



(KLEINE) KINDEREN, GROTE ZORG

PLEIDOOI VOOR EEN GEÏNTEGREERDE
AANPAK VAN DE ZORG
VOOR KINDEREN EN JONGEREN

↳ DONDERDAG 5 DECEMBER '24 | 9 – 18.30 uur
DE GROTE POST, OOSTENDE



CHILD REHABILITATION CENTER

PEDIATRIC HEMATO-ONCOLOGY & STEM CELL TRANSPLANTATION



Child Cancer & survivors



CHILDHOOD CANCER

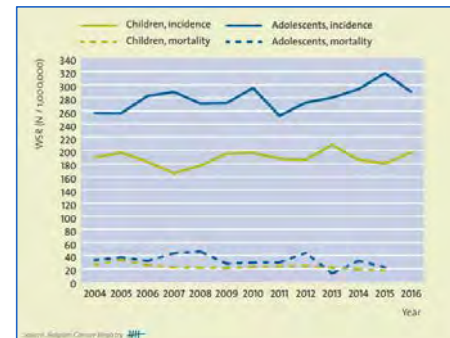
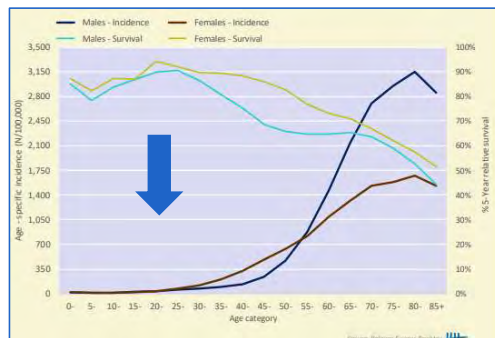


► Rare: < 1% of all cancers diagnosed each year

► Belgium: +/- 600 children <19 years

- 0 -14 yr: 370 children
- 15 -19 yr: 180 adolescents
- 55% boys
- 45% girls

► Incidence: stable for the last 10-15 years



CHILD CANCER SURVIVORS

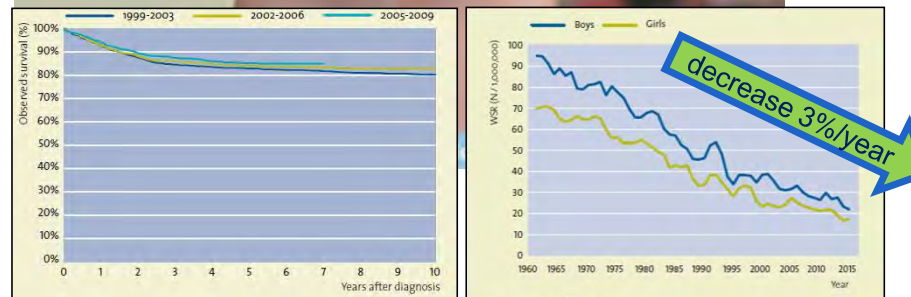
Advances

- ▶ Diagnosis
- ▶ Treatment
- ▶ Expertise



Growing survivor population

- ▶ Belgium
 - ▶ 15 year survival rate:
 - ▶ Children: **83%**
 - ▶ Adolescents: **86 %**



CHILD CANCER SURVIVORS

GESPECIALISEERD ZORGPROGRAMMA VOOR PEDIATRISCHE HEMATO/ONCOLOGIE - KB APRIL 2014

Acute



ZORGPROGRAMMA

Tijdens behandeling:

Het gespecialiseerd zorgprogramma voor pediatrische hemato-oncologie is gericht op de diagnose, de multidisciplinaire behandeling, de revalidatie, de opvolging van late effecten en de palliatieve zorgen voor alle patiënten onder de 16 jaar met hemato-oncologische aandoeningen of ernstige niet oncologische hematologische aandoeningen, die mogelijk een stamceltransplantatie noodzaken.

► Art. 32.

Het gespecialiseerd zorgprogramma voor pediatrische hemato-oncologie moet minstens beschikken over 0,5 voltijds equivalent diëtist, 1 voltijds equivalent kinesist of ergotherapeut, 0,5 voltijds equivalent logopedist, 1 voltijds equivalent ziekenhuisapotheker met een bijkomende opleiding in de klinische farmacie en 1,5 voltijds equivalente logistieke ondersteunende personeelsleden.

Nazorg:

► Revalidatie na de behandeling en in ambulante setting is niet opgenomen in het zorgprogramma

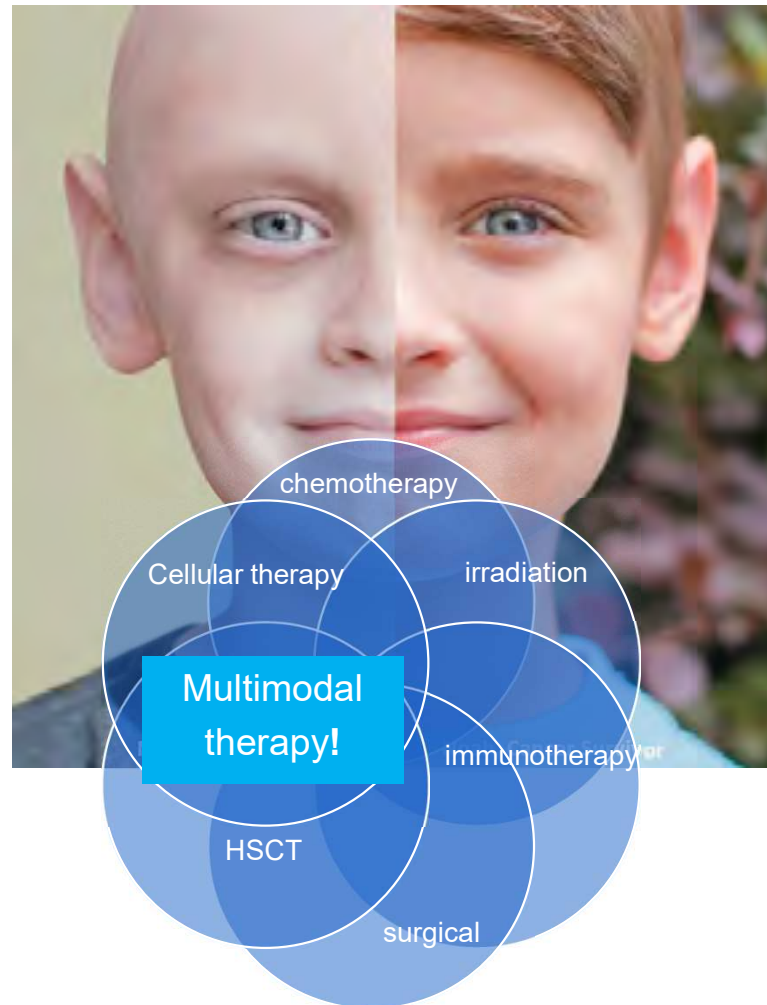
CHILD CANCER SURVIVORS

chronic



Poison is in everything, and no thing is without poison. The dosage makes it either a poison or a remedy.

