



***Efeitos da Implementação de Programas de Atividade
Física em Estudantes com Necessidades Educativas
Especiais no Ensino Superior: Uma Revisão
Sistemática***

Carlos Mário Basto Cardona

Porto, 2021

Efeitos da Implementação de Programas de Atividade Física em Estudantes com Necessidades Educativas Especiais no Ensino Superior: Uma Revisão Sistemática

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Orientador: Professor Doutor Rui Manuel Nunes Corredeira

Coorientadoras: Professora Doutora Ana Sousa
Professora Doutora Ilem Daiana Rosero

Carlos Mário Basto Cardona

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Palavras-Chave: Atividade Física, Exercício, Estudantes Universitários, Necessidades Educativas Especiais.

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Resumo

Os estudantes com necessidades educativas especiais do ensino superior apresentam menores níveis de atividade física e tendem a ter um estilo de vida mais sedentário. Numerosos estudos evidenciam os efeitos físicos, fisiológicos, psicológicos, sociais, entre outros, da atividade física nestas populações. Não obstante, a maior parte destes estudantes não cumprem com o mínimo de 150 minutos semanais de atividade física moderada recomendada pela Organização Mundial de Saúde. A presente dissertação baseia-se numa revisão sistemática da literatura que tem como objetivo avaliar quais os efeitos da implementação de programas de atividade física em estudantes com necessidades educativas do ensino superior. Para tal, foi desenvolvida uma pesquisa através de bases de dados digitais, utilizando um conjunto de palavras-chaves e operadores booleanos selecionados cuidadosamente. Aqueles estudos que não satisfaziam os critérios de inclusão foram excluídos em três fases: a primeira, mediante um organizador de referências bibliográficas, a segunda, através da leitura dos títulos e resumos e, finalmente, mediante a leitura integral dos artigos. No total foram encontrados cinco estudos tipo *randomized Controlled Trials*. Identificaram-se diferentes tipos de programas de intervenção através da atividade física (seis), três tipos de necessidades educativas especiais distintas e um total de 164 participantes. Após a sistematização e análise de conteúdo, determinou-se que foram utilizados avaliadores sociais e psicológicos para verificar os efeitos da atividade física, obtendo diferenças antes e pós intervenção, embora nem sempre significativas. Tendo em conta a escassa quantidade de estudos tipo *randomized controlled trials* encontrados e o número reduzido de necessidades educativas abrangidas, ressalta-se a importância de aumentar os estudos de intervenção nesta população, no sentido de identificar qual a melhor forma de incrementar os seus níveis de atividade física.

Palavras-chave: Atividade Física, Exercício, Estudantes Universitários, Necessidades Educativas Especiais.

Abstract

Students with special educational needs in higher education present lower physical activity levels than their counterparts, consequently tending to have a more sedentary lifestyle. Numerous studies show physical, physiological, psychological, social, and others effects of physical activity in these populations. However, most of these students do not comply with the minimum of 150 minutes of moderate physical activity per week recommended by the World Health Organization. The present dissertation is based on a systematic literature review with the objective to evaluate what are the effects of implementation physical activity programs for students with educational needs in higher education. For that, a research was developed through digital databases using a set of keywords and Boolean operators carefully selected. The studies did not meet the inclusion criteria were excluded in three phases: the first, supported by a bibliographic reference manager. The second, through the reading the titles and abstracts, and finally, by full reading of articles. In total, five studies type randomized Controlled Trials were found, six types of interventions through physical activity were identify, three types of educational needs and a total of 164 participants. After systematization and content analysis it was determined that social and psychological evaluators were used to verify the effects of physical activity, obtaining differences before and after the intervention, although they were not always significant. Considering the small number of randomized controlled trials type studies found and the small number of intervened needs, the importance of increasing intervention studies in this population is highlighted, in order to disclose the best way to increase their levels of physical activity.

Keywords: Physical Activity, Exercise, University Students, Special Education Needs.

Lista de Abreviaturas

ACSM - *American College of Sports Medicine*

AF – Atividade Física

NEE - Necessidades Educativas Especiais

PA – Physical Activity

PEDRo - Physiotherapy Evidence Database

PRISMA - Preferred Reporting Items for Systematic Reviews and Meta-Analyses

PROSPERO - International Prospective Register of Systematic Reviews

RCTs - Randomized Controlled Trials

SEN – Special Education Needs

UN - *United Nation*

UNESCO - *United Nations Educational, Scientific and Cultural Organization*

WHO - *World Health Organization*

Capítulo I

Introdução Geral

1. Introdução Geral

Os estudantes com necessidades educativas especiais (NEE) são aqueles que durante o seu processo de formação académica apresentam barreiras na acessibilidade e participação devido às suas características físicas, mentais ou sociais (Márquez & Cueva, 2020). Nesta medida, esta população requiere acomodações estruturais, serviços de apoio social e académico, estratégias pedagógicas, entre outro tipo de apoios, para garantir a sua inclusão académica, social e o seu desenvolvimento pessoal (López & Valenzuela, 2015). Pese embora os esforços de organizações internacionais e governamentais, os estudantes com NEE continuam a apresentar dificuldades no contexto educativo, por norma obtêm resultados académicos mais baixos, revelam maior dificuldade para relacionar-se com os demais e têm baixa autoestima. (Evans et al., 2021; García, 2009).

Atualmente, no ensino superior, o número de estudantes com NEE é crescente e as necessidades identificadas têm sofrido um incremento (HESA, 2020; Hubble & Bolton, 2021; NCES, 2021). Segundo a DGEEC (2021), em Portugal os estudantes com NEE no ensino superior do ano letivo 2020/2021 aumentarem 10,5% face ao ano letivo anterior. Assim, torna-se necessário às universidades e institutos de ensino superior a implementação de políticas próprias para o atendimento das necessidades desta população, bem como promover programas de participação ativa para toda a comunidade universitária.

Atualmente, as instituições de ensino superior oferecem poucas oportunidades para a prática de atividade física (AF) ou desporto (DGEEC, 2021; Yoh et al., 2008). Segundo os estudos de Monforte et al. (2021) e Yoh et al. (2008), os estudantes com NEE do ensino superior apresentam menos níveis de AF que os seus pares, usam menos os serviços desportivos universitários e mais do 80% não cumprem com as recomendações de AF da WHO (2020a) e da ACSM (2018). Estas condutas geram um maior risco de desenvolver doenças hipocinéticas (Úbeda et al., 2019) e levam ao aumento de doenças cardiovasculares, diabetes tipo II e morte prematura (WHO, 2020c). Para além

disso, a AF traz benefícios aos estudantes com NEE no que diz respeito ao bem-estar e qualidade de vida (Dysterheft et al., 2018; Paz et al., 2019), ajuda a reduzir os níveis de ansiedade e depressão (WHO, 2020c), bem como incrementa a presença de componentes cognitivos e afetivos que influem nos sentimentos de satisfação em geral (García-Hermoso et al., 2020).

Face ao enunciado, é imprescindível implementar ações para incrementar os níveis de AF nesta população, nomeadamente no ensino superior. Dentro dos projetos institucionais universitários, deve-se promover a participação em programas de AF, respeitando as características de cada estudante e as suas necessidades (Úbeda et al., 2019). Assim, traspasar barreiras intrapessoais (fatores individuais), interpessoais (família, colegas, professores), organizativas (instalações desportivas, programas desportivos) e comunitárias (o espaço construído, acessibilidade) têm influência nos níveis de AF nesta população (Vasudevan et al., 2015).

É neste contexto que surge o presente estudo, uma revisão sistemática dos efeitos da AF em estudantes com NEE do ensino superior. Assim, o primeiro objetivo do estudo é identificar que tipo de intervenções têm sido realizadas no âmbito da AF em alunos com NEE das universidades e institutos de ensino superior. Como segundo objetivo, pretende-se determinar que efeitos produzem estas intervenções a nível físico, psicológico social entre outros, expondo, através da análise dos resultados dos estudos encontrados, os benefícios que podem advir da implementação e participação neste tipo de programas.

No que se refere à estrutura da dissertação, o presente documento encontra-se dividido em três capítulos. O primeiro capítulo compreende a introdução geral, onde se realiza uma breve apresentação dos temas abordados na dissertação, a pertinência do estudo e os objetivos do mesmo. No segundo capítulo apresenta-se o Enquadramento Teórico, onde se explora os termos teóricos referentes à educação inclusiva, atividade física e atividade física em estudantes com NEE no ensino superior. O terceiro capítulo faz referência à revisão sistemática dos efeitos da AF em estudantes com NEE do ensino superior,

apresentado sob forma de artigo científico. Finalmente, o quarto capítulo faz referência às conclusões gerais do estudo, suas limitações e sugestões para estudos futuros na área. As referências bibliográficas são apresentadas depois do quarto capítulo e os anexos no final do documento.

Capítulo II

Fundamentação Teórica

2. Fundamentação Teórica

2.1. Educação Inclusiva

A educação inclusiva procura garantir oportunidades de aprendizagem equitativas a todas as pessoas, independentemente do seu sexo ou orientação sexual, idade, raça ou etnia, diversidade funcional. (UN, 2015). De acordo com a UNESCO (2020), milhões de estudantes estão a perder a oportunidade de aprender devido a: barreiras de participação na escola dos estudantes com escassos recursos económicos, com deficiências físicas, sensoriais ou intelectuais; atitudes de segregação escolar para estudantes de países migratórios; falta de formação de professores; pouco investimento em materiais didáticos e contextos de aprendizagem que beneficiem todos os estudantes; má abordagem nas temáticas de orientação sexual e identidade de género, entre outros. Estas condutas de exclusão privam as pessoas dos bens básicos e das redes de bem-estar social, diminuindo a sua participação na sociedade (UNESCO, 2008).

