

## Games and the health of children with Down Syndrome

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### ABSTRACT

The game is universal and its thematization is essential. Lived, explored and felt, they are present mainly in childhood as entertainment, favoring the exploration of imagination and creativity, social interaction, learning, the expression of feelings and emotions. For children who are born with Down Syndrome and have characteristics such as cognitive impairment, delays in neuropsychomotor development and limitations to communication, playing is a powerful strategy for their development. From this perspective, the present study aims to systematize the knowledge published in Brazilian journals about the use of games with children with Down Syndrome. This is a literature review whose data collection was carried out in the following databases: Scielo, Lilacs and Google Scholar. The time frame was the years 2018 to 2023 and the selected language was Portuguese. An estimated 8 original articles were selected for qualitative analysis. We conclude that there is concrete and positive evidence about the importance of the use of games in the cognitive, motor, learning and socialization development of children with Down Syndrome.

**Keywords:** Games, Health, Down Syndrome.

### INTRODUCTION

Play is present in our lives even before we are born. Still in the mother's womb, babies play with their little fingers, with the umbilical cord, kick and respond to external stimuli such as the sounds of music and the speech of people who interact with them, for example. Games make up the routine and imagination of the being, from childhood to old age, favoring the being who plays and plays an exploration of the imagination, their creativity, expression, emotions and interactions with themselves, with others and with the environment in which they live. Thus, the game is part of the history of humanity, it can even be said that it extrapolates, as it is beyond the human, since playing is part of life, just stop to observe the animals that play (GOMES-DA-SILVA, 2016).

The act of playing positively impacts human beings in the most different aspects, such as motor, cognitive, sensory, and perceptual development. The intervention with games can also provide the development of significant skills for social interaction, improvement in learning and even in the care of comorbidities, syndromes or deficits in physical, mental or social health. Its essence is like a playful drive, because, when the player plays, there is a force that unconsciously breaks with the rigid coding, "it is the

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force of desire that creates a new world, a peculiar universe, as powerful as it is ephemeral" (GOMES-DA-SILVA, 2015, p.104).

The problem of this research arises from the difficulties encountered and also reported by professional colleagues in dealing with children with Down Syndrome, from issues related to the improvement of learning, interpersonal relationships and the quality of life of these children. Therefore, it is sought to acquire knowledge, through research carried out and published in Portuguese in Brazilian journals, and to describe the evidence resulting from these researches, through a bibliographic review of the literature in order to contribute, through this dissemination, to the scientific community, health and education professionals and all those who work directly with the researched public.

The objective of this study is to systematize the knowledge published in Brazilian journals from 2018 to 2023, about the use of games aimed at the development of children with Down Syndrome. This specific population has delays in neuropsychomotor development, intellectual disability, limitations in cognitive, communicative or social interactions; due to a genetic condition in which individuals have three copies of chromosome 21 in their cells instead of two, which is known as Trisomy 21 (DIEGUES, 2018).

## **METHODOLOGY**

This study has a qualitative nature, as it performs an analysis beyond the appearance and emphasizes mainly its essences in order to obtain an explanation about the origin of the phenomena. The typology is descriptive, with no interference from the researcher. Descriptive research has the main objective of describing the main characteristics of a given population or phenomenon, the relationship between certain variables (GIL, 2002; 2010). In addition, it was based on the perspective of bibliographic research, which consists of the investigation of the scientific literature to raise and analyze what has already been produced on a given theme. This approach included basic activities of identification, compilation, filing, analysis and interpretation (MARCONI; LAKATOS, 2008).

The bibliographic survey and the selection of articles were carried out in the databases: Scielo, Lilacs and Google Scholar, between the months of October and December 2023. The time frame of the studies for this review comprises the period 2018-2023 and the language selected in the searches was Portuguese. For the search in the databases, keywords related to the investigated theme were crossed, namely: Games AND Children OR Down Syndrome; Play AND Children OR Down Syndrome; Games and Play AND Child Development OR Down Syndrome. The productions made available for free download have been organized in a local folder separated by year and corresponding themes. Therefore, an electronic spreadsheet was created to store the data, using the Microsoft Excel® 2019 program.

