The degree of fine motor skills the player has to manage. Temporal pressure, the manipulation of tools, the open aspect, are criteria
Sensory	The degree of sensorial informations (mostly tactile) that participants has to tolerate. Contact with other participants is one of the main criteria.
Cognitive	The complexity and number of informations that participants have to manage at the same time. The complexity of decision-making process.
Psychology	Presence of stressfull and anxiety-generating situations. Presence of a score, a direct confrontation to any or several opponent, risk of fall, are one of the main criteria.
Adaptability	The degree of uncertainty regarding the progress of the activity, that requires high adaptation/flexibility skills. Temporal pressure, associated to the open-skills aspect, are ones of the main criteria.
Social aspects	The degree of interactions with partner and/or opponents, which require communication skills.

DIRECTORY

How to read the directory?

The directory is based on the classification of sports on two categories of criteria.

PERSONNAL PREFERENCE

Fullfill it yourself □

Personnal preferency

- *Since of the main criteria is, ultimately, that the participant has a personnal attraction toward an activity, this is one of the main criteria. Fullfill the column with you own notations, from – (I don't like it a all), to +++ (I love it)*

DIRECTORY

SPORT	CHARACTERISTICS						SPECIFIC NEEDS						Fullfill it yourself
	INDOOR OUTDOOR	TEAM INDIVIDUAL	TOOL FREE HAND	FACE-TO-FACE OPPOSITION	CONTACT	OPEN CLOSED	Motor	Sensory	Cognitive	Psychology	Adaptability	Social aspects	Personnal preferency
SWIMMING	INDOOR	INDIV	FREE	NO	-	CLOSED	+++	++	+	+	+	+	
ARCHERY	BOTH	INDIV	TOOL	NO	-	CLOSED	++++	+	++	++	+	+	
BADMINTON	INDOOR	BOTH	TOOL	YES	-	OPEN+	+++	+	+++	++	+++	++	
BASKET-BALL	INDOOR	TEAM	BOTH	YES	+	OPEN+	++++	++	+++	+++	+++	+++	
CYCLING	OUTDOOR	INDIV	TOOL	NO	-	OPEN	++	+	+	+	++	++	
BOXE	INDOOR	INDIV	TOOL	YES	++	OPEN+	++	+++	+++	+++	+++	++	
CLIMBING	BOTH	INDIV	BOTH	NO	-	OPEN	+++	+	++	+++	++	++	
DANSE	INDOOR	BOTH	FREE	NO	+	CLOSED	++	+	+	+	+	++	
FENCING	INDOOR	INDIV	TOOL	YES	+	OPEN+	++++	++	+++	++	+++	++	
FITNESS	INDOOR	INDIV	FREE	NO	-	CLOSED	+	+	+	+	+	+	
GOLF	OUTDOOR	INDIV	TOOL	NO	-	CLOSED	+++	+	+	+	+	+	
GYMNASTICS	INDOOR	INDIV	FREE	NO	-	CLOSED	+++	+	+	++	+	+	
HANDBALL	INDOOR	TEAM	BOTH	YES	+	OPEN+	++	++	+++	+++	+++	+++	
HORSE RIDING	OUTDOOR	INDIV	TOOL	NO	-	OPEN	+	+++	+	++	++	++	
MARTIAL ART	INDOOR	INDIV	BOTH	YES	++	OPEN+	+	+++	++	+++	+++	+++	
PARKOUR	BOTH	INDIV	FREE	NO	-	OPEN	+++	+	++	+++	+++	+	
RUGBY	OUTDOOR	TEAM	BOTH	YES	++	OPEN+	+++	+++	+++	+++	+++	+++	
RUNNING	OUTDOOR	INDIV	FREE	NO	-	OPEN	+	+	+	+	+	+	
SOCCER	OUTDOOR	TEAM	BOTH	YES	+	OPEN+	+++	++	+++	++	+++	+++	
SURF	OUTDOOR	INDIV	TOOL	NO	-	OPEN	+++	++	+	++	++	+	
TABLE TENNIS	INDOOR	BOTH	TOOL	YES	-	OPEN+	+++	+	+++	+	+++	++	
TENNIS	BOTH	BOTH	TOOL	YES	-	OPEN+	+++	+	+++	+	+++	++	
TRACK AND FIELD	BOTH	INDIV	BOTH	NO	-	CLOSED	+	+	+	+	+	+	
VOLLEYBALL	INDOOR	TEAM	BOTH	YES	+	OPEN+	+++	+	+++	++	+++	+++	
WALKING	OUTDOOR	INDIV	FREE	NO	-	CLOSED	+	+	+	+	+	+	
YOGA	INDOOR	INDIV	FREE	NO	-	CLOSED	+	+	+	+	+	+	

EXAMPLES

In the next part please find some examples to illustrate the different continuums that exist between activities, regarding the specific needs of autistic persons.