PARACELSUS (1520)”

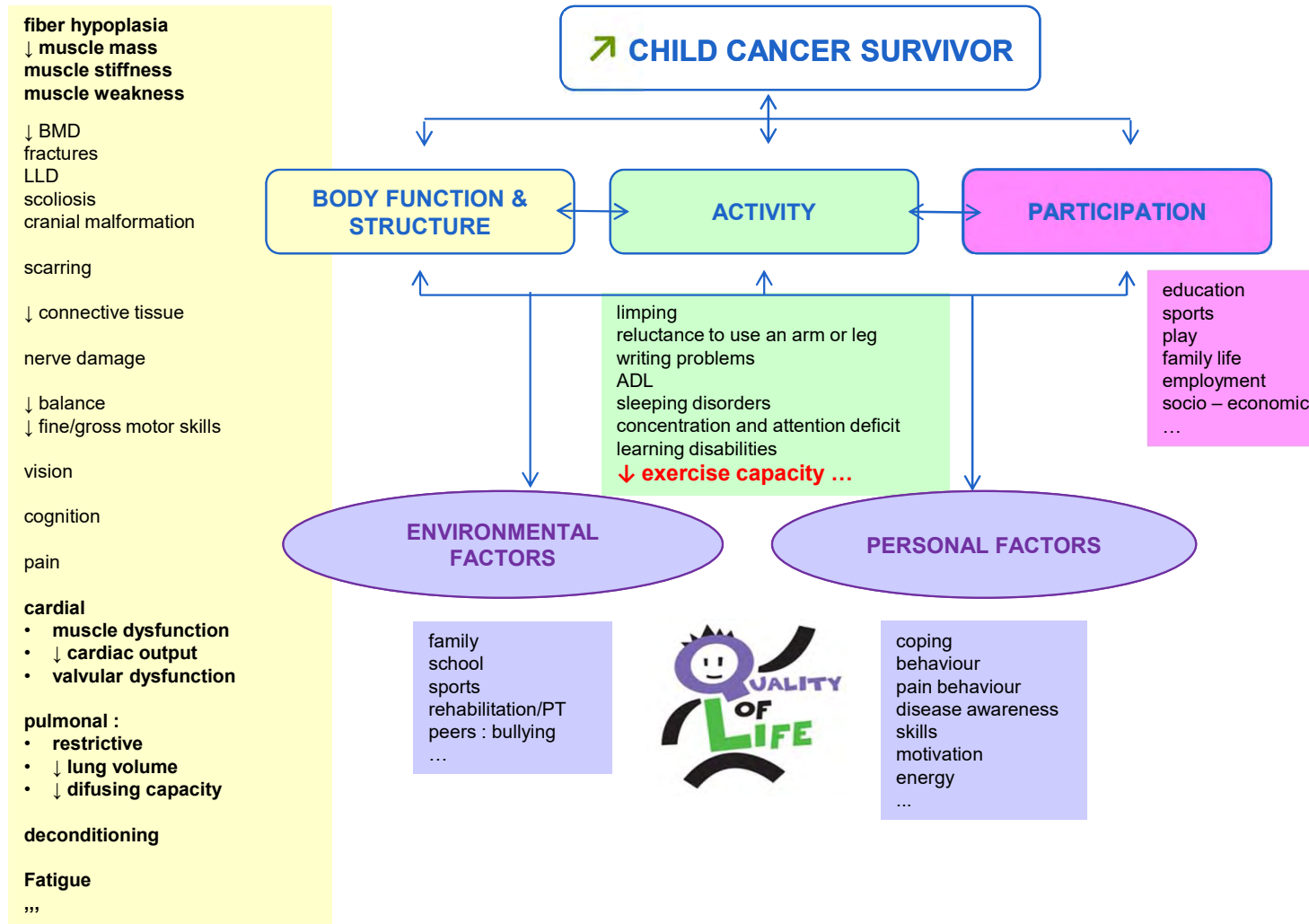


Growing survivor population

cancer related effects

- side effects
- chronic health conditions

CHILD CANCER SURVIVORS



- prolonged absence from school, sports and leisure activities
- social exclusion

WHO: World Health Organization [Internet]. Geneva: World Health Organization; c2009.
International Classification of Functioning, Disability and Health - Children and Youth Version. ICF-CY; [cited Apr 08].

CHILD CANCER SURVIVORS

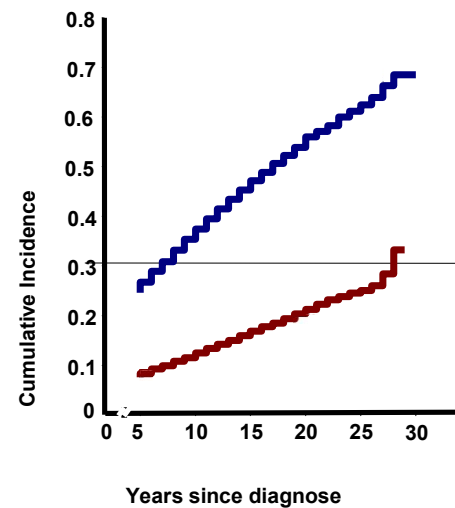
Comparative Study > N Engl J Med. 2006 Oct 12;355(15):1572-82. doi: 10.1056/NEJMsa060185.