No contexto desta dissertação, a educação inclusiva visa possibilitar a todos os estudantes, sem importar a sua dependência física, cognitiva, mental, emocional ou social, a possibilidade de adquirirem conhecimentos, desenvolverem atitudes e hábitos de participação cidadã, melhorarem a sua qualidade de vida, entre outras possibilidades. No âmbito escolar, estes estudantes são designados como Estudantes com Necessidades Educativas Especiais (NEE).

Cabe destacar que o desenvolvimento da educação inclusiva deve-se à influência da medicina e psicologia na pedagogia, dado que, anteriormente estas pessoas não eram consideradas “normais” e eram rotuladas, categorizadas, segregadas, discriminadas e excluídas do sistema educativo, ao ponto de ser considerados ineducáveis (Dussan, 2010). No entanto, o conceito de educação nestas populações evoluiu e começou a ser mais frequente encontrarmos nas escolas uma maior diversidade de NEE (Evans et al., 2021).

Durante a década de 1960 começou a mudar a forma de educar estas populações, porém, as primeiras abordagens baseavam-se em modelos médicos de deficiência, modelos estes individualistas e que limitavam o desenvolvimento da pessoa (lanes et al., 2020). Seguidamente foi introduzido o termo “normalização” proposto por Nirje (1969) e, posteriormente, influenciado por Wolfensberger et al. (1972) onde procurava-se disponibilizar todos os serviços sociais às pessoas com qualquer tipo de deficiência, igualar as suas condições de vida às pessoas sem deficiência, acreditando que deviam “ser iguais” (Perrin, 1999). Mais tarde no ano 1978, a filosofia de educação passa a ser um modelo integrado, cujo intuito era incorporar os alunos com NEE num grupo como direitos próprios (Chambers et al., 2021). Mais tarde, na Declaração de Salamanca (UNESCO, 1994), a maioria dos países ocidentais centraram-se no termo Inclusão. Os estudantes com NEE, independentemente das suas condições físicas, intelectuais, sociais, emocionais ou outras com qualquer tipo de deficiência, tornaram-se o núcleo principal da agenda e deu-se continuidade aos princípios de não exclusão, melhores condições, melhores oportunidades e participação nas mesmas atividades. Nesta educação para todos, a UNESCO recomenda que não é necessário escolarizar as crianças em escolas especiais nem isoladas, referindo que “Todas as diferenças são normais e que a aprendizagem deve adaptar-se às necessidades de cada criança, mais que cada criança se adaptar aos supostos predeterminados sobre o ritmo e a natureza do processo educativo” (UNESCO, 1994, pp. 6-7).

Pese embora os esforços internacionais e governamentais, ainda se encontram diferenças entre países no que diz respeito às condições de ensino destas populações. Apresenta-se assim uma ampla gama de opções educativas para estes estudantes, onde só alguns participam na escola em contexto verdadeiramente inclusivo. De acordo com a UNESCO (2020), estudantes com necessidades sensoriais, físicas e intelectuais ainda apresentam barreiras na participação escolar e têm mais 2,5% de probabilidade de não ir à escola do que os seus pares.

Atualmente, os estudantes com NEE ainda apresentam barreiras de acessibilidade, comunicação e outras dificuldades que por vezes não são percebidas pelos professores ou colegas; obtendo como resultado problemas na aprendizagem, baixas qualificações, deserção escolar, dificuldade para relacionar-se com os demais, baixa autoestima, entre outros (Evans et al., 2021; García, 2009).

Por conseguinte, desenvolver uma variedade de programas que permitam ao mesmo tempo, a maior inclusão possível para as diferentes necessidades únicas dos estudantes, é um dos principais desafios da educação inclusiva e dos educadores (Evans et al., 2021). Medidas como a transformação do currículo, a formação de professores, a dotação dos centros educativos de recursos, a modificação cultural, são fulcrais. Esta é uma tarefa árdua e que necessita de uma rede de apoio, no entanto, é a única maneira de oferecer respostas diversificadas e adequadas na educação (García, 2009). Do mesmo modo, enquadrar as respostas aos processos de aprendizagem sem mecanismos de seleção, nem discriminação de nenhum tipo, transformando o funcionamento da escola tradicional, com propostas pedagógicas para integrar a diversidade dos estudantes e favorecer, assim, a coesão social que é um das finalidades da educação (UNESCO, 2008).

Em concordância com o anterior, para uma maior inclusão educativa é fundamental realizar ações positivas que reconheçam, valorem e promovam a participação e o respeito por igual de todos os estudantes. Deste modo, consolidar entornos de aprendizagem que apóiem a construir uma sociedade mais justa.

2.2. Necessidades Educativas Especiais (Special Educational Needs)

Ao longo da história, o termo NEE tem sido definido, revisto, modificado e avaliado no contexto nacional e internacional. Na idade antiga, a educação baseava-se no desenvolvimento da guerra e das artes, assim, as pessoas que apresentavam algum transtorno motor, cognitivo ou mental, entre outros, eram totalmente excluídos da qualquer tipo de ensino (Ramírez, 2017) Seguidamente, as primeiras noções de educação nesta população aparecem entre o século XVI até o século XIX, onde a primeira tentativa de atender a sua educação foi fora de casa, através de cuidados dentro de asilos. Esta segregação no processo da aprendizagem foi desenvolvida devido à união dos critérios médicos, psicológicos e pedagógicos, inspirados nos trabalhos de Jean-Marc Gaspard Itard, Abad de l'Épée, Louis Braille, Samuel Heinecke, Madame Guérin, Philippe Pinel e Abbé Sicard dando surgimento à Escola Especial e ao nascimento da pedagogia como ciência (Bocci, 2013; Girão Gomes & Peixoto Lima, 2016).

Mais tarde, no final do século XIX e início do século XX, o entendimento das necessidades destas populações foi evoluindo, graças à pedagogia terapêutica e, posteriormente, à tendência psicométrica. Anos depois, em 1905 nasce a atenção educativa especializada, e em 1917 a educação especial. Nesta altura, os grupos de estudantes já eram menos homogêneos e detetavam-se mais dificuldades na aprendizagem (Dussan, 2010). No entanto, pese embora os esforços pedagógicos e médicos, durante muitos anos as escolas especiais foram questionadas pelo facto de receberem um grande número de estudantes que a escola regular rejeitava. Do mesmo modo, as atitudes de discriminação no ensino foram mais evidentes e estas escolas tiveram problemas de distinto tipo no seu funcionamento (Dussan, 2010).

Na Convenção Contra a Discriminação na Educação da UNESCO (1960), proclama-se que qualquer tipo de discriminação na educação é uma violação dos direitos humanos e promove-se com os países membros, a igualdade de oportunidades na educação. Deste modo, no ano 1964 o sacerdote, psicólogo e pedagogo Italiano Roberto Zavalloni sentiu a necessidade de aclarar o conceito tradicional de “*Special Education*” o qual se baseava em tentar fazer desaparecer

anomalias dos estudantes para um conceito contemporâneo. Aqui, o objetivo da educação era integrar à pessoa na comunidade, ajudando-a a alcançar a dignidade, de acordo as suas características individuais (Bocci, 2013). Da mesma maneira, em 1974 a comissão de educação britânica, promove o conceito *Special Educational Needs* (SEN) e reafirma que o dever da educação não é converter uma pessoa com NEE em “normal”, mas sim aceitá-lo com as suas necessidades e oferecer-lhe os serviços para o desenvolvimento máximo das suas capacidades (Dussan, 2010).

Em anos posteriores e pese embora os esforços internacionais de assegurar o direito à educação para todos, ainda se verificavam situações de analfabetismo em crianças e adultos, um problema significativo nos países industrializados, face ao rápido aumento da população e às diferenças económicas crescentes entre nações (UNICEF, 1990). Face ao enunciado, a UNICEF elaborou a *Declaração Mundial Sobre Educação Para Todos: Satisfação das Necessidades Básicas de Aprendizagem*, reafirmando a necessidade de se tomar medidas para garantir o acesso à educação para as pessoas com deficiência como parte do sistema educativo. Neste momento abandona-se o termo integração e substitui-se por inclusão. Assim, entes internacionais começaram a monitorar os direitos na educação para universalizá-la, melhorar a sua qualidade, a desigualdade e a acessibilidade. Esta mudança de significado constitui um enfoque político e educativo baseado na valorização da diversidade como elemento enriquecedor no processo de ensino e aprendizagem (Dussan, 2010). Este tipo de pedagogia centra-se na pessoa, evita o desperdício de recursos e a destruição de esperanças, diminui os fracassos escolares e é positiva para toda a sociedade porque ensina às pessoas o valor do respeito, da dignidade, bem como alerta para as diferenças de todos os seres humanos (UNICEF, 1990).

Subsequentemente, em 2006, o direito à educação inclusiva foi estabelecido na *Convention on the Rights of Persons with Disabilities* (CRPD) das Nações Unidas (UNESCO, 2020). Nesta determina-se que nas populações com deficiências físicas, mentais, intelectuais ou sensoriais é preciso o ensino ao longo da vida

para o desenvolvimento do potencial humano e o sentido da dignidade e a autoestima. A convenção também faz referência a que se deve assegurar o ingresso na educação inclusiva primária e secundária, e garantir a acessibilidade à educação superior, formação profissional, a educação para adultos, devendo ser assegurada a aprendizagem ao longo da vida, sem discriminação e em igualdade de condições (UN, 2006).