MOTOR CONTEXT

from the most demanding... to the less



Basket-ball



Golf



Racket sports



Fitness



Walking

SENSORY CONTEXT

from the most demanding... to the less



Judo



Swimming



Fitness



Rugby



Basket-ball



Walking

COGNITIVE CONTEXT

from the most demanding... to the less



Soccer

© dak



Parkour



Fitness



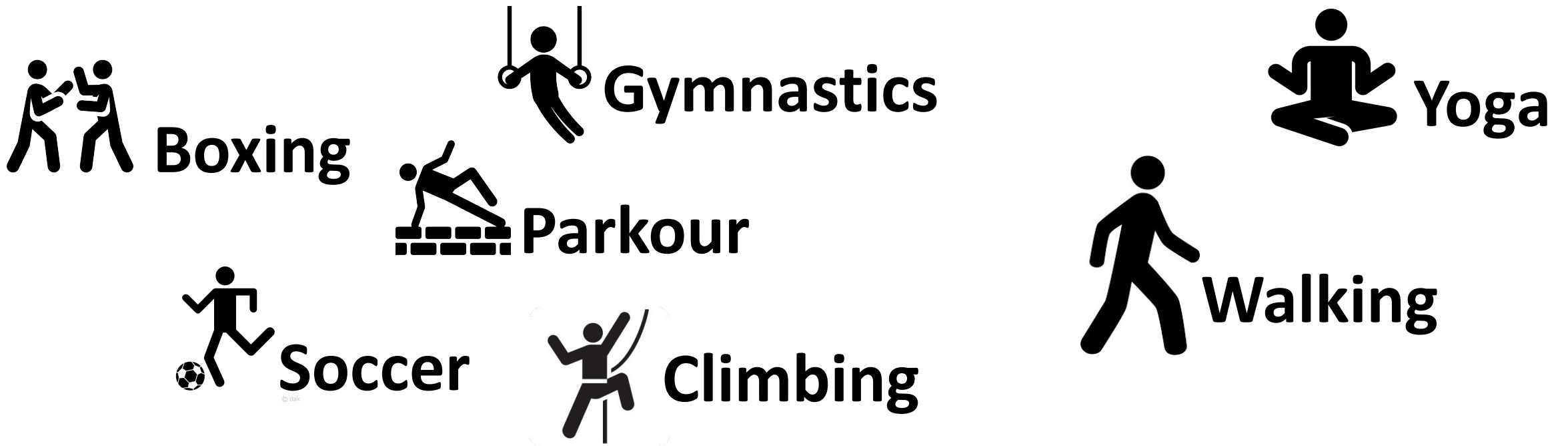
Basket-ball



Walking

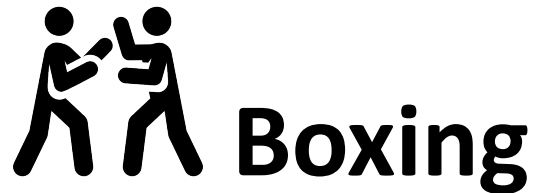
PSYCHOLOGICAL CONTEXT

from the most demanding... to the less



SOCIAL CONTEXT

from the most demanding... to the less



ADAPTABILITY CONTEXT

from the most demanding... to the less



Basket-ball



Climbing



Gymnastics



Soccer

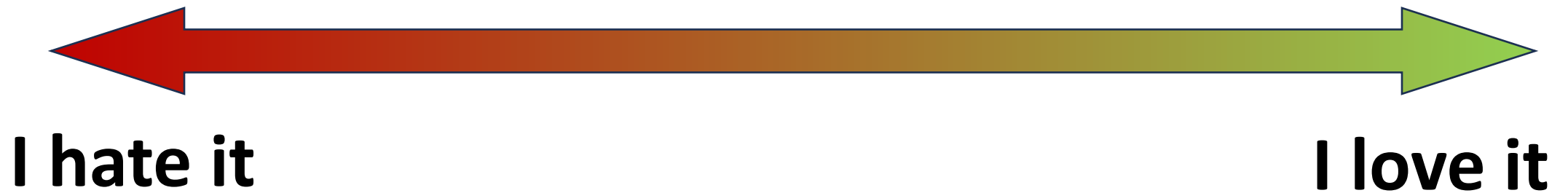


Parkour



Golf

PERSONAL CONTEXT



Personal preference 😊