Chronic health conditions in adult survivors of childhood cancer

Kevin C Oeffinger¹, Ann C Mertens, Charles A Sklar, Toana Kawashima, Melissa M Hudson, Anna T Meadows, Debra L Friedman, Neyssa Marina, Wendy Hobbie, Nina S Kadan-Lottick, Cindy L Schwartz, Wendy Leisenring, Leslie L Robison; Childhood Cancer Survivor Study

Affiliations + expand

PMID: 17035650 DOI: 10.1056/NEJMsa060185



62 % with at least 1 health problem

(36 % bij sibs)

27 % with moderate to severe life threatening health problem
(5 % bij sibs)

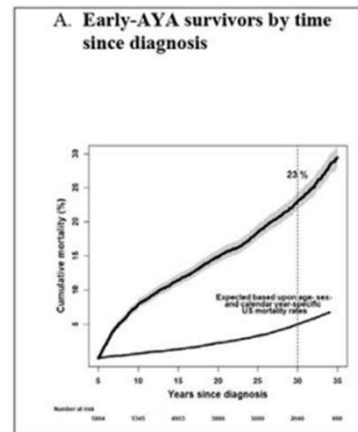
CHILD CANCER SURVIVORS

Published in final edited form as:

Lancet Oncol. 2020 March ; 21(3): 421–435. doi:10.1016/S1470-2045(19)30800-9.

Late Mortality and Chronic Health Conditions in Long-term Survivors of Adolescent and Early Young Adult Cancers: a retrospective cohort analysis from the Childhood Cancer Survivor Study

Eugene Suh¹, Kayla L Stratton², Wendy M Leisenring², Paul C Nathan³, Jennifer S Ford⁴, David R Freyer⁵, Jennifer L McNeer⁶, Wendy Stock⁶, Marilyn Stovall⁷, Kevin R Krull⁸, Charles A Sklar⁹, Joseph P Neglia¹⁰, Gregory T Armstrong⁸, Kevin C Oeffinger¹¹, Leslie L Robison⁸, Tara O Henderson⁶



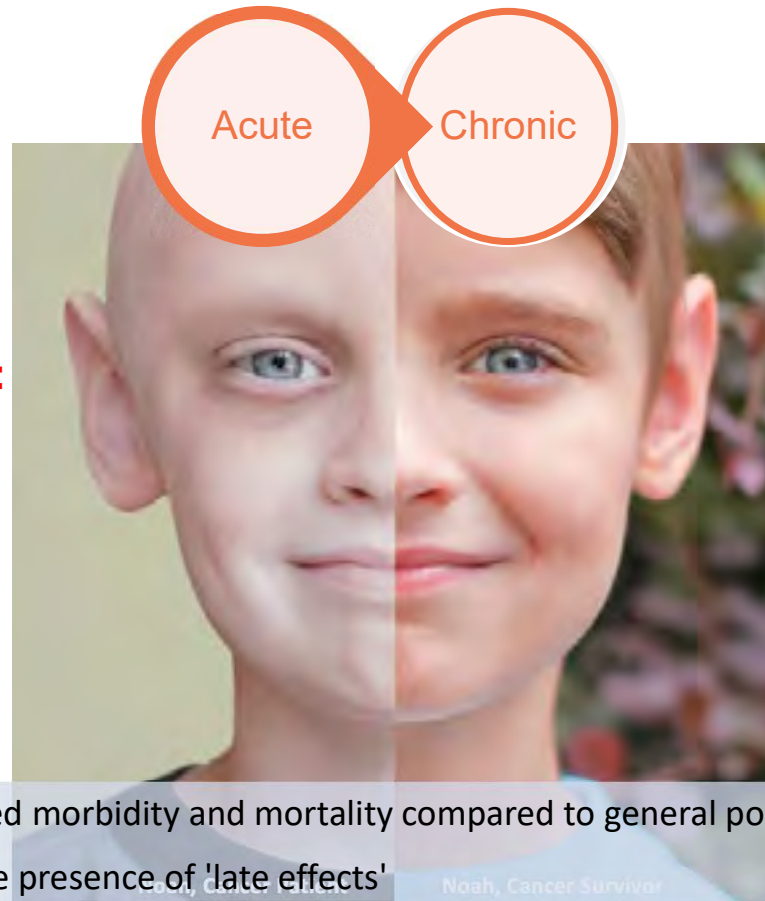
Early AYA cancers compared to US population

- ▶ Younger children more vulnerable to effect of cancer treatment
- ▶ Younger age increased risk for endocrinopathies (obesity and diabetes mellitus)

Organ System	Early-AYA Survivors (n=4082)	Childhood Survivors (n=4082)	Siblings (n=3806)	HR for Early-AYA Survivors (Siblings as referent group)	HR for Childhood Survivors (Siblings as referent group)
Any Grade 1-5 conditions					
N (%)	2637 (64.6%)	2419 (59.3%)	1562 (41.0%)		
Cumulative Incidence by age 45 years (95% CI)	73.0% (70.1 to 75.6)	87.1% (84.0 to 90.0)	56.7% (53.6 to 59.6)		
Cumulative Incidence by 30 years post diagnosis (95% CI)	80.8% (77.8 to 83.9)	74.5% (71.2 to 77.8)	NA		
HR (95% CI)				2.2 (2.0 to 2.3)	2.7 (2.5 to 2.9)
Any Grade 3-5 conditions					
N (%)	1254 (30.7%)	1044 (25.6%)	320 (8.4%)		
Cumulative Incidence by age 45 years (95% CI)	39.4% (36.9 to 42.0)	56.3% (52.0 to 60.3)	12.1% (10.5 to 13.8)		
Cumulative Incidence by 30 years post diagnosis (95% CI)	45.6% (42.8 to 48.5)	39.6% (36.6 to 42.5)	NA		
HR (95% CI)				4.2 (3.7 to 4.8)	5.6 (4.9 to 6.3)
Grade 3-5 Cardiac					
N (%)	464 (11.4%)	334 (8.2%)	107 (2.8%)		
Cumulative Incidence by age 45 years (95% CI)	15.4% (13.8 to 17.0)	19.9% (17.3 to 22.7)	4.1% (3.2 to 5.1)		
Cumulative Incidence by 30 years post diagnosis (95% CI)	19.7% (17.6-21.7)	13.6% (11.7-15.4)	NA		
HR (95% CI)				4.3 (3.5 to 5.4)	5.6 (4.5 to 7.1)
Grade 3-5 Endocrine					
N (%)	244 (6.0%)	324 (7.9%)	65 (1.7%)		
Cumulative Incidence by age 45 years (95% CI)	8.1% (7.0 to 9.3)	15.3% (13.3 to 17.4)	2.9% (2.1 to 3.8)		
Cumulative Incidence by 30 years post diagnosis (95% CI)	8.8% (7.6 to 10.1)	11.4% (9.9 to 12.9)	NA		

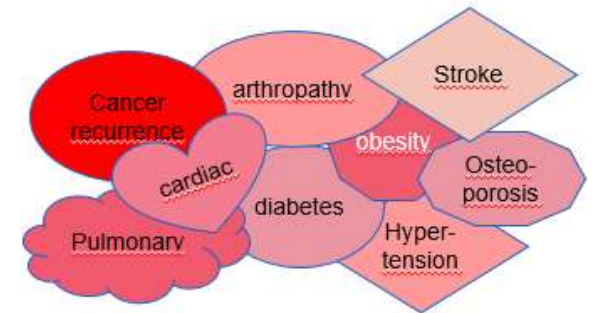
CHILD CANCER SURVIVORS

Although childhood cancer is rare:
It is a major health problem !

