

Appendix 1

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1. Investigators

Paula A. Ospina, MSc; Mona M. Al Onazi, MSc; and Margaret L. McNeely, PhD

2. Search strategies for electronic databases

Searches conducted on February 20th, 2024

Ovid MEDLINE(R) ALL <1946 to February 19, 2024>

Date searched: Feb 20, 2024

Results: 859

<https://login.ezproxy.library.ualberta.ca/login?url=http://ovidsp.ovid.com/ovidweb.cgi?T=JS&N EWS=N&PAGE=main&SHAREDSEARCHID=6xk6jLyG9Qw7sEPSq2o42xTzSa9Db7ewZ0jB fVLL92ijeEybvXc8Zqw4sdomaCEGK>

- 1 peripheral nervous system diseases/ or peripheral nerve injuries/ or small fiber neuropathy/ 33007
- 2 (Peripheral neuropath* or cipn or drop foot or ((numbness or tingling) adj3 (hand or hands or fingers or foot or feet or toes or ankle* or extremities))).mp. 28870
- 3 (("range of motion" and ankle) or balance or gait or coordination or gross motor or pain or (strength and (ankle or hand or hands or thumb or wrist or grip))).mp. 1467669
- 4 1 or 2 or 3 1508151
- 5 exp antineoplastic agents/ or exp angiogenesis inhibitors/ or exp antibiotics, antineoplastic/ or exp anticarcinogenic agents/ or exp antimetabolites, antineoplastic/ or exp antimitotic agents/ or exp antineoplastic agents, alkylating/ or exp antineoplastic agents, hormonal/ or exp antineoplastic agents, phytogetic/ or exp antineoplastic agents, immunological/ or exp myeloablative agonists/ or exp "poly(adp-ribose) polymerase inhibitors"/ or exp topoisomerase inhibitors/ 1284558
- 6 (chemotherap* or antineoplastic).mp.914049
- 7 exp Neoplasms/ 3939154
- 8 (oncolog* or neoplas* or carcinom* or tumor* or tumour* or cancer* or malignan* or hemato-oncological or leukemia* or leukaemi* or AML or lymphom* or hodgkin* or T-cell or B-cell or non-hodgkin* or nephroblastom* or neuroblastom* or rhabdomyosarcom* or teratom* or

hepatom* or hepatoblastom* or medulloblastom* or PNET* or meningiom* or gliom*).mp.
5568629
9 5 or 6 or 7 or 86328197
10 exp physical therapy modalities/ or rehabilitation/ or neurological rehabilitation/ or
occupational therapy/ 213399
11 splints/ or foot orthoses/ 10621
12 physical therapy specialty/ 2984
13 gait/ or "range of motion, articular"/ 93409
14 exp Proprioception/ 38843
15 (exercise* or physical activity or aerobic* or workout* or fitness program or
kinesiotherap* or core stability or yoga or pilates or resistance activit* or weightlifting or (lift*
adj4 weight*) or progressive resist* or gravity resistive or isotonic or isometric or ((eccentric or
concentric) adj2 contraction) or (train* adj6 (postur* or resist* or strength* or weight or stability
or circuit* or interval* or endurance)) or (musc* adj6 (strengthen* or train* or contraction*)) or
(activat* adj4 muscle) or (treadmill* not treadmill test) or (cardio* adj3 (class* or exercis* or
train* or machine*)) or ergometer* or ergometre* or walking or ((walk or walks) adj3 (fast or
brisk* or quickly or regular)) or swim* or running or jogging or cycling or bicycl* or bike or
biking or spinning or spin class* or spin bike* or yoga or pilates or tai chi or tai ji).mp.
1121734
16 (Splinting or ankle foot orthos* or manual therap* or physical therap* or physiotherap* or
physical agent* or gait or proprioception or locomotion* or functional therap* or kinesiotherap*
or manipulation*).mp.381312
17 10 or 11 or 12 or 13 or 14 or 15 or 161567586
18 exp Child/ or exp infant/ or adolescent/ or exp pediatrics/ or minors/ or (pediatric* or
paediatric* or child* or newborn* or congenital* or infan* or baby or babies or neonat* or pre-
term or preterm* or premature birth* or NICU or preschool* or pre-school* or kindergarten* or
kindergarden* or elementary-school* or nursery-school* or (day-care* not adult*) or schoolchild*
or toddler* or boy or boys or girl* or middle-school* or pubescen* or juvenile* or teen* or youth*
or high-school* or adolesc* or young-adult* or pre-pubesc* or prepubesc*).mp. or (child* or
adolesc* or pediat* or paediat*).jw. 5745241
19 exp Clinical trial/ or randomized.tw. or placebo.tw. or dt.fs. or randomly.tw. or trial.tw. or
groups.tw. 6087364
20 4 and 9 and 17 and 18 and 19 859