The following inclusion criteria were adopted: a) articles with a specific focus on the health-related game of children with Down Syndrome; b) articles published in Portuguese with free accessibility. The



following EXCLUSION criteria are: a) publications in the form of books or chapters, term papers and review articles; b) duplicate, incomplete, undownloadable or paid articles.

The selection of studies was carried out according to the following steps: 1) survey of the files in the databases with the mentioned descriptors and selection based on the reading of the titles to remove the repeated articles; 2) reading of the abstracts in order to exclude studies that did not focus on the use of games for the health of children with Down Syndrome; 3) reading the selected articles in full after excluding those eliminated from the abstract. In this sense, the study is justified by the need to know about the universe of the game as a health promoter for children with Down Syndrome.

## **DEVELOPMENT**

This study seeks to promote reflections on the development and learning of children with atypical development, specifically those with Down Syndrome, in Early Childhood Education, recognizing the role of games as efficient mediators to achieve these goals. The importance of giving visibility to play is highlighted, one of the Learning and Development Rights that must be promoted at all stages, such as:

[...] in Early Childhood Education, children's learning and development have interactions and play as structuring axes [...] the fields of experiences constitute a curricular arrangement that welcomes the concrete situations and experiences of children's daily life and their knowledge, intertwining them with knowledge that is part of cultural heritage (BRASIL, 2017, p.40).

In this way, learning rights ensure "conditions for children to learn in situations in which they can play an active role in environments that invite them to experience challenges and feel provoked to solve them" so that children develop autonomously and take the lead in the construction of their knowledge (BRASIL, 2017, p. 37).

In Brazil, the National Guidelines for Early Childhood Education (2010) specifically regulate this stage of education. In addition, the National Common Curriculum Base (BNCC, 2017) brought the security of fundamental learning throughout basic education, in a progressive way, aiming at development and learning rights. It is a normative document that indicates a set of essential learning for students to progress through the stages and modalities of Basic Education (BRASIL, 2017).

Specifically reflecting the inclusion aspects for the development and learning of children with atypical development in Early Childhood Education, one of the BNCC's proposals is to combat the "historical exclusion that certain groups have faced over time, including the target audience of Special and Inclusive Education" (ANGELINO, 2019, p.72). All children, regardless of their typical development or not, have the right to quality education in both private and public schools. This proposal is aligned with one of the competencies presented in the BNCC (2017), namely:



Exercise empathy, dialogue, conflict resolution and cooperation, making oneself respected and promoting respect for others and human rights, welcoming and valuing the diversity of individuals and social groups, their knowledge, identities, cultures and potentialities, without prejudice of any kind (BRASIL, 2017, p. 10).

This perspective motivated the development of this literature review, which seeks to describe actions that contribute to and provide the potential of all children, including atypical children and, in the case of this review, children with Down Syndrome. The objective is to systematize the knowledge published in Brazilian journals in recent years about the use of games for the development of children with Down Syndrome, taking into account their preferences and aversions, for this, mediation with the use of games is a strong ally.

Down Syndrome is a genetic condition that occurs due to three chromosomal abnormalities: trisomy 21 (the most well-known), translocation, and/or mosaicism. This chromosomal modification occurs during the formation of the fetus, more specifically during cell division, which will characterize the signs and symptoms of the syndrome (LEITE et al., 2018; OLIVEIRA, 2018).

According to Costa et al (2017), among the characteristics, it is common to find descriptions of dysfunctions in postural control in children with Down Syndrome, as well as difficulties in motor coordination, sensory-motor integration problems, and a delay in adapting to new environments. However, mental retardation, as one of the characteristics, affects the ability to assimilate new motor skills, as there is a lack of motivation to explore them. We can also highlight: hyperflexible joints, speech difficulties, generalized hypotonia, epicanthal folds in the eyes, protruding tongue and impaired motor development (MATTOS and BELLANI, 2010).