No que respeita a alunos com NEE, este conceito engloba todos aqueles estudantes que apresentam dificuldades em qualquer parte do processo da aprendizagem (sejam estruturais, de comunicação, social, pedagógicas, entre outras) e que precisam de modificações, acomodações, serviços de apoio ou de estratégias diversificadas para o seu ensino. Estas necessidades no processo de aprendizagem podem dever-se a algum tipo de deficiência ou não, e as necessidades podem ser definitivas ou transitórias (López & Valenzuela, 2015). Devido a isso, a capacidade de adaptação das universidades e institutos de educação superior às novas realidades dos estudantes com NEE é uma necessidade profissional e social para o fortalecimento académico-social deste nível de ensino.

Atualmente, os estudantes com NEE no ensino superior estão em incremento, assim como as necessidades identificadas (HESA, 2020; NCES, 2021). (Rodríguez & Álvarez, 2014). De acordo com a ACE (2020), quando os estudantes não se sentem acolhidos dentro das oito semanas da sua chegada à universidade, apresentam maior risco de deserção escolar. Em estudantes com deficiência, essa percentagem de deserção no primeiro ano é de 25% e de 35% no segundo. Porém, é muito importante adotar uma cultura de inclusão nas instituições educativas de nível superior, criando estratégias que proporcionem segurança e bem-estar aos estudantes. Com efeito,, Salvador (2003) menciona que a universidade tem um triplo compromisso a este respeito: gerar um pensamento crítico, promover o desenvolvimento profissional e a intervenção social. Não obstante, os avanços neste campo de estudo não são abundantes e as investigações não abarcam toda a dimensão das necessidades desta

população. Analogamente, Rodríguez e Álvarez (2014) assinala que as investigações centram-se na acessibilidade aos estudos universitários, nas atitudes face aos estudantes com NEE, nos serviços e programas de apoio universitário, na acessibilidade, entre outros. Por este motivo, torna-se necessário conhecer as necessidades dentro e fora do âmbito académico, já que estas populações apresentam maior risco de deserção escolar. Importa, assim, desenvolver serviços de apoio que satisfaçam as necessidades educativas, sociais e pessoais do estudante e equiparem as oportunidades de participação desta população dentro e fora do espaço académico.

2.3. Atividade Física

De acordo com a WHO (2020c), a atividade física (AF) é qualquer tipo de movimento corporal produzido pelo sistema musculoesquelético que requer um gasto energético. A AF faz referência a todos aqueles movimentos (atividades da vida diária, ócio, exercício físico, entre outros) com que o ser humano pode expressar-se e relacionar-se com o meio envolvente e com os pares (Termini & Sciurca, 2017). Atualmente, 1 em cada 4 adultos não cumpre com as recomendações diárias de AF e 80% dos adolescentes revelam níveis de AF insuficientes (WHO, 2020c). A inatividade física é o quarto fator de risco de mortalidade mais importante em todo o mundo, pelo que é fulcral trabalhar no sentido da prevenção do sedentarismo e da promoção de hábitos e estilos de vida saudável (WHO, 2020c).

A prática regular de AF influencia de maneira positiva a saúde das pessoas, originando benefícios físicos, fisiológicos e metabólicos que contribuem para a prevenção de doenças crónicas, diabetes, cancro, entre muitas outras. Também ajuda a regular os níveis de stresse e controlar os sentimentos de ansiedade e depressão, pelo que pode ser usada para prevenir e melhorar as condições de saúde mental. Também a AF contribui para o desenvolvimento pessoal, a saúde cognitiva, o bem-estar geral e melhora a qualidade de vida das pessoas (De La Cruz & Pino, 2010; Schweda & Krauss, 2020; WHO, 2020c).

2.3.1. Atividade Física e Saúde Física

A atividade física gera no corpo adaptações físicas, fisiológicas entre outras que influem de maneira positiva na saúde física Taylor et al. (2004) concluem no seu estudo que o incremento do gasto calórico através da participação contínua em programas de AF, diminui a deterioração progressiva do sistema cardiovascular, torna mais eficiente o transporte de sangue através do corpo, aumenta o volume sistólico e o volume de oxigénio em sangue (VO_2). Referente ao sistema musculoesquelético, a AF melhora e diminui a perda de massa muscular, a

qualidade muscular (composição muscular, metabolismo, ativação neural, fibrose) e atrasa o início da sarcopenia (Haider et al., 2016). No sistema ósseo, a AF melhora a massa e a geometria do osso, aumenta a densidade óssea e inibe a reossorção (Rowlands et al., 2020; Taylor et al., 2004). Igualmente, Peters et al. (2001) mencionam que participar em programas de AF promove ainda melhorias no sistema digestivo, reduz o risco de cancro de colon, colelitíase, hemorragia gastrointestinal, doença inflamatória intestinal, doença diverticular e constipação.

Todos estes benefícios convertem a AF num escudo contra as doenças crónicas não transmissíveis como a diabetes tipo II, doenças cardíacas, alguns tipos de cancro, acidentes cerebrovasculares, hipertensão (WHO, 2020c). Também através da AF há uma melhoria nas estruturas corporais, ajudando a manter os níveis de força, resistência aeróbica, equilíbrio, agilidade e flexibilidade que interferem com as atividades da vida diária (Garcia Meneguci et al., 2021).

2.3.2. Atividade Física e Saúde Mental

As pessoas com transtornos de saúde mental tendem a adotar comportamentos mais sedentários, comparativamente com a população em geral (WHO, 2019b). Estas condutas têm sido identificadas como um fator de risco para a saúde já que reduzem as probabilidades de cumprir com as recomendações de AF pela WHO (2020c), diminuindo a sua expectativa de vida (Maggouritsa et al., 2014; Young et al., 2019).

Segundo a WHO (2019b), participar em programas relacionadas com a AF e exercício desde idades precoces influencia os domínios sociais e cognitivos e melhora os sentimentos de autoestima, autoconceito, confiança e autocontrolo. Do mesmo modo, manter-se ativo fisicamente outorga um efeito protetor perante a incidência de transtornos como a ansiedade e depressão, protege as pessoas do declínio cognitivo e doenças neuro degenerativas como o Alzheimer e demência (Czosnek et al., 2019; WHO, 2019c).

Assim, a AF incrementa a presença do bem-estar e dos componentes cognitivos e afetivos que influem nos sentimentos de satisfação em geral (García-Hermoso et al., 2020); relaciona-se com a construção de recursos novos de enfrentamento perante situações de stress (Childs & de Wit, 2014); melhora a concentração, o rendimento académico e a qualidade de sono (Suárez et al., 2020), promove estados de humor positivos (Powell, 2020); melhora a função em diversas atividades garantindo maior independência pessoal e aumenta a qualidade de vida (Lopes Almeida et al., 2020; WHO, 2019c).

2.3.3. Prescrição e Recomendações de Atividade Física

Atualmente, a prescrição da AF é um instrumento orientado por um profissional que tem a capacidade de dosificar a quantidade de atividade necessária para gerar um impacto positivo na saúde de cada um (Agudo et al., 2019). Nas *Recomendações Mundiais Sob a Atividade Física para a Saúde* da WHO (2010) explicam-se os conceitos de frequência, duração, intensidade e tipo de AF para ter em conta no momento de fazer uma prescrição capaz de promover melhorias na saúde dos indivíduos.

- **Tipo de AF (que tipo):** faz referência ao tipo de atividade da qual se está a participar. Podem ser atividades aeróbicas, de flexibilidade, de coordenação, de força, entre outras.
- **Duração (quanto tempo):** Indica o tempo durante o qual deve ser realizada a atividade, normalmente expresso em minutos.
- **Frequência (Quantas vezes):** designa o número de vezes, repetições ou sessões em que se realiza a atividade.
- **Intensidade (ritmo e nível de esforço):** faz referência à magnitude de esforço necessário para realizar a atividade. Atividade moderada é uma intensidade que vai desde 3.0 a 5.9 vezes superior ao estado de repouso. Atividade Vigorosa por acima de 6.0 para os adultos e de 7.0 para crianças e adolescentes.

Paralelamente, Rhodes et al. (2009) concluem no seu estudo que estas características na prescrição são fundamentais para a atividade física realizada, da mesma forma que compreendê-las causa adesão à atividade e pode facilitar a participação.

De acordo com a WHO (2020a) e a ACSM (2018), todas as populações entre os 18-64 anos, idosos, pessoas com condições médicas graves e / ou deficiências, mulheres grávidas e no pós-parto devem tentar seguir as recomendações de 150-300 minutos de AF moderada por semana ou de 75-150 minutos de AF de intensidade vigorosa sempre que possível. Nestas populações, na sua maioria, as atividades devem ser de natureza aeróbica e os adultos devem realizar atividades que envolvam os principais grupos musculares, pelo menos duas vezes por semana (WHO, 2020a) De acordo com Piercy et al. (2018), para fazer atividades de maneira segura, é preciso começar devagar, com atividades de menor intensidade e ir aumentando gradualmente essa intensidade.