Embase <1974 to 2023 February 19th>

Date searched: Feb 20, 2024

Results: 1581

[https://login.ezproxy.library.ualberta.ca/login?url=http://ovidsp.ovid.com/ovidweb.cgi?T=JS&N
EWS=N&PAGE=main&SHAREDSEARCHID=45lkg7sxHVcZFU3dWHxPqJJfkov8wLQOU7v
yQOy6A2cR0ODDuQw9G3ZekHsXhYRfj](https://login.ezproxy.library.ualberta.ca/login?url=http://ovidsp.ovid.com/ovidweb.cgi?T=JS&N

EWS=N&PAGE=main&SHAREDSEARCHID=45lkg7sxHVcZFU3dWHxPqJJfkov8wLQOU7v

yQOy6A2cR0ODDuQw9G3ZekHsXhYRfj)

1 peripheral neuropathy/ or chemotherapy-induced peripheral neuropathy/ 56801
2 (Peripheral neuropath* or drop foot or ((numbness or tingling) adj3 (hand or hands or
fingers or foot or feet or toes or ankle* or extremities))).mp. 75991

- 3 ("range of motion" and ankle) or balance or gait or coordination or gross motor or pain or (strength and (ankle or hand or hands or thumb or wrist or grip))).mp. 2355074
- 4 1 or 2 or 3 2408525
- 5 exp cancer chemotherapy/ 623813
- 6 exp antineoplastic agent/ 2999509
- 7 (chemotherap* or antineoplastic).mp.1470937
- 8 exp neoplasm/ 5659100
- 9 (oncolog* or neoplas* or carcinom* or tumor* or tumour* or cancer* or malignan* or hemato-oncological or leukemia* or leukaemi* or AML or lymphom* or hodgkin* or T-cell or B-cell or non-hodgkin* or nephroblastom* or neuroblastom* or rhabdomyosarcom* or teratom* or hepatom* or hepatoblastom* or medulloblastom* or PNET* or meningiom* or gliom*).mp. 7463180
- 10 5 or 6 or 7 or 8 or 9 9082482
- 11 exp physiotherapy/ 111487
- 12 neurorehabilitation/ 8724
- 13 occupational therapy/ 27072
- 14 foot orthosis/ or exp ankle foot orthosis/ 3639
- 15 exp splint/ 10444
- 16 exp musculoskeletal manipulation/ 4731
- 17 gait/ 70674
- 18 "range of motion"/ 66177
- 19 proprioception/ 16356
- 20 (exercise* or physical activity or aerobic* or workout* or fitness program or kinesiotherap* or core stability or yoga or pilates or resistance activit* or weightlifting or (lift* adj4 weight*) or progressive resist* or gravity resistive or isotonic or isometric or ((eccentric or concentric) adj2 contraction) or (train* adj6 (postur* or resist* or strength* or weight or stability or circuit* or interval* or endurance)) or (musc* adj6 (strengthen* or train* or contraction*)) or (activat* adj4 muscle) or (treadmill* not treadmill test) or (cardio* adj3 (class* or exercis* or train* or machine*)) or ergometer* or ergometre* or walking or ((walk or walks) adj3 (fast or brisk* or quickly or regular)) or swim* or running or jogging or cycling or bicycl* or bike or biking or spinning or spin class* or spin bike* or yoga or pilates or tai chi or tai ji).mp. 1552186
- 21 (Splinting or ankle foot orthos* or manual therap* or physical therap* or physiotherap* or physical agent* or gait or proprioception or locomotion* or functional therap* or kinesiotherap* or manipulation*).mp.612999
- 22 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 2063787
- 23 exp Child/ or exp infant/ or adolescent/ or exp pediatrics/ or minors/ or (pediatric* or paediatric* or child* or newborn* or congenital* or infan* or baby or babies or neonat* or pre-term or preterm* or premature birth* or NICU or preschool* or pre-school* or kindergarten* or kindergarden* or elementary-school* or nursery-school* or (day-care* not adult*) or schoolchild* or toddler* or boy or boys or girl* or middle-school* or pubescen* or juvenile* or teen* or youth* or high-school* or adolesc* or young-adult* or pre-pubesc* or prepubesc*).mp. or (child* oradolesc* or pediat* or paediat*).jx. 6045184
- 24 exp clinical trial/ or (randomized or placebo or randomly or trial or groups).tw. 6001292
- 25 4 and 10 and 22 and 23 and 24 1581

CINAHL Plus with Full Text (Ebscohost interface)