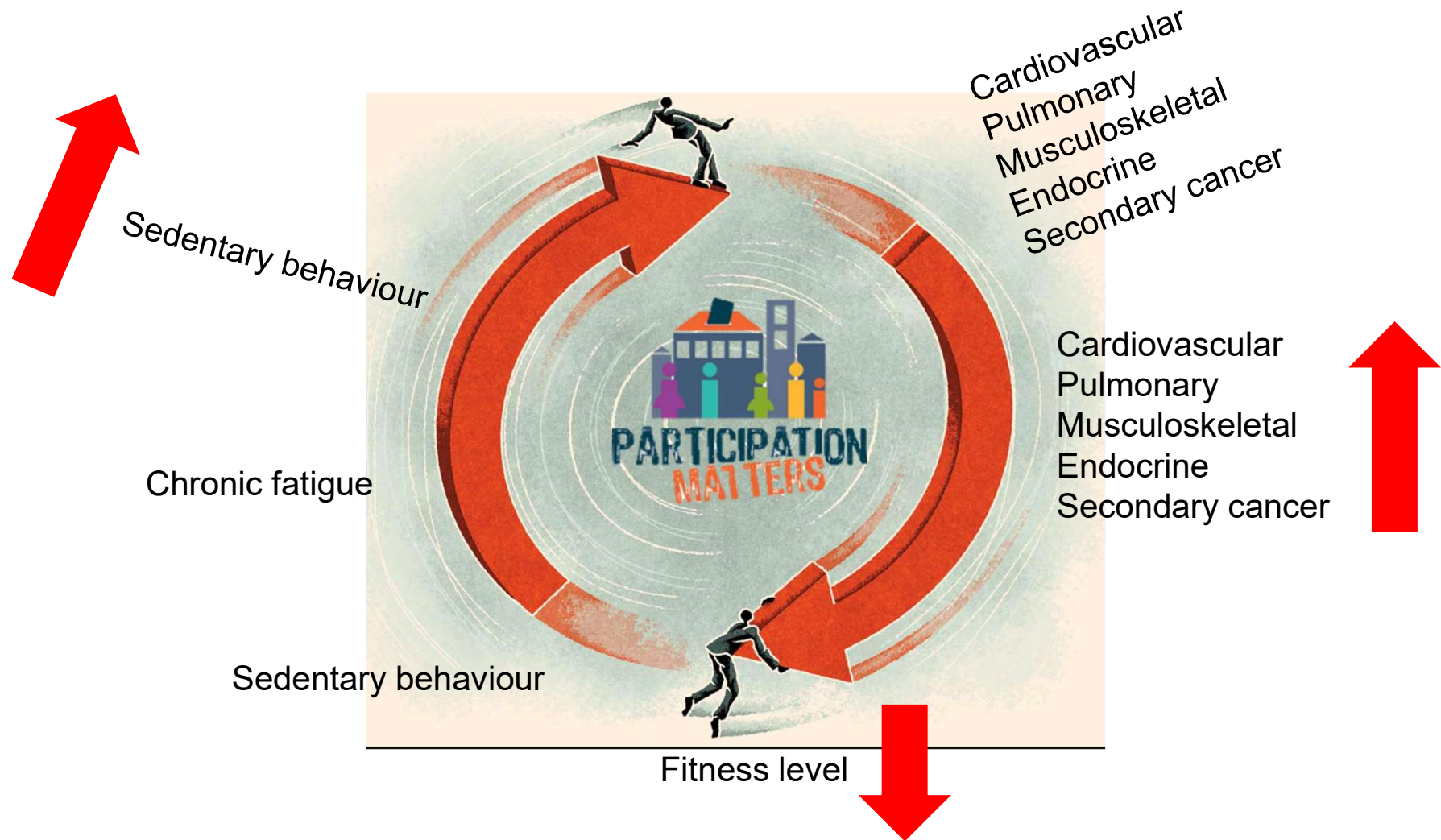


- ▶ Increased morbidity and mortality compared to general population
- ▶ 2/3 have presence of 'late effects'
 - Health problems as a consequence of cancer (treatment)
 - Risk of late effects increases with time
- 2030 = 1/600 CCS

Growing survivor population



CHILD CANCER SURVIVORS



KABOOST

Kids & **A**dolescents Reha**B**
after **O**ncological treatment,
improving **Q**OL, **S**elf-care/esteem &
Participa**T**ion

Prof Catharina Dhooge, MD, PhD
Prof. Ruth Van der Looven, MD, PhD

TEAM:

Kinderrevalidatie:

Dr. Ruth Van der Looven, PhD
Hanne Capiou (kinesitherapeute)
Kaat Meylemans (ergotherapeute)
Elise De Vos (onderzoeksmedewerker-clinicus)

Kindercardiologie:

Prof. Dr. Kristof Vandekerckhove
Ilse Coomans (ingenieur)

Pediatrische Hematologie en Stamceltransplantatie:

Prof. Dr. Catharina Dhooge
Prof. Dr. Geneviève Laureys
Hanne Morren (psycholoog)

Voedingsleer:

Maes Magali/Svenya Van Meerhaeghe (diëtist)





CARDIORESPIRATORY



Lower cardiorespiratory fitness level (CRF)

Fridh et al, 2023

↑ cardiovascular disease with ↑ late mortality due

- cardiotoxic cancer treatments
- but also potentiated by the presence of traditional risk factors such as hypertension, dyslipidemia, diabetes, obesity, sedentary behaviour

Chen et al, 2020

↓ Participation and overall QOL

Yildiz et al, 2019

Cardioprotective effect of PA

Morales et al, 2020



FATIGUE



↑ prevalence of chronic fatigue in CCS

Van Deuren et al, 2022

Most distressing side effect

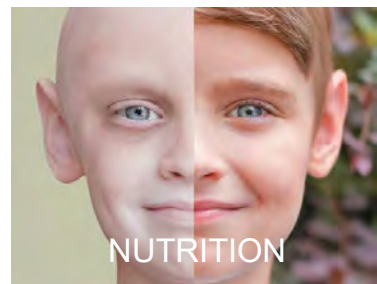
Van Dijk*Lokkart et al, 2019

It is established that there is a relationship between level of fatigue and ADL

Tanriverdi et al, 2023

PA is associated with ↓ cancer related fatigue

Van Dijk*Lokkart et al, 2019



NUTRITION



young CCS, mostly preteenagers and adolescents, have a significantly higher BMI than their peers.