Em poucas palavras, a AF melhora as capacidades condicionais, a saúde física e mental, e diminui o risco de doenças crônicas entre outros. Deste modo, é recomendado realizar uma atividade física de acordo com os objetivos e interesses de cada um. Igualmente incrementar de maneira gradual a frequência e o tempo aumenta a segurança durante a prática

2.4. Atividade física em Estudantes com Necessidades Educativas

Compreendendo os benefícios individuais e sociais da prática regular de AF, a UNESCO (1978) reconhece o direito à educação física e ao desporto para todas as crianças, adolescentes, adultos e alunos com NEE, em todos os níveis do ensino. Assim, as instituições educativas convertem-se num espaço ideal para promover experiências agradáveis no que diz respeito à criação de hábitos de vida saudáveis através da AF (Maeda & Randall, 2003; WHO, 2018).

Especificamente no ensino superior, é pertinente fortalecer os processos de participação neste tipo de atividades, tornando-se necessário criar espaços de participação física e social para o desenvolvimento da AF. Igualmente, os institutos de educação superior devem ter pessoal de apoio capacitado para este tipo de população e desenvolver atividades em função das capacidades e necessidades individuais dos alunos (Termini & Sciurca, 2017), equiparando oportunidades de participação e contribuindo para o fortalecimento da coesão social, do respeito e para a inclusão social dos estudantes com NEE (Mullor et al., 2020)

Yoh et al. (2008) refere que o envolvimento (design, arquitetura e acessibilidade) e os equipamentos são barreiras associadas ao baixo nível de AF nos estudantes com NEE. Igualmente, Dysterheft et al. (2016) e Huang (2014) mencionam que os estudantes com NEE desconhecem, com frequência, o seu direito à participação em atividades físicas e desportivas, portanto reduzem, significativamente, o uso dos pavilhões e espaços desportivos no seu tempo livre. Deste modo, as oportunidades de participação neste tipo de atividades são escassas e os estudantes com NEE estão mais propensos a sofrer transtornos locomotores por inatividade física e limitação na mobilidade, a padecer de doenças crónicas ou efeitos de comorbilidades, bem como a manifestar níveis mais baixos de autoestima, autoconceito e qualidade de vida (Ayvat et al., 2019; Bossink et al., 2017).

A este respeito, Yoh et al. (2008) reportam que os estudantes com NEE usam os espaços desportivos menos de 5 vezes por semestre e 37% nunca os usa.

Com efeito, Monforte et al. (2021) mencionam que 73.2% desta população não cumpre com os 75 minutos/semana de AF recomendada pela OMS e o 80.3% não cumpre com os 150 minutos/semana. Em Portugal, 64.4% das instituições de ensino superior têm uma regulamentação específica para estudantes com NEE e reportam para o ano 2020/2021 um aumento de 10.5% nesta população. No entanto, apenas 20.2% das instituições e 31 unidades orgânicas (11%) têm infraestruturas ou oferecem oportunidades de prática desportiva adaptadas (DGEEC, 2021).

Evidentemente, é preciso reforçar os programas de AF nos estudantes com NEE do ensino superior, já que são múltiplos os benefícios obtidos através da participação nos mesmos. Atividades que estimulem a flexibilidade, resistência, força, equilíbrio, coordenação e cinestesia ajudam a manter um certo nível de autonomia e de funcionalidade nas habilidades para a vida (Yoh et al., 2008). Além disso, através da prática contínua de AF, os estudantes experimentam sentimentos positivos de bem-estar, satisfação com a vida e êxito académico, melhorando as suas capacidades de atenção, concentração, administração do tempo, persistência académica e trabalho independente (Shapiro et al., 2020).

O panorama nacional e internacional exposto demonstra que os estudantes do ensino superior com NEE carecem de cenários desportivos, unidades orgânicas adaptadas às suas necessidades, pessoal profissional de apoio e programas de promoção e prevenção da AF. Este facto concorre para os baixos níveis de AF apresentados por estas populações e suas consequências.

Capítulo III

Revisão Sistemática

3. *Effects of Physical Activity Programs Implementation on Students with Special Education Needs in Higher Education: A Systematic Review*

Abstract: At present, the number of students with special educational needs (SEN) in higher education is increasing. However, the physical activity (PA) level of this population within educational institutions is lower than their counterparts. Consequently, they are exposed to adopt harmful behaviors that putting their physical and mental health, their psychosocial well-being, and their academic performance in risk. A systematic review of randomized controlled trials (RCTs) to evaluate the effects of implementing PA programs in this population was conducted. The search was developed in the electronic databases Ebscohost, Scopus, Web of Science, Pubmed, Science Direct and Cochrane. Characteristics of studies and program results and outcome data were extracted. Changes between the intervention and control groups, from baseline to follow-up (standardized mean difference (SMD) or size effect (SE)) was pooled. A total of 164 participants from 5 RCTs were included in the final analysis. The type of needs identified were mental health (anxiety and depression), attention deficit hyperactivity disorder (ADHD) and physical disabilities. The PA interventions applied were Tai Chi, non-contact kickboxing, aquatic exercises, yoga, and collective games. No physical or physiological evaluations were realized in the interventions. For the mental health group, the results showed intervention-induced improvement in anxiety, depression, and stress symptom trough of assess of BDI, HAMA, SCI and STAI tests. For the ADHD there was no significant differences per time interaction in the primary outcome measure comparing into groups. In physical disabilities group, there was an improvement in LTPAQ-SCI. It is observed that physical activity in SEN significantly improves feelings of anxiety and depression, contribute for effective leisure time activities in populations with physical disabilities and positively influences the inattention in ADHD population. Further studies with larger samples and higher methodological quality are needed to clarify the potential benefits of physical activities in SEN.

Keywords: Physical Activity, University Students, Special Education Needs.

1. Introduction

The WHO (2020b) reports that 15% of the world's population (about one billion people) lives with some form of disability (physical, sensory, cognitive or intellectual disabilities; mental disorders, and various types of chronic disease). In educational context, this population is called students with special education needs (SEN), and usually present lower participation opportunities, lower academic, a lower share in the economy among other aspects. In addition, they

face social and physical barriers daily, suffering severe human rights violations, discrimination, and stigma, becoming a more vulnerable population for society. Among the objectives of the UN (2015) Assembly, it is consigned to provide quality education by ensuring equality and inclusion in education access (to all levels) through the integration of educational equipment and teaching tools to identify the needs of all people. Education is the key to promote social and economic inclusion of people and reduces barriers to the participation of marginalized groups in society (UNESCO, 2017). Through education, the quality of life is improved and contributes to the full development and dignity of each person. It also plays a crucial role in ensuring adaptable employment by allowing them to participate fully in society (Berrigan et al., 2020; Heyer, 2021; Lamichhane & Okubo, 2014). The principles of inclusion and equity are born through the creation of learning spaces and quality pedagogies since they allow these population groups to progress, understand their realities and work for a fairer society (UNESCO, 2017).

According to UNESCO (2018), for SEN the estimated average time to receive formal education is shorter than their counterparts: 4.8 years versus 7 years. Some gaps in the implementation of inclusive education policies often lead to early school dropout due to lack of teacher training, structural barriers, and student's cultural social, sports and recreational participation (Moriña & Cotán Fernández, 2017). It is crucial to open a debate on inclusive global and national policies to ensure the permanence of this population through a mechanism of integral inclusion so that they do not become a case of school dropout at different educational levels (Oviedo & Hernández, 2019).

Insufficient efforts to disseminate spaces for culture, free time and promote sport as a healthy habit generate harmful and sedentary behaviors in this population. The scarce supply and, therefore, the low participation means that the population does not have a full participatory role in society, being not aware of the environment where they live, which develops non-communicable diseases generated by a sedentary lifestyle, and decreases their quality of life (Ibáñez

López & Mudarra Sánchez, 2004). The implementation of physical activity programs in students with SEN equates opportunities for participation and influences the development of behaviors necessary for personal and professional development (Lakowski & Logan, 2011).

Managing inclusive spaces of participation at all levels of education contributes to the formation of values and strengthens social cohesion in order to enforce universal rights and the equitable distribution of rights (Gvirtz & Beech, 2014). Cultural, recreational and sports intervention programs within academic processes in schools and universities will improve students' quality of life, well-being, respect, and social inclusion (Mullor et al., 2020).

Physical activity (PA) shows that it influences positively the therapeutic processes of motor, sensory, intellectual and psychosocial rehabilitation; the improvement of the physical and mental health, self-awareness and emotional self-regulation; the strengthening of interpersonal relationships, and the contribution to the development of global skills to solve problems that arise in the personal, academic, social and labor environment (Santoya Montes et al., 2018).

Educational institutions need to expand spaces of participation to ensure the permanence and success of all students. It's also urgent to implement PA programs in higher education SEN to equalize opportunities for participation and influence the adoption of behaviors necessary for personal development (Lakowski & Logan, 2011).

A systematic review of the effects of implementing physical activity programs for higher education SEN, a topic that currently, despite the efforts of different government entities, national and international, has had little development. The aims of this work are essentially to alert the higher education to the need of incorporating programs for the development of PA and sport in their inclusion processes. By means of scientific evidence, it will be possible to know the volume,

the type of activity, and the physical, functional, psychological, and social results obtained.

2. Methods

This review with the International Prospective Register of Systematic Reviews (PROSPERO, registration number: CRD42021259116) was prospectively registered.