Date searched: Feb 20, 2024

Results: 309

S1 (Peripheral-neuropath* or cipn or drop-foot or ((numbness or tingling) N3 (hand or hands or fingers or foot or feet or toes or ankle* or extremities)) or ("range of motion" and ankle) or balance or gait or coordination or "gross motor" or pain or (strength and (ankle or hand or hands or thumb or wrist or grip)) or "peripheral nervous system diseas*" or "peripheral nerve injur*" or "small fiber neuropath*")

S2 (MH "Antineoplastic Agents+") or (MH "Chemotherapy, Cancer+") or chemotherap* or antineoplastic or (MH "Neoplasms+") OR oncolog* or neoplas* or carcinom* or tumor* or tumour* or cancer* or malignan* or hemato-oncological or leukemi* or leukaemi* or AML or lymphom* or hodgkin* or T-cell* or B-cell* or non-hodgkin* or neuroblastom* or neuroblastom* or rhabdomyosarcom* or teratom* or hepatom* or hepatoblastom* or medulloblastom* or PNET* or meningiom* or gliom*

S3 (MH "Physical Therapy+") OR (MH "Occupational Therapy+") OR (MH "Rehabilitation, Cancer") OR (MH "Rehabilitation, Pediatric") OR (MH "Rehabilitation") OR (MH "Balance Training, Physical") OR (MH "Splints") OR (MH "Foot Orthoses") OR (MH "Physical Therapy Service") OR (MH "Gait") OR (MH "Range of Motion") OR (MH "Proprioception") or splinting or ankle-foot-orthos* or manual-therap* or physical-therap* or physiotherap* or physical-agent* or gait or proprioception or locomotion* or functional-therap* or kinesiotherap* or manipulation* or exercise* or "physical activity" or aerobic* or workout* or "fitness program" or kinesiotherap* or "core stability" or yoga or pilates or "resistance activit*" or weightlifting or (lift* N4 weight*) or "progressive resist*" or "gravity resistive" or isotonic or isometric or ((eccentric or concentric) N2 contraction) or (train* N6 (postur* or resist* or strength* or weight or stability or circuit* or interval* or endurance)) or (musc* N6 (strengthen* or train* or contraction*)) or (activat* N4 muscle) or (treadmill* NOT "treadmill test") or (cardio* N3 (class* or exercis* or train* or machine*)) or ergometer* or ergometre* or walking or ((walk or walks) N3 (fast or brisk* or quickly or regular)) or swim* or running or jogging or cycling or bicycl* or bike or biking or spinning or "spin class*" or "spin bike*" or "tai chi" or "tai ji"

S4 (pediatric* or paediatric* or child* or newborn* or congenital* or infan* or baby or babies or neonat* or pre-term or preterm* or premature-birth* or NICU or preschool* or pre-school* or kindergarten* or kindergarden* or elementary-school* or nursery-school* or (day-care* NOT adult*) or schoolchild* or toddler* or boy or boys or girl* or middle-school* or pubescen* or juvenile* or teen* or youth* or high-school* or junior-high or adolesc* or young-adult* or pre-pubesc* or prepubesc*) or SO(child* or adolesc* or pediat* or paediat*)

S5 (MH "Clinical Trials+") OR randomized or placebo or randomly or trial or groups or rct

S6 S1 AND S2 AND S3 AND S4 AND S5

SCOPUS (Advanced search)**Date searched:** Feb 20, 2024**Results:** 1410

TITLE-ABS-KEY (Peripheral-neuropath* or cipln or drop-foot or ((numbness or tingling) W/3 (hand or hands or fingers or foot or feet or toes or ankle* or extremities)) or ("range of motion" and ankle) or balance or gait or coordination or "gross motor" or pain or (strength and (ankle or hand or hands or thumb or wrist or grip)) or "peripheral nervous system diseas*" or "peripheral nerve injur*" or "small fiber neuropath*") AND TITLE-ABS-KEY (chemotherap* OR antineoplastic OR oncolog* OR neoplas* OR carcinom* OR tumor* OR tumour* OR cancer* OR malignan* OR hemato-oncological OR leukemi* OR leukaemi* OR aml OR lymphom* OR hodgkin* OR t-cell OR b-cell OR non-hodgkin* OR nephroblastom* OR neuroblastom* OR rhabdomyosarcom* OR teratom* OR hepatom* OR hepatoblastom* OR medulloblastom* OR pnet* OR meningiom* OR gliom*) AND TITLE-ABS-KEY (splinting OR ankle-foot-orthos* OR manual-therap* OR physical-therap* OR physiotherap* OR physical-agent* OR gait OR proprioception OR locomotion* OR functional-therap* OR kinesiotherap* OR manipulation* or exercise* or "physical activity" or aerobic* or workout* or "fitness program" or kinesiotherap* or "core stability" or yoga or pilates or "resistance activit*" or weightlifting or (lift* W/4 weight*) or "progressive resist*" or "gravity resistive" or isotonic or isometric or ((eccentric or concentric) W/2 contraction) or (train* W/6 (postur* or resist* or strength* or weight or stability or circuit* or interval* or endurance)) or (musc* W/6 (strengthen* or train* or contraction*)) or (activat* W/4 muscle) or (treadmill* AND NOT "treadmill test") or (cardio* W/3 (class* or exercis* or train* or machine*)) or ergometer* or ergometre* or walking or ((walk or walks) W/3 (fast or brisk* or quickly or regular)) or swim* or running or jogging or cycling or bicycl* or bike or biking or spinning or "spin class*" or "spin bike*" or yoga or pilates or "tai chi" or "tai ji") AND (TITLE-ABS-KEY (pediatric* or paediatric* or child* or newborn* or congenital* or infan* or baby or babies or neonat* or pre-term or preterm* or premature-birth* or NICU or preschool* or pre-school* or kindergarten* or kindergarden* or elementary-school* or nursery-school* or (day-care* not adult*) or schoolchild* or toddler* or boy or boys or girl* or middle-school* or pubescen* or juvenile* or teen* or youth* or high-school* or junior-high or adolesc* or young-adult* or pre-pubesc* or prepubesc*) OR SRCTITLE(child* or adolesc* or pediat* or paediat*)) AND TITLE-ABS-KEY (randomized OR placebo OR randomly OR trial OR trials OR {groups} OR rct) AND NOT TITLE (diabet* OR mice OR mouse OR rat OR rats OR animal-model* OR monkey* OR macaques)