This review highlights the key role of play and play related to the active role that children should play in their own learning process. Playing allows the child to interact with others, use different languages, actively participate in school or social activities, exploring and expanding their knowledge, expressing themselves as a subject who dialogues and transforms, getting to know themselves, the other and building their identity. Therefore, according to the structuring axes of pedagogical practices, proposed by the National Curriculum Guidelines for Early Childhood Education (DCNEI) and by the National Common Curriculum Base (BNCC).

As a result of the database searches, 78 articles were found, classified according to the descriptors that addressed the relationship between games and the development of children and adolescents with Down Syndrome. However, after analyzing the titles, verifying the abstracts, thoroughly reading the selected articles, and applying the inclusion and exclusion criteria, (08) articles published between 2018 and 2023 were included for qualitative data analysis.

The data found are presented below, with the respective detailed analyses of the articles selected from the following categories: 1 - Epistemological Production; 2 - Methodological Scope; 3 - Results. The Epistemological Production is shown in chart 1, with the representation of information on authors, year of publication and area of knowledge (based on the training and specialization of the first author of each article) of the selected articles.

Chart 1 – Data on the epistemological production of the selected studies.

No.	Authors	Year	Field of knowledge
1	Diegues <i>et al.</i>	2018	Psychology
2	Pelosi <i>et al.</i>	2018	Occupational therapy
3	Pelosi <i>et al.</i>	2019	Occupational therapy
4	Lopes de Azevedo <i>et al.</i>	2019	Occupational therapy
5	Pelosi <i>et al.</i>	2020	Occupational therapy
6	Damas <i>et al.</i>	2021	Education
7	Pereira <i>et al.</i>	2021	Physiotherapy
8	Angelino <i>et al.</i>	2023	Mathematics

Source: survey data

From the information provided in chart 1, we identified that the author Miryam Bonadiu Pelosi<sup>4</sup> stands out with the publication of 03 of the 08 selected articles on the investigated theme. Regarding the year of publication, we had a uniform selection with practically two works per year, the exception being the years 2020 and 2023 with only one article published on the topic investigated here and the year 2022 with no publication. It is worth noting that between the years 2020 and 2023 the Covid-19 Pandemic was at its worst stage in Brazil, which perhaps justifies this portrayal.

We also identified that the predominant area of knowledge in research on the subject is Occupational Therapy. However, there were also works published by professionals in the areas of Psychology, Physiotherapy, Education and Mathematics. It is interesting to observe the contribution of different areas, denoting their interest and potential in the context of the production of academic works concerned with the development and learning of children with Down Syndrome. Despite this, it is noted that there are still few published studies when we take into account the importance of the theme.

In a bibliographic survey, Oliveira and Souza (2022) found that there are few investigations on practices involving children in Special Education from an inclusive perspective in Early Childhood Education. The analysis of 40 selected theses published between 2015 and 2019 revealed that the challenges related to the inclusion of this public in Early Childhood Education are linked to family, educational and institutional structures and, among the theses analyzed, only 04 of them more appropriately addressed the context of the research, indicating that "the theses in question highlight the

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need to review how the articulations between Special Education and Early Childhood Education occur" (OLIVEIRA; SOUZA, 2022, p. 143).

On the other hand, when dealing with the Methodological Scope of the selected productions, Chart 2 portrays the following information: title, sample, objective and instruments (games/games) used by the 08 studies that make up this review.

Chart 2 – Data on the methodological scope of the selected articles.