The present study is characterized by a systematic review of the literature on the effects of PA in higher education SEN, carried out in 6 electronic databases between March and July 2021. Due to the specificity of the topic and the few studies in the literature of the research participants, the types of educational needs were not limited, and it was necessary to cover most of them by means of general keywords. The objective is to identify the positive results of Randomized Controlled Trials (RCTs) in university students with any type of educational need: physical or motor, sensory, intellectual, psychological, among others. No discrimination will be made by age or sex of participants, language, or year of publication.

The criterion for reporting the systematic review is in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Liberati et al., 2009). Evaluation of the quality of evidence of studies followed the Physiotherapy Evidence Database (PEDro) which provides information resource to support evidence-based clinical practice (Sherrington et al., 2000).

2.1. Information Sources and Searches

For the present study, a comprehensive search in the electronic databases of scientific literature EBSCOhost, Scopus, PubMed, Web of Science, Cochrane e Science Direct, without restrictions on the year of publication, language, or age of the participants. The automatic search of terms results of keywords

combination with Boolean operators focused on the title and abstract. The search included the following keywords: physical activity OR physical education OR exercise OR training OR sport OR fitness AND university students OR college students OR higher education students AND disability OR disabilities OR special needs OR special OR disorder OR disorders OR handicap OR handicapped OR impaired OR impairments OR syndrome. Search Strategy is available in Table 1.

SEARCH STRATEGY	OBSERVATION
The research will be developed electronic database (no restrictions placed on either language or year of publication)	EBSCOHOST, SCOPUS, WEB OF SCIENCE, PUBMED, SCIENCE DIRECT, COCHRANE
Each database has a specification in the search that will be accompanied by the combination of Boolean operators necessary for each one.	AND, OR, NOT
Keywords were divided into three groups: intervention, participants, condition	INTERVENTION: (physical activity OR physical education OR exercise OR training OR sport OR fitness); PARTICIPANTS (university students OR college students OR higher education students); CONDITIONS (disability OR disabilities OR special needs OR special OR disorder OR disorders OR handicap OR handicapped OR impaired OR impairments OR syndrome)
Evaluation of the quality of evidence of studies followed the Physiotherapy Evidence Database (PEDro)	PEDRO items rating: Eligibility criteria, Random allocation, Concealed allocation, Blind subjects, Baseline comparability, Blind subjects, Blind therapists, Blind assessors, Adequate follow-up, Intention-to-treat analysis, Between-group comparisons, Point estimates and variability

Table 1: Search Strategy

Each database structures and categorizes the information differently, in this way the fields to be searched are completed using different combinations of keywords to filter the articles. The way in which the searches were carried out in each database is found in Annex 1.

2.2. Study Selection

Two investigators (Carlos M. B. Cardona and Ilem D. Rosero) conducted the search independently. The main criterion for accepting the articles was that they

were based on RCTs, which evaluate the safety and effects of the treatments in the intervention groups with a high level of comparability and control of biases (Lazcano-Ponce et al., 2004).

After removing the duplicate articles automatically with the online citation manager (End Note), the reviewers performed a detailed manual search for duplicate articles. Then they screened all potentially eligible studies using the titles and abstracts and subsequently applied the eligibility criteria to obtain the full texts and generate a list of articles. Later, a detailed reading of the studies was carried out, in order to satisfy the eligibility criteria once again, and thus the final list of articles included in the review was selected by consensus.

This study wasn't financed by any governmental entity, and the review of an institutional research ethics board was not necessary.

2.3. Data Extraction and Quality Assessment

Two authors (Carlos M. B. Cardona and Ilem D. Rosero) independently extracted the data using a data extraction form that includes the initial characteristics of the study design, the characteristics of the participants, the methods, and the results of interest. The reliability of the studies was carried out through the Physiotherapy Evidence Database (PEDro; www.pedro.org.au) (Sherrington et al., 2000) which helps users rapidly identify if the RCTs have sufficient internal validity (criteria 2-9) and the statistical information necessary for their results to be interpretable (criteria 10-11). Only 1 article (Converse et al., 2020) was reviewed automatically in the database. The review of the other four articles (Dysterheft et al., 2018; Falsafi, 2016; Mailey et al., 2010; Yang et al., 2015) was manual. For these studies, the data was considered and taken into account through a rigorous reading. The results in a spreadsheet where "yes = 1" and "no = 0" with a maximum total score of 10 to obtain the final score were recorded. Any disagreements were resolved by the reviewers through discussion.

All studies presented initial comparability and comparison between groups. None of the studies had concealed allocation, blind subjects, blind therapists, blind

assessors, and intention to treat analysis, which is common to find in the PEDro database, since there it is reported where only (27%) report concealed allocation, blind subjects (6%), blind therapists (1%), intention to treat (28%) and blind assessors approximately (36%). One study [2] did not specify neither the Eligibility Criteria nor Random Allocation. Two studies [3, 5] did not have adequate follow-up and point estimates and variability respectively, which are reported in more than 90% approximately of the studies in PEDro database. The average total PEDro score is 5.1 ± 1.6 and the quality of the included studies in this review presents an average of 4.40 ± 0.55 classifying the studies as regular quality hindering the development of the review (PEDro, 2021). Table 2 shows the elements selected for the methodological assessment and all the complete quality assessment information.

Author/Criteria	1.*	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Score
1. Converse, A. et. al.	1	1	0	1	0	0	0	1	0	1	1	5/10
2. Dysterheft, J. et. al.	0	0	0	1	0	0	0	1	0	1	1	4/10
3. Falsafi, N.	1	1	0	1	0	0	0	0	0	1	1	4/10
4. Mailey, E. et. al.	1	1	0	1	0	0	0	1	0	1	1	5/10
5. Yang, W. Zhai, F. Gao, Y. Zhang, Q.	1	1	0	1	0	0	0	1	0	1	0	4/10

Table 2: Quality of the studies (PEDro scale)

- 1. Eligibility Criteria (*Does not influence the final result), 2. Random Allocation, 3. Concealed Allocation, 4. Baseline Comparability, 5. Blind Subjects, 6. Blind Therapists, 7. Blind Assessors, 8. Adequate Follow-up, 9. Intention-To-Treat Analysis, 10. Between-Group Comparisons, 11. Point Estimates and Variability.

3. Results

3.1. Characteristics of Included Trials and Participants

After exhaustive research of the literature in six electronic databases, in a first stage, 299 titles of our topic of interest were selected for inclusion. Automatically and manually duplicated titles were eliminated. Subsequently Reviewing titles with abstracts, those unrelated to our interest population or type of intervention were eliminated. Finally, 29 articles were evaluated by exhaustive review, and 5

were included in the final systematic review. Among the 5 articles found in the research with the exclusion and inclusion criteria satisfaction, 3 articles [3,4,5] correspond with mental health disorders, 1 article correspond with learning disabilities [1], and 1 article to multiple physical disabilities [2]. Figure 1 shows the procedure in a PRISMA 2020 flowchart.

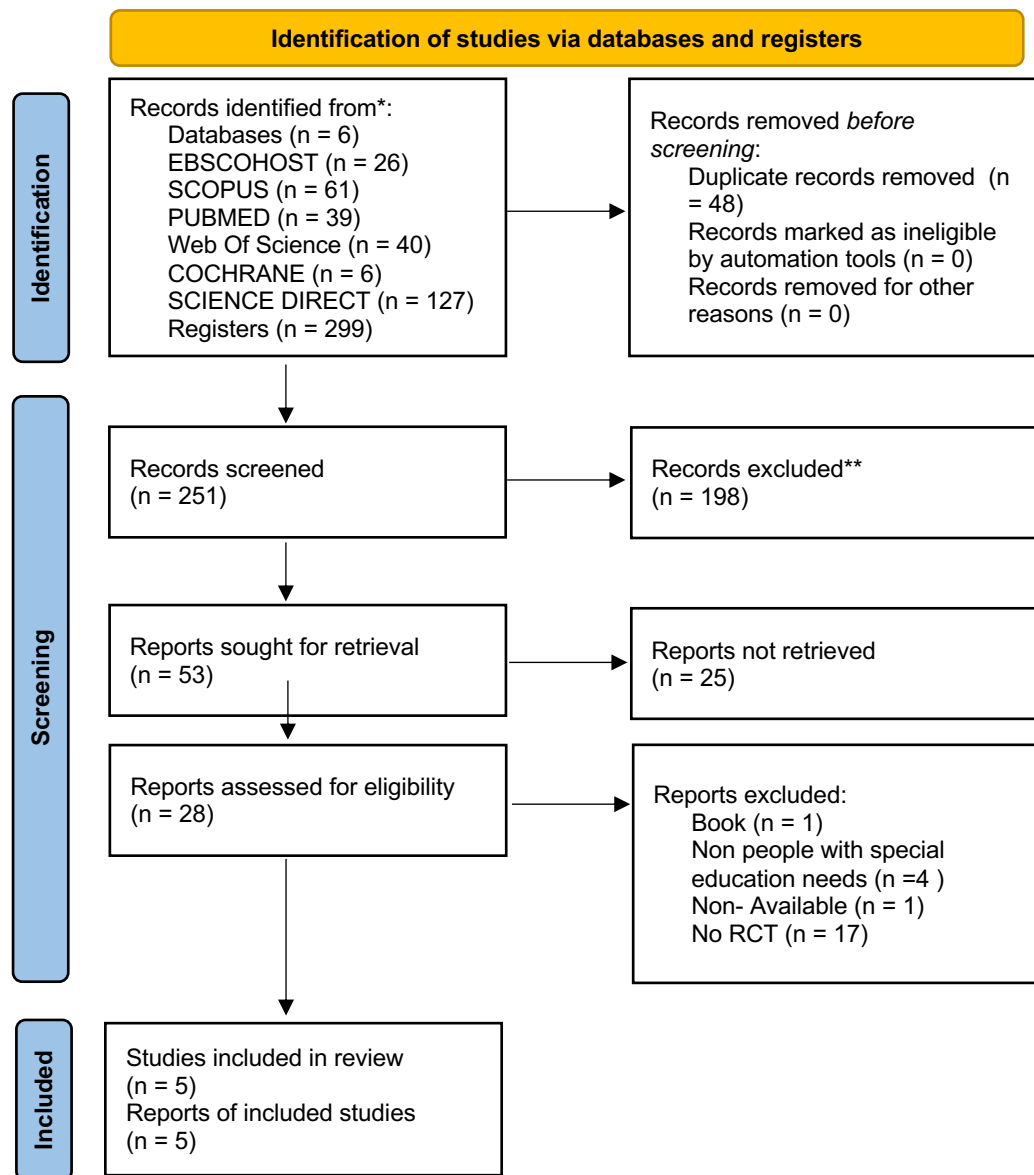


Figure 1: PRISMA 2020 flowchart

number of studies identified and selected for inclusion in the systematic review. * Records identified from each database or register searched ** all records were excluded by the authors.