Wiley Cochrane Library (CENTRAL Trials only)**Date searched:** Feb 20, 2024**Results:** 579

#1. [mh ^"peripheral nervous system diseases"] or [mh ^"peripheral nerve injuries"] or [mh ^"small fiber neuropathy"]

#2. ((Peripheral NEXT neuropath*) or drop-foot or ((numbness or tingling) NEAR/3 (hand or hands or fingers or foot or feet or toes or ankle* or extremities)) or ("range of motion" and ankle) or balance or gait or coordination or "gross motor" or pain or (strength and (ankle or hand or hands or thumb or wrist or grip))):ti,ab,kw

#3. #1 or #2

#4. [mh "antineoplastic agents"] or [mh "angiogenesis inhibitors"] or [mh "antibiotics, antineoplastic"] or [mh "anticarcinogenic agents"] or [mh "antimetabolites, antineoplastic"] or [mh "antimitotic agents"] or [mh "antineoplastic agents, alkylating"] or [mh "antineoplastic agents, hormonal"] or [mh "antineoplastic agents, phytogenic"] or [mh "antineoplastic agents, immunological"] or [mh "myeloablative agonists"] or [mh "poly(adp-ribose) polymerase inhibitors"] or [mh "topoisomerase inhibitors"] or [mh "Neoplasms"]

#5. (chemotherap* or antineoplastic or oncolog* or neoplas* or carcinom* or tumor* or tumour* or cancer* or malignan* or hemato-oncological or leukemi* or leukaemi* or AML or lymphom* or hodgkin* or T-cell or B-cell or non-hodgkin or nephroblastom* or neuroblastom* or rhabdomyosarcom* or teratom* or hepatom* or hepatoblastom* or medulloblastom* or PNET* or meningiom* or gliom*):ti,ab,kw

#6. #4 OR #5

#7. [mh "physical therapy modalities"] or [mh ^"rehabilitation"] or [mh ^"neurological rehabilitation"] or [mh ^"occupational therapy"] or [mh ^"splints"] or [mh ^"foot orthoses"] or [mh ^"physical therapy specialty"] or [mh ^"gait"] or [mh ^"range of motion, articular"] or [mh "Proprioception"]

#8. (exercise* or "physical activity" or aerobic* or workout* or "fitness program" or kinesiotherap* or "core stability" or yoga or pilates or "resistance activities" or weightlifting or (lift* NEAR/4 weight*) or "progressive resistance" or "gravity resistive" or isotonic or isometric or ((eccentric or concentric) NEAR/2 contraction) or (train* NEAR/6 (postur* or resist* or strength* or weight or stability or circuit* or interval* or endurance)) or (musc* NEAR/6 (strengthen* or train* or contraction*)) or (activat* NEAR/4 muscle) or (treadmill* not "treadmill test") or (cardio* NEAR/3 (class* or exercis* or train* or machine*)) or ergometer* or ergometre* or walking or ((walk or walks) NEAR/3 (fast or brisk* or quickly or regular)) or swim* or running or jogging or cycling or bicycl* or bike or biking or spinning or "spin class" or "spin bike" or yoga or pilates or "tai chi" or "tai ji" or splinting or (ankle-foot NEXT orthos*) or (manual NEXT therap*) or (physical NEXT therap*) or physiotherap* or (physical NEXT agent*) or gait or proprioception or locomotion* or (functional NEXT therap*) or kinesiotherap* or manipulation*):ti,ab,kw