No.	Title	Sample	Objective	Instruments (games/play)
1	The Play Model in children with Down Syndrome.	08 children from 06 to 10 years old	To verify possible contributions of the ludic model and authors of Psychology to the analysis of play in children with Down Syndrome.	Playful Behavior Assessment Table. Play with various toys (structured and unstructured).
2	Playful activities for the development of oral and written language for children and adolescents with down syndrome.	05 children from 09 to 12 years old	OBJECTIVE: To investigate the results produced by a language workshop, focusing on the stimulation of phonological skills, and the understanding of the alphabetic system in a group of children with down syndrome.	Playful activities: reading or retelling of the guiding story, games or games adapted to stimulate phonological awareness, based on previously defined vocabulary; Graphic activities: written production, carried out by means of cutting and pasting, spelling or adapted activities and Free activities: psychomotor games, popular games such as songs, aiming at the stimulation of rhymes, make-believe games or other games from the toy library's collection.
3	The use of interactive games by children with Down syndrome.	13 children aged 10 to 13	To analyze three platforms and six virtual games, to describe the participation of children with Down syndrome in the use of interactive games, to identify the most accessible platform and the children's preference.	Six interactive games from the Leap Motion ( <i>Caterpillar count and Balloon buzz</i> ), Nintendo Wii ( <i>Mario Kart Wii and Nintendo Wii Sports – Tennis</i> ) and Timocco ( <i>Bubble bath and Falling fruit</i> ) platforms.
4	Use of audio description in the play of a child with down syndrome in early childhood education.	01 child of 02 years and 8 months	To analyze the use of audio description in the play of children with Down syndrome.	Playful behavior observation table. The use of audio description in children's play.
5	Occupational therapeutic activities developed with children and pre-adolescents with Down syndrome.	44 children from 02 to 13 years old	Describe the activities used in a therapeutic playroom with groups of children and pre-adolescents with Down syndrome and correlate them with the age group	The children were divided by age group into 3 groups and the activities were organized in such a way as to introduce the children to games, toys and games based on the repertoire of each group.

6	Children with disabilities and the importance of play in the playground.	06 teachers and 75 children from the 3rd year of elementary school	To carry out a proposal for pedagogical intervention with the introduction of games and/or games in the playground in a municipal school in Juiz de Fora, in order to promote the interaction of the student body, and, in particular, those with Down Syndrome.	To verify whether the interventions that took place during recess among the student body involved interactions through experiences of playing, especially involving children with disabilities, motivated or not by the teaching staff. Propose playful activities that seek this interaction. To verify whether these activities could generate later attitudes of autonomy of the students to be organized and play in the playground in a collective way, involving children with disabilities.
7	Environmental resources, types of toys, and family practices that enhance children's cognitive development.	104 children aged 24 to 42 months.	To identify factors associated with the cognitive development of children and to characterize the availability of toys and resources present in the family environment and the parenting practices that signal family stability.	Features such as playing alone, playing and playing with family members.
8	Experiences and play: an inclusive culture in early childhood education.	05 students from 5-6 years old	To reflect on the learning of children with typical and atypical development inspired by play, whose essence was the construction of the concept of number in Early Childhood Education.	Mathematical Learning "Musical Theatre".

Source: survey data

## SAMPLE

As for the research participants, subjects from different childhood age groups from 2 to 13 years of age were included. The number of participants was also diverse, ranging from just one to 104 children. In addition, one of the studies also had the participation of teachers and another also verified the importance of the participation of family members for the cognitive development of children with Down Syndrome.

## OBJECTIVES

Some studies have been concerned with children's cognitive development, either due to factors associated with the family environment and the resources available for this development through play (PEREIRA et al., 2021). As well as contributions from a ludic model developed by an occupational therapist, whose research focuses on playing in clinical practice with children with physical disabilities and from authors of psychology for the analysis of play in the social behavior of children with down syndrome (DIEGUES et al., 2018).

Other studies have been concerned with the development of children's oral and mathematical language, or even the use of audio description in the play of children with Down syndrome as an aid for their social inclusion in the school environment. In addition to an intervention for interaction based on



games at recess between children with down syndrome and their teachers (PELOSI *et al.*, 2018; LOPES DE AZEVEDO *et al.*, 2019; DRAUGHTS; ALMEIDA, 2021; ANGELINO; FERNANDES, 2023).