Three studies were developed in a basis of the mental health concern: (Falsafi, 2016) [3] and (Mailey et al., 2010) [4] depression and anxiety disorders, and

(Yang et al., 2015) [5] only with anxiety disorders. 1 study was carried out in a population with Attention deficit, hyperactivity disorder (Converse et al., 2020) [1] another study (Dysterheft et al., 2018) [2] was carried out in a heterogeneous group with physical disabilities: Cerebral Palsy, Muscular Dystrophy, Spinal Muscular Atrophy, Proximal Femoral Focal Deficiency, Arthrogryposis, Fibrous Dysplasia, Rheumatoid Arthritis, and Nerve Neuralgia.

The studies included 164 participants (61% female) with a mean age of 22.5 ± 3.5. Data on height, weight, BMI, and degree of disability, were not reported. Table 3 shows full details of other characteristics.

Demographic	1. Converse, A. et. al.			2. Dysterheft, J. et. al.		3. Falsafi, N.			4. Mailey, E. et. al.		5. Yang, W. Zhai, F. Gao, Y. Zhang, Q.	
Group	Tai Chi	non-contact Kickboxing	Control Group	Aquatic Exercise	Control Group	Mindfulness	Yoga	Control Group	Physical Activity	Control Group	Collective Outdoor Games	Control Group
N baseline	9	5	7	6	6	30	30	30	26	25	19	19
N follow up		4	6			21	23	23	23	24		
Age	20.7 ± 1.5			20.0 ± 1.26	21.83 ± 2.48	22.1 (range: 18–50)			25 (range: 18–52)		22.18 ± 3.76	21.34 ± 3.50
Gender	F = 67%			F = 83%	F = 33%	F = 86.4%			F = 68.1%		F = 47.3%	F = 42.1%
Years at university	N.D.			1.42 ± 1.16	2.75 ± 1.94	N.D.			N.D.		N.D.	
Special Education need	ADHD			CP (3), MD, SMA, PFFD	Arthro (2), FD, NN, RA, SMA	Depression & Anxiety			Depression & Anxiety		Anxiety disorder	
Other	Medication n = 16			N.D.		31.34% A; 10.44% D; 58.2% D + A			Undergraduate students was 61.7%		N.D.	

Table 3: Demographic data–

F: females, N.D: non-data, ADHD: Attention deficit hyperactivity disorder, CP: Cerebral Palsy, MD: Muscular Dystrophy, SMA: Spinal Muscular Atrophy, PFFD: Proximal Femoral Focal Deficiency, Arthro: Arthrogryposis, FD: Fibrous Dysplasia, RA: Rheumatoid Arthritis, and NN: Nerve Neuralgia, D: depression, A: Anxiety.

3.2. Characteristics of Included Studies

The types of interventions carried out through PA were diverse: in [1] two types of interventions were applied (Tai Chi and non-contact Kickboxing); In [2] Aquatic exercises were carried out; in [3] Hatha Yoga was practiced; in [4] recommendations were made for the increase of PA through an online platform and in [5] non-specific collective games were practiced with the objective to begin recreation and team cooperation.

The intervention time was 5 to 10 weeks in all studies. Specific sessions of 50 to 75 minutes were handled in [1,2,3,5]. The intervention frequency was 2 to 3 times per week in [1,2,5] and is not specified in [3]. There is no report of session duration and frequency because the increase in PA throughout the day was evaluated with the support of a pedometer [4]. For all studies, there is no data on the intensity. Intervention time per week was reported in the studies [1, 2, 3, 5] and only one study [5] meets the minimum time of moderate activity suggested by the WHO for moderate aerobic exercise of between 150-300 minutes per week to help reduce the harmful effects due to sedentary lifestyle (WHO, 2020c). Different tests were applied in all studies to compare the effects of PA [2, 3]; an interview with the participants was also conducted.

The primary follow-up tests were: CAARS-SL DSM IV in [1], Leisure Time Physical Activity Questionnaire for People with Spinal Cord Injury in [2], Beck Depression Inventory (BDI) in [3,4], Hamilton Anxiety Scale (HAMA) in [3,5], State Anxiety Intervention (STAI) in [4], Physical Activity measurement in [4], Rating Anxiety Scale (SAS) in [5]. The complete information extracted from the interventions of is presented in Table 4.

3.3. Outcomes

The type of interventions applied in the research increases PA in the population and not for a particular type of exercise or sport. Academic, physical, and physiological outcomes such as VO₂ max, BMI, strength, or blood pressure as outcomes of the interventions in any reviewed studies are not specified. The results obtained are on the correlations and effect sizes of the tests applied during the follow-up of the intervention.

In [1], the CAARS-SL DSM IV, as the primary outcome, was chosen. In the baseline, the sample presented a mean of 69.3 ± 7.4 . After the intervention, the mean of the Tai Chi and non-contact Kickboxing groups was 72.1 ± 5.7 and that of the control group 65.3 ± 8.2 . Although the means of this intervention groups

Author	Intervention Group	Description	Time/Frequency/Duration	Follow-up tests
1. Converse, A. et. al.	Tai Chi	Practice of the 24-form Yang style sequence	60 min/2 x week/7 weeks	CAARS-S:L DSM-IV Inattentive Symptoms, CAARS-S:L all scales; RAND; PSQI; FFMQ; Postural Stability Test; GRE, NIH Toolbox
	non-contact Kickboxing	Non-contact kickboxing for cardio-aerobic fitness		
2. Dysterheft, J. et. al.	Aquatic Exercise	Aquatic exercise adapted for students with physical disabilities	50 min/2 x week/5 weeks	LLTPAQ-SCI; WHOQOL-BREF; SCI ESES, SCOPE, individual interviews
3. Falsafi, N.	Yoga	Short meditation, a series of stretches to prepare the body, poses and postures, and a period of relaxation at the end of the session	75 min x week/ 8 weeks	BDI, HAM-A, SSI, SCS, CAMS-R
4. Mailey, E. et. al.	Physical Activity	Increase the measure of physical activity using accelerometers and following recommendations from an online platform to move	Participants wore the device from morning and at all times of the day for 10 weeks until they went to bed, except when bathing, swimming or sleeping.	BDI, STAI, ESES, BARSE
5. Yang, W. Zhai, F. Gao, Y. Zhang, Q.	Collective outdoor games	The main game is the entertainment one, which aims at the team cooperation	60 min/3 x week/8 weeks	HAMA, SAS

Table 4: Type of Interventions of the studies

[1] (RAND) General health, (PSQI) sleep quality; (FFMQ) Five Facet Mindfulness Questionnaire; (GRE) Graduate Record Exam, (NIH Toolbox) Flanker test of attention and inhibitory control and the Dimensional Change Card Sort test of executive function; [2] (LLTPAQ-SCI) Leisure Time Physical Activity Questionnaire for People with Spinal Cord Injury, (WHOQOL-Bref) Quality of Life-BREF, (ESES) SCI Specific Exercise Self-Efficacy Scale, (SCOPE) Social and Community Opportunities Profile Short Version; [3] (BDI) Beck Depression Inventory, (HAM-A) Hamilton Anxiety Scale, (SSI) Student-Life Stress Inventory, (SCS) Self-compassion Scale, (CAMS-R) Cognitive and Affective Mindfulness Scale-Revised; [4] (BDI) Beck Depression Inventory, subscale of the State Trait Anxiety Scale (STAI), (ESES) Exercise Self-Efficacy scale, (BARSE) Barriers Self-Efficacy scale [5] (HAM-A) Hamilton Anxiety Scale, (SAS) self rating Anxiety Scale

present a higher mean than the control group, they present a greater decrease in their values while the control group experiences an increase. The test-retest reality for inactive control group and non-contact Kickboxing group were assessed at baseline and follow-up ($r = 0.87$, $p = 0.0012$ uncorrected, $n = 10$). There was no significant group x time interaction in the primary outcome measure comparing Tai Chi vs. non-contact Kickboxing group ($\beta_{\text{group: time}} \pm \text{standard error} = -0.4 \pm 3.0$, $p = 0.9$, $df = 11$) nor Tai Chi vs. Inactive Control (-1.7 ± 2.4 , $p = 0.5$, $df = 13$). Also, the line inattention Baseline correlates negatively the performance of FFMQ with the consciousness subscribe ($r = -0.74$) and positively with the PSQI diurnal dysfunction subscribe at baseline ($r = 0.57$). Four secondary measures correlated significantly at baseline with the primary, including the FFMQ Acting with Awareness. Significant group differences at baseline for two measures of postural stability were observed, but none for other clinical outcome measures ($p > 0.05$).