#9 #7 OR #8

#10. (pediatric* or paediatric* or child* or newborn* or congenital* or infan* or baby or babies or neonat* or pre-term or preterm* or premature-birth or NICU or preschool or pre-school or kindergarten* or kindergarden* or elementary-school or nursery-school or schoolchild* or

toddler* or boy or boys or girl* or middle-school or pubescen* or juvenile* or teen* or youth* or high-school or junior-high or adolesc* or young-adult or pre-pubescent or prepubescen*):ti,ab,kw

#11. #3 AND #6 AND #9 AND #1

3. Characteristics of excluded studies

Study	Reasons for exclusion
Alsakhawi 2021 (1)	Ongoing trial that includes only hemophilic children
Dandekar 2022 (2)	Physical activity-based intervention
Delgado 2016 (3)	Physical activity-based intervention
Elnaggar 2022 (4)	Ongoing trial including intervention not aimed at treating CIPN-related deficits
Fontana 2021 (5)	Physical activity-based intervention
Freire 2023 (6)	Ongoing trial comprising a general exercise intervention
Fridh 2020 (7)	Physical activity-based intervention
Fridh 2023 (8)	Physical activity-based intervention
Gotte 2022 (9)	Physical activity-based intervention
Hegazy 2011 (10)	Physical activity-based intervention
Howell 2018 (11)	Physical activity-based intervention
Khodashenas 2017 (12)	Physical activity-based intervention
Kohler 2021 (13)	Ongoing trial (See 'Summary of ongoing trials' Table below)
Lanfranconi 2020 (14)	Physical activity-based intervention
Manchola-Gonzalez 2020 (15)	Physical activity-based intervention
Ness 2009 (16)	Ongoing study terminated due to poor accrual and poor participant compliance.
Oschwald 2023 (17)	Uncontrolled trial
Poupplier 2022 (18)	Ongoing trial (See 'Summary of ongoing trials' Table below)
Rosenhagen 2011 (19)	Case-control study
Sabel 2016 (20)	Physical activity-based intervention
Saultier 2021 (21)	Physical activity-based intervention
Schulz 2021 (22)	Physical activity-based intervention
Stosel 2020 (23)	Intervention not aimed at treating CIPN-related deficits
Streckmann 2019 (24)	Ongoing trial (See 'Summary of ongoing trials' Table below)
Streckmann 2022 (25)	Ongoing trial (See 'Summary of ongoing trials' Table below)
Tanner 2016 (26)	Ongoing trial (See 'Summary of ongoing trials' Table below)
Thorsteinsson 2017 (27)	Non-oncological population
Usama 2023 (28)	Intervention not aimed at treating CIPN-related deficits
Vallet 2015 (29)	Physical activity-based intervention
Van Dijk-Lokkart 2014 (30)	No outcomes of interest

References

1. Alsakhawi R. EFFECT OF TREADMILL TRAINING ON BALANCE AFTER CHEMOTHERAPY IN CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA 2021 [Available from: <https://clinicaltrials.gov/study/NCT05032716#collaborators-and-investigators>.
2. Dandekar S, Caru M, Schmitz KH. Behavioral physical activity intervention coupled with standard post-cancer directed treatment care to mitigate chronic pain in childhood cancer survivors: A protocol for a single-center, pilot randomized controlled trial. *Contemporary Clinical Trials Communications*. 2023;36:101216.
3. Delgado C. Home-exercise Program for Children and Adolescent Survivors of Acute Lymphoblastic Leukemia 2016 [Available from: https://app.covidence.org/reviews/317019/review_studies/excluded?filter=all.
4. Elnaggar RK. How Effective is the Dose-graded Aerobic Training in Children Survivors of Acute Lymphoblastic Leukemia? 2021 [Available from: <https://clinicaltrials.gov/study/NCT05679817>.