Finally, studies whose objectives were to contribute to the development of the physical health of the research participants. Either through the description of the activities to be used in therapeutic toy libraries according to the age group of children with Down syndrome or through the use of interactive virtual games to identify the most accessible platform and children's preference (PELOSI *et al.*, 2019; PELOSI *et al.*, 2020).

Despite these good examples, according to Swendsen *et al.* (2023), in Brazil, health care is still mostly governed by the view of the biomedical perspective, whose professionals are more concerned with emphasizing the need to combat sedentary lifestyle or stimulate sports performance through the prescription of exercise programs. On the other hand, audiences with special needs find it more difficult to provide humanized care that meets their specificities. In this sense, the approach with games emerges as an alternative to the hegemonic model of intervening and promoting health and is also an option for a new field of research for studies and a clinical approach for professionals.

## INSTRUMENTS

Regarding the instruments used by the authors for the development of the studies, most of the games and games were of the traditional type, with the use of structured industrialized toys such as: cars, trucks, airplanes, tools, balls and balls, telephone, a musical instrument, objects that involve food, objects of personal use, household utensils, household furniture, a family of dolls, a doll, a set of soldiers, a doll representing a hero, a doll representing a villain, a set of domestic and wild animals.

They also had unstructured toys such as: sheets of paper, pencils, erasers, scissors, glue, sharpeners, colored pencils, crayons, a folder to store graphic materials, pots to fit and thread and construction toys. Some studies have had free playful play outdoors or indoors and traditional games such as shuttlecock, passing the ring, jumping rope or the living dead, for example. Finally, just a research with the use of interactive electronic games.

A recent systematic review study showed that active video games have been widely employed as intervention tools in research that seeks to analyze the connection between games and health. The results showed that games can bring physical benefits and stimulate the practice of exercise. However, it is essential that professionals are willing to study and deepen the use of this technology in order to use all the possibilities of this instrument, applying the resources offered by games in different contexts, whether for the promotion, care, prevention, or rehabilitation of players' health (SWENDSEN *et al.*, 2023).

Finally, we present the results category in chart 3 with the main findings of the studies selected by this literature review.



Chart 3 – Data on the main results found in the selected studies.

No.	Results
1	The children were mainly interested in sound stimuli, spontaneity and pleasure when playing. However, not all of them showed a sense of humor, a taste for challenges and initiative, demonstrating a more passive way of playing. It was possible to characterize some aspects and interests of children with Down Syndrome in playing, offering subsidies so that education or health professionals can determine focus of intervention.
2	The results show statistical significance for the phonological awareness skills of rhyme, syllabic manipulation and transposition, segmentation, synthesis, manipulation and phonemic transposition; Phonological working memory measured by repetition of non-words, dissyllables, and readings of isolated words, high-frequency trisyllables.
3	It was found that, in relation to the children's performance variables, the Timocco Platform achieved the highest averages, with statistically significant differences in: "knowing what to do", "respecting the distance indicated for the platform", "playing independently" and "players' performance". The correlation between the variables "player performance" and "demonstration of interest" showed significant results. In the children's evaluation of the platform and their favorite game, the chosen one was Timocco, with the game <i>Falling fruits</i> .
4	The results showed that in the case of a child with intellectual disability, the audio description resource could help positively in overcoming barriers and inclusion in the school environment, as it proved to be effective in stimulating attention and understanding of games.
5	The results showed that a varied set of activities was used, especially those involving music, stacking, fitting and building games for the group aged 2 to 3 years and 11 months; expressive activities for the group aged 4 to 7 years and 11 months; and games, math, reading, writing, and those related to language development for the 8-13 age group.
6	It was verified in the course of the interventions that it is possible to promote the interaction of children with Down syndrome in moments of recess and that other children, in general, are free of prejudice in relation to their limitations. For them, they are all children, regardless of whether they are disabled or not. It was also understood that for the development of autonomy in the sense of organizing themselves for collective play, it is necessary to have directive mediations by the teaching staff for a certain period of time so that the rules are assimilated and consolidated
7	Of the 104 children evaluated, 72% are enrolled in the public school system, 69% belong to economic classes C and D. According to cognitive development, 55% had development above the arithmetic average. In the bivariate analysis, it was observed that the child's outings and trips, higher maternal and paternal schooling, bonding with private daycare centers, as well as greater availability of resources and higher economic levels were related to better cognitive scores. The last two factors remained predictors of cognitive development in binary logistic regression analysis.
8	It is believed that an important contribution of the study was to offer possibilities to (re)think mathematical practices in Early Childhood Education and to broaden the debate on inclusion and the culture of the subject-child.