Zhang et al, 2017

CCS experience excessive weight gain early in treatment

Zhang et al, 2017

Obesity is an established risk factor for CVD

Zhang et al, 2017

Nutrition and PA moderated the relationship between fatigue and QoL.

Wu et al, 2023



PSYCHOSOCIAL



Peer relations have been shown to be most at risk. Social connection at risk

Pahl et al, 2021

Social isolation is an important risk factor for physical and psychological health outcomes

Greater body image concerns

Lu et al, 2020

Sleep problems

Van Kooten et al, 2019

Anxiety, depression and PTSD

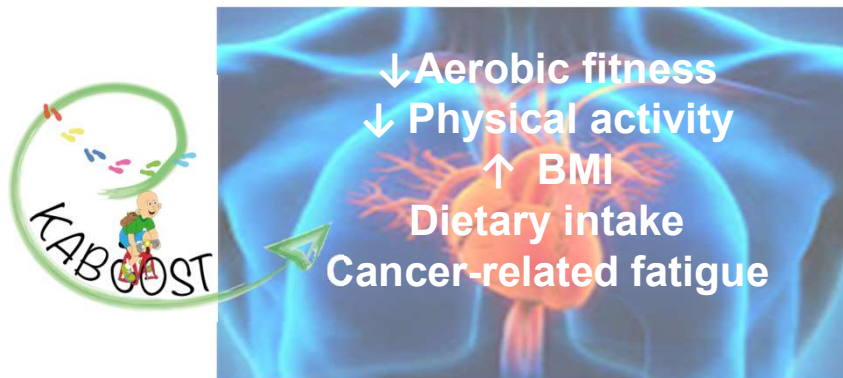
Stefanski et al, 2020

Positive effect of intervention on social skills, anxiety, QOL

Peikert et al, 2018



KABOOST



No clear strategy !

Physical exercise program

Morales et al. 2020

Crowder SL, 2022

Psychosocial education
Peikert et al. 2018

Cancer camps
Neville et al. 2019

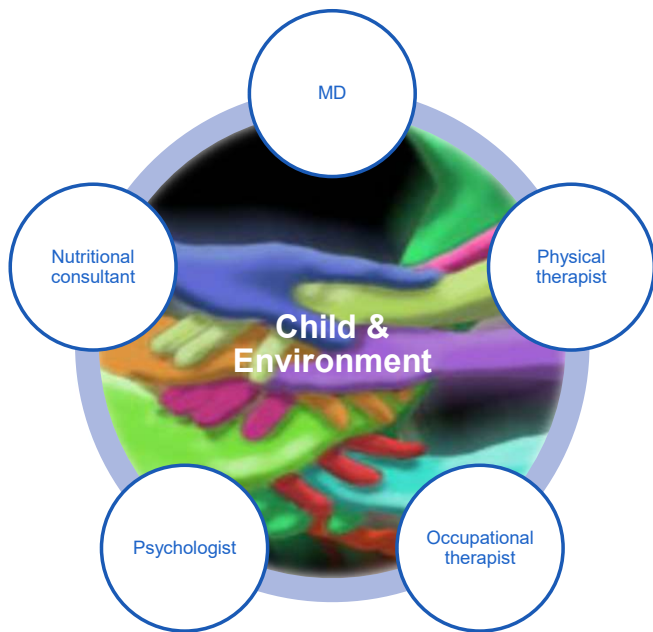
Computer-mobile based interventions

Gil-Cosano JJ; 2020

Fuemmeler BF, 2020

Feasibility studies!

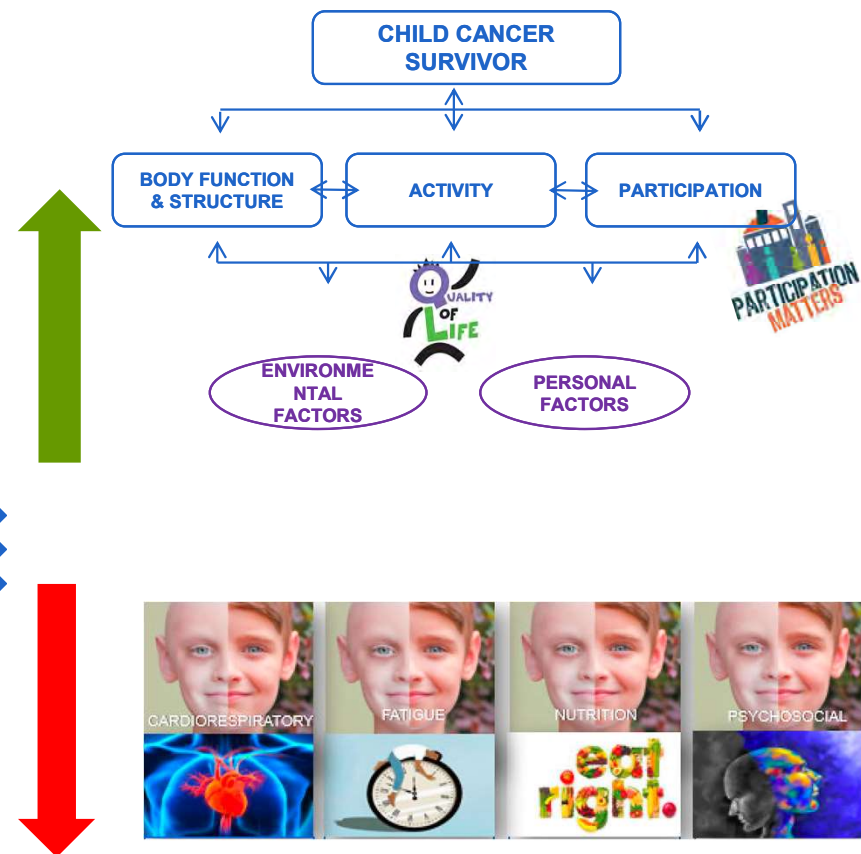
Nutritional counseling
Cohen et al. 2020