5. Fontana A, Matthey S, Mayor C, Dufour C, Destailats A, Ballabeni P, et al. PASTEC-a prospective, single-center, randomized, cross-over trial of pure physical versus physical plus attentional training in children with cancer. *PEDIATRIC HEMATOLOGY AND ONCOLOGY*. 2022;39(4):329-42.
6. Freire CC. Effects of Exercise during hospital stay in pediatric Cancer patients 2023 [Available from: <https://ensaiosclinicos.gov.br/rg/RBR-8sxnfyd>].
7. Martin Kaj Fridh N, Jesper Frank C, Thomas Leth F, Troels T, Lars Bo A, Karl Bang C, et al. Effects of a physical activity program from diagnosis on cardiorespiratory fitness in children with cancer: a national non-randomized controlled trial. *BMC Medicine*. 2020;18(1):1-12.
8. Fridh MK, Schmidt-Andersen P, Andrés-Jensen L, Thorsteinsson T, Wehner PS, Hasle H, et al. Children with cancer and their cardiorespiratory fitness and physical function—the long-term effects of a physical activity program during treatment: a multicenter non-randomized controlled trial. *Journal of Cancer Survivorship*. 2023.
9. Götte M. A physical activity program on cardiorespiratory fitness in children and adolescents following acute cancer treatment (POWER): study protocol for a randomized controlled trial 2022 [Available from: <https://clinicaltrials.gov/study/NCT04765020>].
10. Hegazy F, Nossair A, Salama A. Effects of exercise program on aerobic capacity and quality of life in children with lymphoblastic leukemia. *Physiotherapy (United Kingdom)*. 2011;97:eS469-eS70.
11. Howell CR, Krull KR, Partin RE, Kadan-Lottick NS, Robison LL, Hudson MM, et al. Randomized web-based physical activity intervention in adolescent survivors of childhood cancer. *Pediatric Blood & Cancer*. 2018;65(8):e27216.
12. Khodashenas E, Badiie Z, Sohrabi M, Ghassemi A, Hosseinzade V. The effect of an aerobic exercise program on the quality of life in children with cancer. *The Turkish Journal of Pediatrics*. 2017;59(6):678-83.
13. Kohler BE, Baque E, Sandler CX, Brookes DSK, Terranova CO, Trost SG, et al. Physical ACTivity in Survivorship (PACTS): study protocol for a randomized controlled trial evaluating a goal-directed therapeutic exercise program in pediatric posterior fossa brain tumor survivors. *BMC Pediatrics*. 2021;21(1).
14. Lanfranconi F, Zardo W, Moriggi T, Villa E, Radaelli G, Radaelli S, et al. Precision-based exercise as a new therapeutic option for children and adolescents with haematological malignancies. *Scientific Reports*. 2020;10(1):12892.
15. Manchola-González JD, Bagur-Calafat C, Girabent-Farrés M, Serra-Grima JR, Pérez RÁ, Garnacho-Castaño MV, et al. Effects of a home-exercise programme in childhood survivors of acute lymphoblastic leukaemia on physical fitness and physical functioning: results of a randomised clinical trial. *Supportive Care in Cancer*. 2020;28(7):3171-8.
16. Ness K. The Effects of Ankle Foot Orthoses on Gait Efficiency in Children With Acute Lymphoblastic Leukemia and Foot Drop 2009 [Available from: <https://www.clinicaltrials.gov/study/NCT01001390>].
17. Oschwald V, Prokop A, Maas V, Streckmann F, Bloch W, Baumann FT, et al. Whole-body vibration training for inpatient children and adolescents receiving chemotherapy for first cancer diagnosis: an exploratory feasibility study. *German Journal of Exercise and Sport Research*. 2023;53(1):30-6.
18. Pouplier A, Schmidt-Andersen P, Zhang H, Schmiegelow K, Fridh MK, Larsen HB, et al. Rehabilitation Including Structured Active Play for Preschoolers With Cancer (RePlay)—Study Protocol for a Randomized Controlled Trial. *Frontiers in Pediatrics*. 2022;10.
19. Rosenhagen A, Bernhorster M, Vogt L, Weiss B, Senn A, Arndt S, et al. Implementation of structured physical activity in the pediatric stem cell transplantation. *Klin Padiatr*. 2011;223(3):147-51.
20. Sabel M, Sjolund A, Broeren J, Arvidsson D, Saury JM, Blomgren K, et al. Active video gaming improves body coordination in survivors of childhood brain tumours. *Disabil Rehabil*. 2016;38(21):2073-84.
21. Saultier P, Vallet C, Sotteau F, Hamidou Z, Gentet J-C, Barlogis V, et al. A Randomized Trial of Physical Activity in Children and Adolescents with Cancer. *Cancers [Internet]*. 2021; 13(1).