The aquatic exercise group in [2] presents significant differences in the LTPAQ-SCI ($U = 2.00$, $z = -2.58$, $p = 0.01$) pre and post-intervention with control group. The control group did not show increases in recreational PA. The WHOQOL – BREF, the SCOPE and ESES tests don't present any significant differences in pre- and post-changes between groups.

Two studies [3, 4] evaluated depression using the BDI test with values of 20.0 ± 10.06 and 15.67 ± 11.08 respectively. These values classify the groups with moderate depression whose range is from 14 to 20 and conventional cut-off of 17 for clinical depression (Džubur et al., 2018). Three different types of tests were used to assess anxiety. The yoga group [3] used the HAMA test with a value of 21.2 ± 8.0 ; the physical activity group [4] presents a value of 45.50 ± 12.62 in STAI test and the collective outdoor games group [5] use the HAMA and SAS tests with values of 19.32 ± 3.49 and 62.44 ± 5.31 respectively. The yoga group [3] is classified as mild to moderate severity with a range of (18-24), on the HAMA anxiety rating scale ranging from 0-56 where mild severity (<17), mild to moderate severity (18-24) and moderate to severe (25-30). The physical activity group in [4] is classified as moderate in the STAI test for the range no anxiety (<20), mild (21-39), moderate (40-59), and severe anxiety (60-80). The study [5] on the HAMA test scale is classified in mild to moderate severity and for the SAS scale in anxiety symptom for the range severe anxiety symptom (≥ 29), obvious anxiety symptom (≥ 21); anxiety symptom (≥ 14), possible anxiety symptom (≥ 7) and no anxiety symptom (< 7).

In the Yoga group [3] Anxiety, depression, and stress symptom scores decreased significantly ($p < 0.01$) compared to the control group. Self-compassion scores didn't increase significantly ($p < 0.01$). It was also remarkable that while the change in scores continued to be significant through the follow-up measures for the BDI, HAMA and Self-Compassion, the scores for these scales were not altered from post to follow-up measurement. The study [4] reported increases in PA associated with significant increases in self-efficacy for exercise ($r = 0.62$) and to overcome barriers ($r = 0.63$), with decreases in depression ($r = -0.44$) but

not in anxiety. ($r = - 0.38$). Improvements in barriers efficacy were significantly associated with decreases in depression ($r = - 0.43$) and anxiety ($r = - 0.55$). In the study [5] the HAMA and SAS scores of the Collective outdoor games group are significantly improved compared to those before treatment ($^aP < 0.05$) and the effect of patient improvement is more obviously compared with that of the control group, which shows statistical significance ($^bP < 0.05$). After 6 weeks of treatment, 6 patients from the observation group and 11 patients from the Collective outdoor games group are respectively cured. After 3 months follow up and interview, the control group has a recurrence rate of 33.33% and Collective outdoor games group 18.18%. It is shown that the recovery and recurrence rate of the Collective outdoor games group is better and lower respectively compared to the control group. The primary outcome from the baseline to follow-up are presented in table 5.

The primary outcomes in [3,4,5] specifically assess anxiety - HAMA [3,5], STAI [4], SAS [5] - and depression - BDI [3,4]. Respect to control group, the pre- and post-intervention results indicate that the symptoms of depression present significant differences in all studies. Only anxiety in [4] does not present significant differences respecting the control group. The study [1] applied a specific validation test for ADHD -the CAARS-SL DSM IV - which evaluates the Inattentive Symptoms subscale. The test results show a decrease from baseline to follow-up due to the intervention. The study [2] is carried out in a population with heterogeneous physical disabilities and presents a significant difference in the performance of physical activity in free time over the control group.

Author	TEST/GROUP	Baseline			Follow up		
1. Converse, A. et. al.	CAARS-S: L DSM-IV Inattentive Symptoms	Tai Chi	non-contact Kickboxing	Inactive Control	Tai Chi	non-contact Kickboxing	Inactive Control
		68.7 ± 7.6	77 ± 14	62.3 ± 9.8	68.1 ± 9.1	76.2 ± 9.9	65.3 ± 8.2
2. Dysterheft, J. et. al.	Godin RPA / Recreational Physical Activity (RPA): Leisure time PA	Aquatic exercise	Control		Aquatic exercise	Control	
		16.17 ± 19.89	13.66 ± 25.97		40.83 ± 23.25	10.17 ± 11.41	
3. Falsafi, N.	Beck Depression Inventory (BDI)	Mindfulness	Yoga	Control	Mindfulness	Yoga	Control
		21.7 ± 7.9	20.0 ± 10.6	20.2 ± 9.1	8.9 ± 6.7	8.7 ± 5.8	19.3 ± 10.3
	Hamilton Anxiety Scale (HAMA)	22.2 ± 7.1	21.2 ± 8.0	21.1 ± 8.6	11-8 ± 9.5	13.3 ± 9.7	21.3 ± 11.7
4. Mailey, E. et. al.	Beck Depression Inventory (BDI)	Physical Activity	Control		Physical Activity	Control	
		15.67 ± 11.08	16.00 ± 6.30		14.24 ± 12.11	15.55 ± 7.18	
	State Anxiety Intervention (STAI)	45.50 ± 12.62	45.00 ± 6.99		44.05 ± 18.02	47.23 ± 9.29	
	Physical Activity	243421.81 ± (62414.56)	247753.55 ± 69613.96		299791.57 ± 102800.00	251625.04 ± 83080.77	
5. Yang, W. Zhai, F. Gao, Y. Zhang, Q.	Hamilton Anxiety Scale (HAMA)	Collective Outdoor Games	Control		Collective Outdoor Games	Control	
		19.32 ± 3.49	18.64 ± 3.56		9.74 ± 3.09	13.86 ± 3.17	
	Self - Rating Anxiety Scale (SAS)	62.44 ± 5.31	61.72 ± 5.23		53.07 ± 4.32	56.31 ± 4.95	

Table 5: Outcomes

3.3.1 Effect According to SEN

3.3.1.1. Physical activity in the Mental Disorders Group

The intervention in [3,4,5] were performed by different PA in populations with anxiety and depression – Yoga, physical activity through an online platform and non-specific collective games. Depression present improvement in [3,4] after the intervention with PA. Anxiety symptoms improve in [3,5] but not in [4] after the intervention.

3.3.1.2. Physical Activity in Physical Disabilities Group

The study [2] presents a group with multiple disabilities. Significant differences were found pre- and post-intervention in LTPAQ-SCI which shows that aquatic exercises can be used to promote leisure-time physical activity in students with disabilities. Even though the rest of the variables (WHOQOL-BREF; SCI ESES, SCOPE) did not present significant differences, in an interview that the participants of the activity carried out, they manifested having positive social outcomes from the class.

3.3.1.3. Physical Activity in ADHD Group

In the study [1] Tai Chi and cardio-aerobic fitness was used as treatment for attention deficit hyperactivity disorder. There was no significant group per time interaction in the primary outcome measure comparing Tai Chi vs. non-contact Kickboxing nor Tai Chi vs. Inactive Control. Six secondary measures demonstrated good reproducibility and four secondary measures were found to significantly correlate at baseline with the primary measure.

4. Discussion

The objective of this study is to determine the effects of intervention programs through PA on the higher education SEN. PA can be developed through recreational games, competitive sports, or free activities in leisure time, which promotes a healthy lifestyle and generates favorable environments for the university community that influences the motor, sensory, cognitive and psychosocial components of students (Santiago Bazán, 2018).

It was observed that it is currently little evidence in studies with methodology RCT on the topic. Additionally, the studies included in the review [1,2,3,4,5] present a quality assessment average = 4.4/10.0, a regular score that prevents effective results and denotes that it is an area of study that presents little information and that the existing one is not of good quality and reliability.

The types of educational needs found were mental health disorders [3, 4, 5], physical disabilities [2] and learning difficulties [1]. This population reports an increase in all levels of higher education (AHEAD, 2017), but this present enormous differences between continents, countries and cities of the same country (UNESCO, 2020). The information available on school insertion in this educational level is also incomplete so it is difficult to establish a pattern (Blacio Aguirre et al., 2017).

In the interventions carried out, no type of PA or performance exercise predominates, the objective was to increase levels of PA and taking advantage of free time with psychological, social and quality of life evaluators. Thus, more health-related fitness measuring data wasn't not obtained.