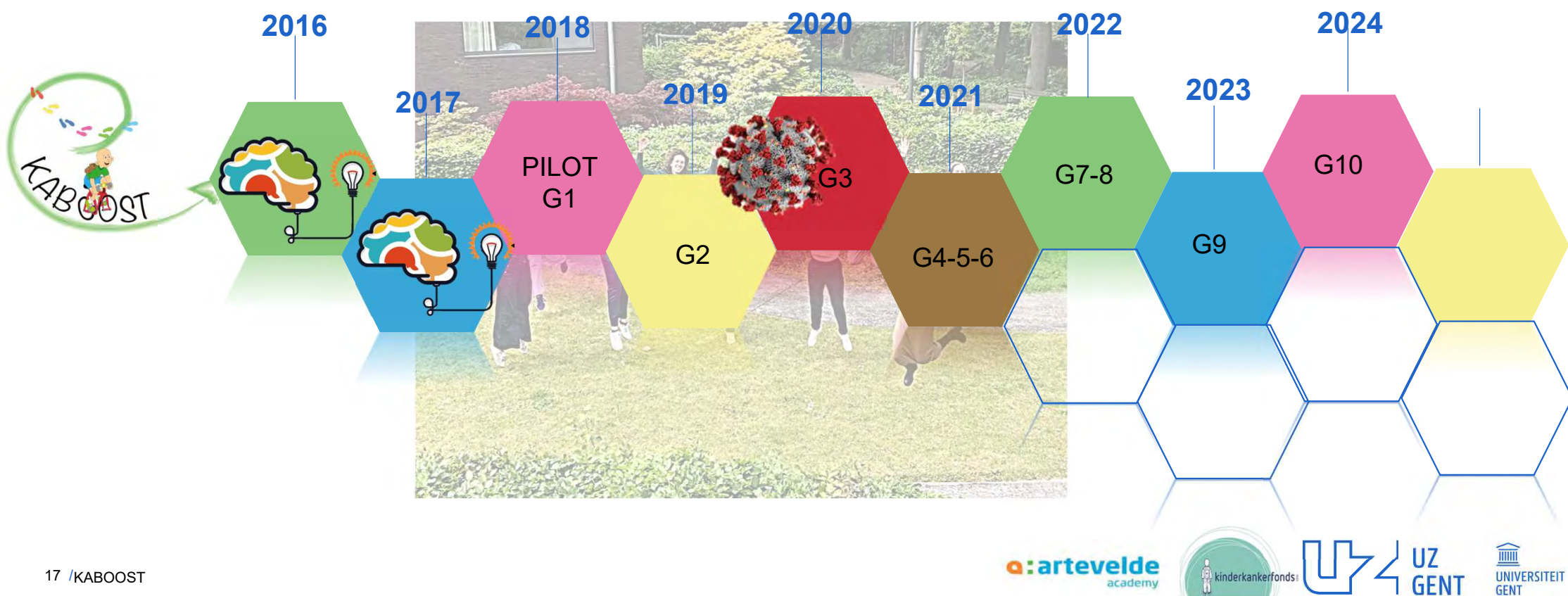


INTERDISCIPLINARY

INDIVIDUAL

GROUP





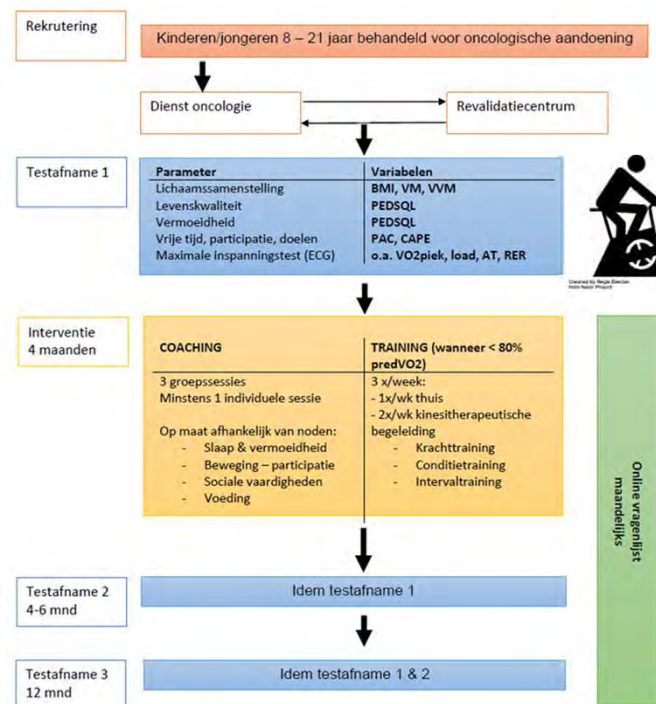


ORIGINAL ARTICLE | Full Access

Efficacy of interdisciplinary rehabilitation in child cancer survivors: Impact on physical fitness, fatigue and body composition after 1-year follow-up

Ruth Van der Looven ✉, Elise De Vos, Kristof Vandekerckhove, Ilse Coomans, Geneviève Laureys, Catharina Dhooge