22. Schulz S. Examine the effects of combined high-intensity endurance and strength training in children, adolescents, and young adults undergoing hematologic stem cell transplantation 2021 [Available from: <https://drks.de/search/en/trial/DRKS00025995>].
23. Stossel S, Neu MA, Wingerter A, Bloch W, Zimmer P, Paret C, et al. Benefits of Exercise Training for Children and Adolescents Undergoing Cancer Treatment: Results From the Randomized Controlled MUCKI Trial. *Front Pediatr*. 2020;8:243.
24. Streckmann F. Playful Sensorimotor Training to Reduce the Symptoms of Chemotherapy-induced Peripheral Neuropathy in Pediatric Brain Tumor Patients- a Randomized Controlled Trial 2019 [Available from: <https://classic.clinicaltrials.gov/ct2/show/NCT03334162>].
25. Streckmann F. Preventing Sensory and Motor Dysfunctions in Children Receiving Neurotoxic Chemotherapy - a Randomized Controlled, Multi-center Trial 2022 [Available from: <https://classic.clinicaltrials.gov/ct2/show/NCT05606588>].
26. Tanner L. Impact of an Orthotic Intervention on Physical Function in Children With Chemotherapy-induced Peripheral Neuropathy 2016 [Available from: <https://classic.clinicaltrials.gov/ct2/show/NCT03655587>].
27. Thorsteinsson T, Larsen HB, Schmiegelow K, Thing LF, Krstrup P, Pedersen MT, et al. Cardiorespiratory fitness and physical function in children with cancer from diagnosis throughout treatment. *BMJ Open Sport Exerc Med*. 2017;3(1):e000179.
28. Usama M, Abdelaziem F, Rashed WM, Maher E, El Beltagy M, Zekri W. Impact of physical activity on postural stability and coordination in children with posterior fossa tumor: randomized control phase III trial. *Journal of Cancer Research and Clinical Oncology*. 2023;149(9):5637-44.
29. Vallet C, André N, Gentet JC, Verschuur A, Michel G, Sotteau F, et al. Pilot evaluation of physical and psychological effects of a physical trek programme including a dog sledding expedition in children and teenagers with cancer. *ecancermedicalsecience*. 2015;9.
30. Van Dijk-Lokkart EM, Braam KI, Kaspers GJL, Veening MA, Grootenhuis MA, Streng I, et al. Effects on quality of life of participation in a combined physical exercise and psychosocial intervention program for childhood cancer patients. *Pediatric Blood and Cancer*. 2014;61:S160.

4. Summary of ongoing trials

Author; Year; Country	Type of publication	Aim	Methods	Participants	Interventions	Outcomes of interest	Start date; Status
Pouplier 2022, Denmark (47)	Published protocol	To investigate the effectiveness of a 6-month structured active play intervention on gross motor function	Type of study: Interventional Setting: Department for Pediatrics and Adolescent Medicine at Copenhagen University Hospital, Denmark. Randomization: Two-arm randomized controlled trial - parallel Assignment End point measurements: Baseline, 3 months (post intervention), 6 months (follow-up), and 12 months (long-term follow-up) Trial register: NCT04672681	N= 84 Diagnosis: Cancer or cancer-like benign disorders Age: 1–5 yrs	Experimental group: Combined in-hospital and home-based program: Structured active play activities targeting gross motor function (45 min/daily). Control group: Standard care, including physiotherapy for deficits. Time: 12 weeks	<i>Primary outcomes:</i> Gross Motor Function: PDMS-2 ^a <i>Secondary outcomes:</i> Function level: PEDI ^b Handgrip Strength: Handgrip strength test and the KLS Martin Vigorimeter Uncategorized: 2-MWT ^c and 6-MWT ^d	January 2021 Recruiting
Kohler 2021, Australia (49)	Published protocol	To evaluate the effects of a 12-week goal-directed therapeutic exercise program	Type of study: Interventional Recruitment: Queensland Children's Hospital, Australia Randomization: Single-center randomized controlled trial. Intervention arm (n = 24); usual care (n = 24). End point measurements: Baseline, immediately post-intervention (12-week), 6-month, and 12-month. Trial register: ACTRN12619000841178	N= 48 Diagnosis: Posterior fossa brain tumors Age: 5-17 yrs	Experimental arm: Individualized, goal-directed exercise therapy delivered face-to-face (30–60-min/ wk x 12 weeks) + home-based program (3 sessions/wk). Control group: Usual care -any therapy (e.g., PT ^e , OT ^f , SLP ^g) + visits to their treating medical practitioner. Time: 12 weeks	<i>Primary outcomes:</i> Goal attainment: COPM ^h <i>Secondary outcomes:</i> Cardiorespiratory endurance: Modified Shuttle Test High-level mobility skills: HiMAT ⁱ Functional muscle strength: Sit-to-stand and half-kneel to stand Gait: GAITRite system Balance: PASCO force plate Peripheral neuropathy: peds-mTNS ^j	August 2020 Ongoing
Streckmann 2022, U.S.A (46)	Clinical Trial Registration	NR	Type of study: Interventional Setting: University of Basel and others Randomization: Parallel Assignment End point measurements: Baseline, 12 weeks (T1), within 7 days after last dosage of medical therapy, and 12 Months. Trial register: NCT05606588	N= 131 Diagnosis: All tumor patients Age: 6-18 yrs	Experimental arm: Standardized, age-adjusted, specific playful sensorimotor training program 2x/wk + usual care. Control group: Usual care. Time: Duration of medical therapy	<i>Primary outcomes:</i> Incidence of neuropathic symptoms: Ped-mTNS score CIPN signs and symptoms: VAS ^k <i>Secondary outcomes:</i> Postural control: Sway path on the Leonardo force plate Foot drop: Goniometry and hand-held dynamometry Knee extension strength: Hand-held dynamometry	December 2022 Recruiting