The study [2] was carried out within a university population with physical disabilities. This type of disability occurs when the person's locomotor system is in a physical state that permanently and irreversibly prevents movement with full functionality due to congenital or acquired causes, and originates from a deficiency of skeletal musculature, brain, or spinal cord damage (ODF, 2021). This population presents serious barriers to participation in common citizen spaces. Monforte et al. (2021) reports in his study that in the university population with physical disabilities, the environment plays and will play a very important role and has a great influence in their non-participation in PA. Aquatic exercises are done in [2] obtaining significant differences in the LTPAQ-SCI, which measures the time of PA in their free time. Other meters, such as QOL and ESES did not show significant differences after the intervention. In the interview, the students mentioned being aware of the benefits of exercise in health, increased energy, muscle strength, and the maintenance of their functional capacity. It is then observed that through aquatic exercise, students with physical disabilities make good use of their free time, which distances them from sedentary and harmful behaviors by improving their life habits. From an early age, this population tends to present a lower level of PA influenced by structural barriers, environmental factors, availability of resources and the presence of personal support. Due to

this, they have little participation in recreational, sports and daily life activities. (Sit et al., 2007). Concerning the University population, Yoh et al. (2008) reports in their study that approximately 68% of students with physical disabilities use recreational facilities in the university campus less than five times. According to this it is observed that it is important in the school and university environment to promote adequate programs that stimulate participation in physical, recreational and sports activities. ADHD, also known as hyperkinetic disorder, is a well-known risk factor that affects the population academically, socially, and emotionally from an early age (WHO, 2019). Symptoms of ADHD include inattention, hyperactivity, and impulsivity (American Psychiatric Association, 2017). The worldwide prevalence is approximately 5% in children, 2.5% in adults and between 2-8% in college students (DuPaul et al., 2009; Faraone et al., 2015). People with ADHD should work a lot more on their academic activities than their counterparts because they operate in environments that limit their social participation, also recorded behaviors that limits the social life of the student, increasing the risk of psychiatric disorders, accidents, disability, social and addictive behaviors. It requires specific treatments to improve their organizational skills, or emotional self-regulation (Faraone et al., 2015; Tochetto de Oliveira et al., 2016; Whitehurst, 2007).

The self-report CAARS-SL DSM IV Inattentive Symptoms in [1] is associated with poor academic performance (DuPaul et al., 2009; Weyandt & DuPaul, 2008). Although the results of the Tai Chi Group and the non-contact Kickboxing group show improvements over the control group, these are not significant. The population with ADHD has higher risks of obesity due to physical inactivity behaviors (Cook et al., 2015) and although these consequences were not taken into account for the study, it is necessary to promote participation in this type of programs since it influences the improvement of the quality of life and increases educational success in this population (Wilmshurst et al., 2010).

PA and exercise have a positive influence on reducing symptoms at a physical, physiological, emotional, psychological and cognitive level in populations with

ADHD. It also improves learning ability and sociability (Muñoz-Suazo et al., 2019; Pagani et al., 2020). In the study Muñoz-Suazo et al. (2019) reports that one-hour of intervention, twice a week and with medium-high intensity (40% -60%) improve the quality of care. Agreeing with the above, Tsai et al. (2021) reports that vigorous intensity exercises (60%-80%) have poorer cognitive performance compared to moderate intensity. In university population with ADHD, Özkan and Arslan (2019) found that levels of attention and hyperactivity present significant differences between students who do sports and those who do not, concluding that they have greater control over their attention, more positive behaviors and better quality of life.

The mental health disorders treated in [3,4,5] were anxiety and depression. According to the WHO, depression affects more than 300 million people in the world and anxiety affects more than 260 million people. These disorders limit participation in personal, academic and workspaces which are associated with a significant loss of quality of life, increased morbidity and mortality (WHO, 2019a). In the last decade it has been recognized that these disorders can cause a psychosocial disability because people have a low level of insertion and participation in all social and citizenship areas (del Pilar Arenas & Evander Melo-Trujillo, 2021).

The interventions applied in the studies [3, 4, 5] obtained positive results for the reduction of anxiety and depression symptoms. When comparing the interventions carried out, it is observed that the online platform specially designed for the study [4] was the one that obtained the least effects on the population. The test to assess BDI depression applied in the studies [3,4] shows that yoga group in [3] obtained better results than physical activity group in [4]. The same behavior is shown by the tests to assess anxiety HAMA [3, 5] and SAS [5] in comparison to STAI [4]. In the follow up, the population evaluated by the HAMA test [3,5] was classified in mild severity (<17) compared to the STAI test in [4] where the population continued in severe anxiety.

Regarding PA, yoga group in [3] the whole body is connected through physical postures, breath control and meditation. It is considered a physical exercise that positively influences components of physical condition, having positive therapeutic effects for the treatment of anxiety and depression symptoms. Ciezar et al. (2021) report in their systematic review that yoga improves overall mental health in 7/25 studies reporting a reduction in depression and 15/25 anxiety reduction studies among other psychological and physical benefits. Analyzing differences between individual versus group therapies, Fawcett et al. (2020) reports no significant differences. It is therefore believed that the results obtained in [3,5] present greater effects than the intervention in [4] since the orientation and the group accompaniment generates attitudes of motivation towards the participation of the physical activities.

In SEN population, the physical activity promotion is of vital importance from an early age, since this population has lower levels of physical activity, higher rates of obesity, higher risk of comorbidity and bad health habits (CDC, 2020). In the present review only one study [5] meets the minimum of PA recommended by the WHO, in agreement with the study conducted by Monforte et al. (2021) where 72.2% of students with special educational needs do not comply with the minimum of 75 min/week of physical activity, while 83% do not comply with the recommendation of 150 min / week which (WHO, 2020c).

Despite the fact that a predominant type of PA was not observed within the groups and that data on the characteristics of the exercises are lacking, it is very important to understand how, through this type of intervention, educational entities can generate spaces for the participation of equitable way in any type of population producing physical, psychological and mental benefits.

5. Conclusions

In the evolutionary process of inclusive education, SEN populations have gone through a process of exclusion, segregation, integration and inclusion of all the components that are part of the teaching-learning process. Although international collective actions are currently being generated to develop spaces for the participation of these marginalized groups, it is evident through this review that in the area of PA there is still very little scientific evidence for the specific treatment and support of this population. It is observed that PA significantly improves feelings of anxiety and depression, significantly improves the use of free time in populations with physical disabilities and positively influences the inattention in the population with ADHD, where oriented and group activities benefit more these population groups. Also, the results obtained in the present review, focus more on psychological and psychosocial evaluators, neglecting other important components such as physical and physiological, which must be taken into account due to the effects of comorbidity present in these population groups.

Although the type of interventions are not present data in a specific intensity, frequency and duration, we believe that through the PA and exercise, people with special educational needs in higher education, can reduce the gap in participation in activities of university life which will later influence the personal, academic, social and labor environment. Emphasizing all the above, it is necessary that at all educational levels, the participation of this population will be accompanied by interventions that improve well-being, quality of life and academic success.

Our recommendation is that it is necessary to develop and deepen strong and efficient efforts to populations with higher education SEN, developing interventions through PA, being aware of the diverse needs and interests of students. It is also necessary to carry out quality interventions, with clear intervention protocols and in many more types of educational needs, since in the present review only three areas of the broad spectrum were evaluated, and additional trials are required to confirm the effects of PA in this population.

Our main limitation and concern is the small number of reliable studies found on the subject. In addition, the quality of the studies, the heterogeneity of the groups, the lack of established protocols, the types of activity and the lack of information on the volume of interventions, make it difficult to clearly establish which type of activities have the greatest impact on this type of population. However, it is observed that PA programs generate positive influences significant and non-significant in the intervention time in some psychosocial and psychological meters.

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Capítulo IV

Conclusão Geral

4. Conclusão Geral

Reconhecendo os múltiplos benefícios da AF, na presente dissertação procura-se expor aos institutos de educação superior que, mediante o desenvolvimento de programas de AF, podem contribuir para a manutenção da saúde física e psicológica, bem como para o desenvolvimento pessoal e o bem-estar dos estudantes com NEE. Com efeito, implementar este tipo de programas, servirá ainda um caminho para diminuir atitudes de exclusão na comunidade universitária.

Notavelmente, a quantidade de estudantes com NEE no ensino superior está a incrementar, não em tanto, a participação deles em espaços para o desenvolvimento de atividade física e desporto é insuficiente. No presente estudo, pese a escassa evidencia científica, observa-se que a través da participação em programas de AF, estudantes com NEE no ensino superior podem melhorar significativamente os sentimentos de ansiedade e depressão, o uso do tempo livre e influencia positivamente a inatenção em populações com ADHD.

Com respeito à elaboração da revisão sistemática, a pouca quantidade de estudos referentes ao tema, a qualidade destes e a falta de informação referente ao tipo de atividades desenvolvidas, dificultou a interpretação dos benefícios específicos decorrentes da prática de diferentes tipos de atividades e em diferentes áreas da deficiência. Assim, é necessário desenvolver mais programas de AF nestas populações com protocolos detalhados de intervenção.

No que se refere à elaboração desta dissertação, realizar uma revisão sistemática constituiu-se como um grande desafio. Porém, as aprendizagens obtidas no que se refere ao tema, ao manuseamento de bases de dados e à aprendizagem da língua portuguesa, compensaram todo o esforço e dedicação colocada no desenvolvimento deste trabalho.

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Anexo 1

Data base Search Strategy: PubMed Search

((("physical activity" [Title/Abstract] OR "physical education" [Title/Abstract] OR "exercise" [Title/Abstract] OR training [Title/Abstract] OR sport [Title/Abstract] OR fitness[Title/Abstract])) AND ("university students" [Title/Abstract] OR "college students" [Title/Abstract] OR "higher education students"[Title/Abstract])) AND (disability [Title/Abstract] OR disabilities [Title/Abstract] OR "special needs" [Title/Abstract] OR special [Title/Abstract] OR disorder [Title/Abstract] OR disorders [Title/Abstract] OR handicap [Title/Abstract] OR handicapped [Title/Abstract] OR impaired [Title/Abstract] OR impairments [Title/Abstract] OR syndrome[Title/Abstract])