First published: 03 November 2022 | <https://doi.org/10.1111/ecc.13761>

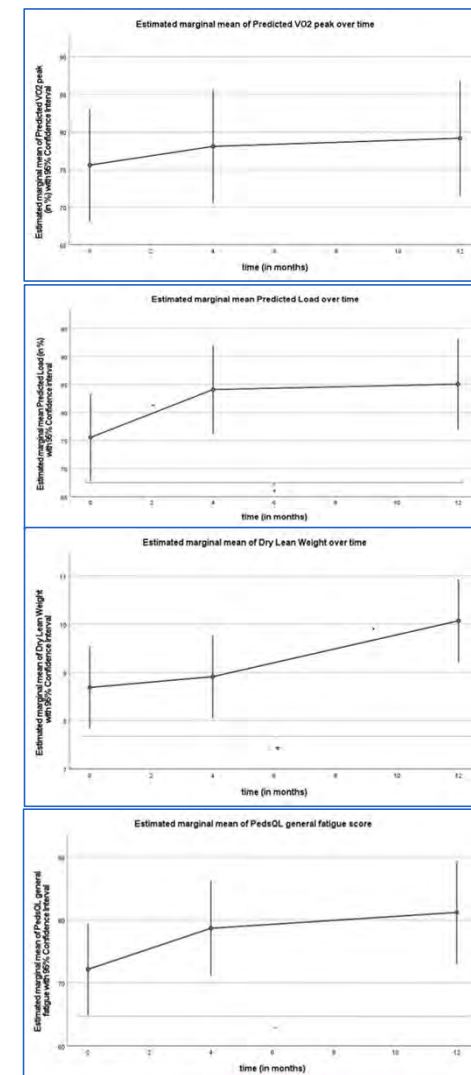


Individualized interdisciplinary intervention (coaching + training) improves:

Physical fitness (PredLoad_{max})

Body composition (Dry Lean Weight)

General fatigue - Quality of Life





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First published: 03 Nov

Abstract

Objective
Childhood cancer survivors experience reduced physical activity levels, participation as well as health-related quality of life. This prospective, pre-post intervention and follow-up study aims to determine the efficacy of an interdisciplinary rehabilitation on improving physical fitness, fatigue and body composition.

Methods

A total of 24 childhood cancer survivors (mean age: 12.15 years $\pm$ 3.2; 14 females; 10 males) were recruited 6 months after medical treatment and received a 4-month interdisciplinary intervention. Cardiorespiratory fitness ($\text{PVO}_{2\text{max}}$ and $\text{PVO}_{2\text{max}}/\text{kg}$), body composition (dry lean weight) and quality of life (general fatigue) were assessed at baseline, post intervention and 1-year follow-up. Linear mixed models were used to analyse data.

Results

Linear mixed modelling revealed a significant main effect of time on predicted maximal load ($F = 13.288$, $df = 36, 175$, $p = 0.001$), dry lean weight ($F = 64.813$, $df = 37, 215$, $p = 0.001$) but also significant improvement of general fatigue score ($t = 9.033$, $df = 4, 300$, 95% CI -17.741 to -0.336 , $p = 0.042$) indicating a decline in general fatigue.

Conclusion

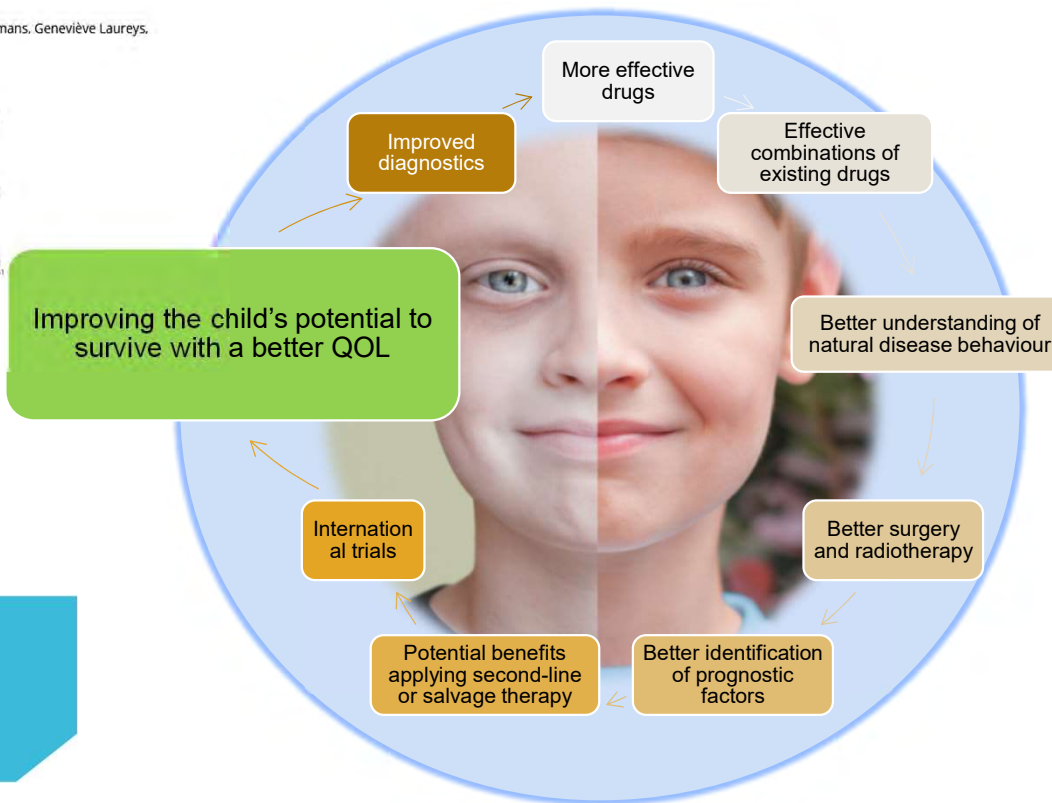
With emerging evidence that physical activity is safe and feasible, together with increasing numbers of childhood cancer survivors at risk for long-term chronic comorbidities, this study advocates for better access to interdisciplinary rehabilitation programmes in order to improve their physical condition and their body composition or reduce fatigue.



UITNODIGING

NETWORKING EVENT: KABOOST SCHOOL PROJECT

Wednesday February 7, 2024 | 8:30 - 13:00
Conference room entrance 40, route 402, Rehabilitation center UZ Gent



BEWEGEN, BEWEGEN, SPORTEN DOET JE GOED!
Bewegen is een belangrijke onderdeel in de behandeling van je kind. Het heeft veel voordelen: normale beweging zorgt ervoor dat het lichaam de chemotherapie beter kan verwerken, je actiever en zelfstandiger blijft en dat je na de behandelingen sneller terug fit bent.

Tijdens de KIKFIT lessen ligt het accent vooral op het samen bewegen. Daar worden de basalen en complexe oefeningen voor je kind makkelijk gemaakt met veel beweging.



Voor wie?
Alle oncologie patiënten op Ede, Ede en Ede
Wat voor?
Een training en oefeningen
Van wie?
Van 18 tot 18
Hoe vaak?
Eenmalig
Waar?
In de kelder op de 1ste verdieping (Therapeutische afdeling)
Wat voor kosten?
Het KIKFIT team

Eur J Pediatr. 2023 Feb;182(2):813-824. doi: 10.1007/s00431-022-04741-z. Epub 2022 Dec 8.