Source: survey data

Contributions of the ludic model and authors of Psychology to the analysis of children's play were observed through their interest mainly in sound stimuli, autonomy and pleasure when playing. However, not all individuals show openness to such challenges, demonstrating a more passive way of playing. It was possible to characterize some aspects and interests of children with Down Syndrome in playing, offering subsidies so that education or health professionals can determine which intervention foci to use (DIEGUES et al., 2018).

The playful activities of reading or retelling the guiding story, games or games adapted to stimulate phonological awareness showed statistical significance in the results for the skills of phonological awareness of rhyme, syllabic manipulation and transposition, segmentation, synthesis, phonemic manipulation and transposition, and phonological working memory (PELOSI et al, 2018).

From the analysis of the groups by age group, it was found that children from 2 to 3 years and 11 months have a preference for games and toys that produce a sound effect, toys for stacking, fitting and building, which stimulates the development of fine motor coordination. In the group from 4 years to 7 years and 11 months, there was a preference for expressive and creative activities (dramatization games



such as theater or improvisation; art activities such as painting, drawing, modeling and collage, among others), favoring cognitive development. Finally, the 8- to 13-year-old group opts for adapted and non-adapted games, mathematical games and toys, and games that stimulate reading and writing for language development (PELOSI et al, 2020).

When analyzing the use of audio description in the play of children with Down Syndrome, the results showed that in the case of a child with intellectual disabilities, the audio description resource could help in a positive way in overcoming barriers and inclusion in the school environment, as it proved to be effective in stimulating attention and understanding of games (LOPES DE AZEVEDO et al., 2019).

Regarding the proposal of pedagogical intervention with the introduction of games in the playground, it was evidenced that toys and games not only influence the social, cognitive and motor development of children who do not have any comorbidity or syndrome, but also have a great impact on the neuromotor development and social interaction of children with Down Syndrome (DAMAS; ALMEIDA, 2021).

The objective of identifying factors associated with the cognitive development of children and to characterize the availability of toys and resources present in the family environment and the parenting practices that signal family stability. Of the 104 children, for cognitive development, 55% had development above the arithmetic average. In the bivariate analysis, it was observed that the outings and trips taken by the child, higher maternal and paternal schooling, bonding with private daycare centers, as well as greater availability of resources and higher economic levels were related to better cognitive scores (PEREIRA et al., 2021).

Finally, regarding the intervention whose essence was the construction of the concept of number in Early Childhood Education, through the Mathematical Learning of the game "Musical Theater", it is believed that an important contribution of the study was to offer possibilities to (re)think mathematical practices in Early Childhood Education and to broaden the debate on the inclusion and culture of the subject-child who needs special attention (ANGELINO et al., 2023).

## **FINAL THOUGHTS**

The choice of this subject for this research was due to its relevance in the discussion about the use of games as a resource capable of stimulating and promoting cognitive, motor, learning and socialization development through activities for children with Down Syndrome. In addition, we believe in the academic contribution of this research in debating the use of this resource in educational and therapeutic environments to make them more inclusive. It is important to emphasize that the theoretical survey evidenced the scarcity of studies related to this theme, therefore, this research suggests that new research should be carried out in order to increase the academic and scientific contribution on the subject.