						Lower limb power: Counter movement jump Gait speed: 10m walk test CIPN-related pain: VAS	
Streckmann 2019, U.S.A (45)	Clinical Trial Registration	NR	Type of study: Interventional Setting: University of Basel Randomization: Parallel Assignment End point measurements: Baseline, 12 weeks (T1), within 7 days after last dosage of medical therapy, and 12 Months. Trial register: NCT03334162	N= 20 Diagnosis: CNS ¹ tumor Age: 6-18 yrs	Experimental arm: Standardized, age-adjusted, specific playful sensorimotor training program, 2x/wk x 12 weeks + usual care. Control group: Usual care. Time: 12 weeks	<i>Primary outcomes:</i> CIPN symptoms: Ped-mTNS score <i>Secondary outcomes:</i> CIPN (additional): Short clinical test battery for CIPN Postural control: Leonardo force plate Active ankle dorsiflexion ROM ^m : Goniometry Ankle dorsiflexion and knee extension strength: Hand-held dynamometry Lower limb power: Counter movement jump Walk to run transition time: Treadmill test CIPN-related pain: VAS Priority of CIPN side-effects: Self-developed questionnaire	May 2019 Temporarily paused due to an amendment request
Tanner 2016, U.S.A (48)	Clinical Trial Registration	To investigate the effect of two orthotic (brace) devices for the ankle and foot on walking and ankle flexibility	Type of study: Interventional Setting: Children's Hospitals and Clinics of Minnesota Randomization: Parallel Assignment End point measurements: Baseline and 8 weeks. Trial register: NCT03655587	N= 27 Diagnosis: ALL ^a , Rhabdomyosa rcoma, Wilms Tumor Age: 5-14 yrs	Experimental arm: Children wear a solid ankle foot orthotic. Active comparator: Children wear a resting night splint. Time: 8 weeks	<i>Primary outcomes:</i> Step length: GAITRite analysis system <i>Secondary outcomes:</i> Passive and active ankle dorsiflexion ROM: Goniometry Ankle dorsiflexion and plantarflexion strength: Dynamometry Gait capacity: 6-MWT distance Foot posture: FP1-6 ^o	September 2016 Completed (results not available)
Abbreviations: ^a PDMS-2, Peabody Developmental Motor Scales; ^b PEDI, Pediatric Evaluation of Disability Inventory; ^c 2-MWT, Two-minute walk test; ^d 6-MWT, Six-minute walk test; ^e PT, physical therapy; ^f OT, occupational therapy; ^g SLP, speech and language therapy; ^h COPM, Canadian Occupational Performance Measure; ⁱ HiMAT, High-Level Mobility Assessment Tool; ^j Ped-mTNS, pediatric-modified Total Neuropathy Scale; ^k VAS, visual analog scale; ^l CNS, Central nervous system; ^m ROM, Range of Motion; ⁿ ALL; acute lymphoblastic leukemia; ^o FP1-6, Foot Posture Index.							

References

- Pouplier A, Schmidt-Andersen P, Zhang H, et al. Rehabilitation Including Structured Active Play for Preschoolers With Cancer (RePlay)—Study Protocol for a Randomized Controlled Trial. *Frontiers in Pediatrics*. 2022;10.
- Kohler BE, Baque E, Sandler CX, et al. Physical ACTivity in Survivorship (PACTS): study protocol for a randomized controlled trial evaluating a goal-directed therapeutic exercise program in pediatric posterior fossa brain tumor survivors. *BMC Pediatrics*. 2021;21(1).
- Streckmann F. Preventing Sensory and Motor Dysfunctions in Children Receiving Neurotoxic Chemotherapy - a Randomized Controlled, Multi-center Trial. 2022; <https://classic.clinicaltrials.gov/ct2/show/NCT05606588>. Accessed June 15, 2023.
- Streckmann F. Playful Sensorimotor Training to Reduce the Symptoms of Chemotherapy-induced Peripheral Neuropathy in Pediatric Brain Tumor Patients- a Randomized Controlled Trial. 2019; <https://classic.clinicaltrials.gov/ct2/show/NCT03334162>. Accessed June 15, 2023.
- Tanner L. Impact of an Orthotic Intervention on Physical Function in Children With Chemotherapy-induced Peripheral Neuropathy. 2016; <https://classic.clinicaltrials.gov/ct2/show/NCT03655587>. Accessed June 15, 2023.