Physical fitness throughout chemotherapy in children with acute lymphoblastic leukaemia and lymphoma

Annelies Vriens ^{1, 2}, Sabine Verschueren ³, Deveny Vanrusseelt ^{1, 2}, Thierry Troosters ⁴, Marjoke Gielis ², Veerle Dirix ², Ellen Vanderhenst ², Charlotte Sleurs ^{1, 5}, Anne Uytendaele ^{6, 7}

Conclusion: The decreased quadriceps strength, functional mobility and endurance at all timepoints, with a large deterioration following induction therapy, suggest the need for early interventions, specifically in the adolescent population. The continued low results 6 months after therapy emphasise the importance of long-term rehabilitation.



Un projet soutenu par la Justine Henin Foundation

Le projet a été lancé en 2019 par le département de pédiatrie du Groupe santé CHC avec l'aide de la Fondation contre le cancer. En 2022, la Justine Henin Foundation a décidé d'apporter son soutien au programme. Ce soutien se traduit concrètement:

- d'une part, par la mise à disposition d'un **coordonnateur de projet**, qui fait le lien entre les acteurs de Gym & Joy (direction d'hôpital, médecins, infirmières, kinésithérapeutes, professeurs d'éducation physique...)
- d'autre part, par la recherche de financements pour la construction de l'**Espace Gym & Joy, un terrain multisports extérieur** situé à la Clinique CHC MontLégia. Initié en 2022, ce projet s'est rapidement concrétisé et a été inauguré en juin 2023, en présence des représentants de la Justine Henin Foundation et de ses donateurs. Cet espace est dédié à la mémoire du Dr Stefan Schifflers (**voir ci-dessous**), pédiatre spécialisé en hématologie-oncologie, un des initiateurs du projet.



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Conclusion

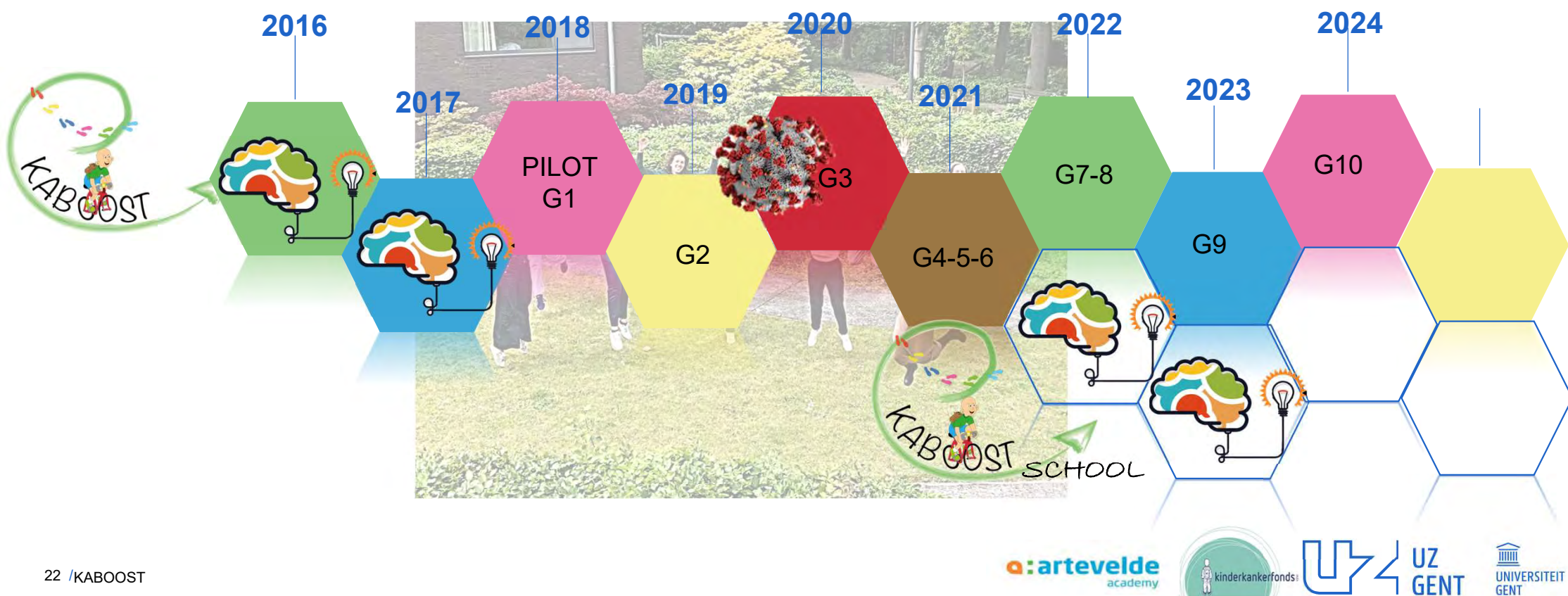


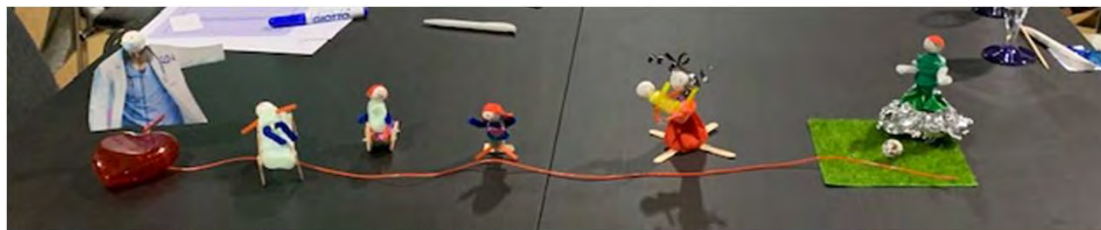
Children develop a more healthy and physically active lifestyle

LIMITATIONS

- Short follow-up
- Not every child can be reached
- Individual aerobic training sufficient?
- Hospital setting
- Not family- or community centered
- Re-integration?







INNOVATION

- ALL CCS AND PEERS
- KNOWLEDGE TRANSFERS 4TH LINE – O LINE
- ENHANCE DIRECT COMMUNICATION
- COST EFFECTIVE





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