It is concluded that there is concrete and positive evidence about the importance of the use of games in the development of children with Down Syndrome. It is important to develop research that contributes to a better understanding of which specific games are most suitable for children with Down Syndrome, so that practical strategies can be established for the intervention of teachers and professionals who deal with these children.



## REFERENCES

- Angelino, R. R. D. S., & Fernandes, S. H. A. A. (2023). Vivências e brincadeiras: uma cultura inclusiva na educação infantil. *ReviSeM*, 8(2), 196-211.  
<https://revistas.pucsp.br/index.php/RFCMS/article/view/25868>
- Brasil. Ministério da Educação. (2017). Base Nacional Comum Curricular (BNCC). Brasília. MEC.  
Retrieved from <http://basenacionalcomum.mec.gov.br/>
- Costa, V. S. F., et al. (2017). Effect of hypnotherapy in the global motor coordination in individuals with Down Syndrome. *Fisioter. Mov.*, 30(suppl. 1).
- Damas, R., & Almeida, N. F. P. (2021). Crianças com deficiência e a importância do brincar no recreio. *LICERE*, 24(3), 449-470.
- Diegues, D., et al. (2018). O Modelo Lúdico em crianças com Síndrome de Down. *Psicologia Revista*, 27(1), 151-170.
- Gil, A. C. (2010). *Como elaborar projetos de pesquisa* (5th ed.). São Paulo: Atlas.
- Gil, A. C. (2002). *Como elaborar projetos de pesquisa* (4th ed.). São Paulo: Atlas.
- Gomes-da-Silva, P. N. (2016). *Educação Física pela pedagogia da corporeidade: um convite ao brincar*. Curitiba: CRV.
- Gomes-da-Silva, P. N. (2015). Pedagogia da corporeidade e seu epicentro didático. *Rev. Bras. De Educ. Física Esc*, 1(1), 136-166.
- Lopes de Azevedo, T., et al. (2019). Uso da audiodescrição no brincar de uma criança com síndrome de down na educação infantil. *Revista Educação Especial*, 32, 1-15.
- Marconi, M. A., & Lakatos, E. M. (2008). *Metodologia do trabalho científico: procedimentos básicos, pesquisa bibliográfica, projeto e relatório, publicações e trabalhos científicos* (7th ed.). São Paulo: Atlas.
- Mattos, B. M., & Bellani, C. D. F. (2010). A importância da estimulação precoce em bebês portadores de síndrome de Down: revisão de literatura. *Rev. Bras. Terap. e Saúde*, 1(1), 51-63.
- Oliveira, C. C. (2018). Efeito de treino de força de preensão e destreza manual em crianças com síndrome de down de 5 a 10 anos. Tese de Doutorado, Universidade Federal de São Carlos, São Carlos.
- Pelosi, M. B., et al. (2018). Atividades Lúdicas para o Desenvolvimento da Linguagem Oral e Escrita para Crianças e Adolescentes com Síndrome de Down. *Revista Brasileira de Educação Especial*, 24(4), 535-550.
- Pelosi, M. B., et al. (2019). O uso de jogos interativos por crianças com síndrome de Down. *Cadernos Brasileiros de Terapia Ocupacional*, 27(4), 718-733.



- Pelosi, M. B., et al. (2020). Atividades terapêuticas ocupacionais desenvolvidas com crianças e pré-adolescentes com síndrome de Down. *Cadernos Brasileiros de Terapia Ocupacional*, 28(2), 511-524.
- Pereira, L., et al. (2021). Recursos ambientais, tipos de brinquedos e práticas familiares que potencializam o desenvolvimento cognitivo infantil. *CoDAS*, 33(2), 1-8.
- Swendsen, E., et al. (2023). Jogos eletrônicos e saúde. *Mosaico - Revista Multidisciplinar de Humanidades*, 14(3), 01-16.