



CHILDHOOD AND ADOLESCENT CANCER SURVIVORS

Exercise is important for long-term health and development among childhood and adolescent cancer survivors.

Cancer treatments are often accompanied by several late-adverse effects (LAE), which have the potential to contribute to the development of chronic diseases^{1,2}. Common LAE can include impaired growth, cognitive dysfunction, compromised cardiopulmonary and metabolic function, as well as musculoskeletal disturbances¹.

The Clinical Oncology Society of Australia (COSA) recommend that exercise should be part of standard practice in cancer care and is a safe and effective intervention to counteract many of the adverse physical and psychological effects of cancer and its treatment. In the past, both youth and adults were advised to recover in bed and rest as much as possible. Current recommendations encourage exercise to commence shortly after treatment⁴.

WHY IS EXERCISE IMPORTANT?

Physical activity and exercise play a critical role in both the physiological and psychological development of youth. Sufficiently developed motor skills via exercise play a crucial role in childhood for:

- self-esteem
- social abilities
- level of fitness
- recreational activity participation

Tailored exercise interventions by an Accredited Exercise Physiologist (AEP) to increase level of physical activity can **improve**:

- lost confidence
- developing motor skills (such as jumping, bending, running, skipping)
- physical deficits as a result of cancer therapy (such as muscular pain and fatigue)
- quality of life
- physical functioning
- anxiety
- the risk of future health problems associated with the cancer, or treatment.
- encouragement for socialisation (engaging and playing with friends)^{1,2}

THINGS TO REMEMBER:

- Exercise prescribed for children and adolescent cancer survivors needs to be tailored to their individual needs, taking into consideration fatigue levels, overall deconditioning, balance, limb loss, medication side-effects, etc. It is important that exercise programs be initially supervised to **ensure safety, appropriate intensity and motivational compliance**⁵.
- Many lose the confidence to return to previous physical activity or school sport due to reduced confidence, often due to no longer being as fit or skilled and coordinated as their peers due to time lost with treatment. Other barriers can include reduced fitness levels, physical fatigue, and decreased enjoyment due to enhanced exertion⁸.
- Carer and parent/guardian family support is important in assisting the child to regain their confidence in returning to activity.
- Clearance should be gained by the oncologist or haematologist before returning to sport.
- Participation in exercise and physical activity with play is a great way to **enable children to have something they can control and enjoy to help improve their health and outcomes**.

Find your local accredited exercise physiologist at www.exerciseright.com.au





CHILDHOOD AND ADOLESCENT CANCER SURVIVORS

TYPES OF EXERCISE RECOMMENDED:

- Children should aim to gradually increase their activity levels over time, this will help build up tolerance to exercise, and fatigue will reduce as the child moves more.
- Children can participate in 60 minutes of physical activity per day.
- Strength exercises should be completed for 20 minutes on 2 to 3 days per week to build up deconditioned muscles.
- Flexibility and movement exercises, also known as range of motion exercises, should be completed daily and before and after physical activity.
- Children should limit their leisure-based screen time to 2 hours per day.
- Aim to reduce sitting time across the day; get up and move around, dress self and perform all normal activities of self-care and movement to get back to a healthy, happy and active life.

RIGHT PROFESSIONAL

An Accredited Exercise Physiologist can assist in exercise programming and management for child and adolescent cancer survivors.

REFERENCES:

1. Klika, R, Tamburini, A, Galanti, G, Mascherini, G & Stefani, L 2018, 'The role of exercise in pediatric and adolescent cancers: a review of assessments and suggestions for clinical implementation', *Journal of Functional Morphology and Kinesiology*, vol. 3, pp. 1-19
2. Baumann, F & Beulertz, J 2013, 'Clinical exercise interventions in pediatric oncology: a systematic review', *Exercise in Pediatric Oncology*, vol. 74, pp.366-375
3. Clinical Oncology Society of Australia, 2018, 'COSA Position Statement on Exercise in Cancer Care', viewed 7 August 2018, <https://www.cosa.org.au/media/332488/cosa-position-statement-v4-web-final.pdf>
4. Braam, K, van der Torre, P, Takken, T, Veening, M, van Dulmen-den Broeder, E, Kaspers, G, 2016, 'Physical exercise training interventions for children and young adults during and after treatment for childhood cancer', *The Cochrane Collection*, vol. 3, DOI:10.1002/14651858.cd008796.pub3
5. Beulertz, J, Prokop, A, Rustler, V, Boch, W, Felsch, M & Baumann, 2016, 'Effects of a 6-month, group based, therapeutic exercise program for childhood cancer outpatients on motor performance, level of activity, and quality of life', *Pediatric Blood Cancer*, vol. 63, pp.127-132
6. De Caro, E, Smeraldi, A, Trocchio, G, Calevo, M, Hanau, G, Pongiglione, G 2011, 'Subclinical Cardiac Dysfunction and Exercise Performance in Childhood Cancer Survivors', *Pediatric Blood Cancer*, vol. 56, pp. 122-126
7. Divine, K, Mertens, A, Whitton, J, Wilson, C, Ness, K, Gilleland Marchak, J, Leisenring, W, Oeffinger, K, Robison, L, Armstrong, H & Krull, K 2017, 'Factors associated with physical activity among adolescent and young adult survivors of early childhood cancer: A report from the childhood cancer survivor study (CCSS)', *Psycho-Oncology*, vol. 27, pp.613-619
8. Gotte, M, Kesting, S, Winter, C, Rosenbaum, D & Boos, J 2014, 'Experience of Barriers and Motivations for Physical Activities and Exercise During Treatment of Pediatric Patients with Cancer', *Pediatric Blood Cancer*, vol. 61, pp. 1632-1637
9. Huang, T & Ness, K 2011, 'Exercise interventions in children with cancer: a review', *International Journal of Pediatrics*, vol. 2, pp. 1-11
10. Berkman, A & Lakoski, S 2016, 'A review of cardiorespiratory fitness in adolescent and young adult survivors of childhood cancer: factors that affect its decline and opportunities for intervention', *Journal of Adolescent and Young adult oncology*, vol. 5, pp. 8-16
11. Miller, A, Lopez-Mitnik, G, Somarriba, G, Lipsitz, S, Hinkle, A, Constine, L, Lipshultz, S & Miller, T 2013, 'Exercise capacity in long-term survivors of pediatric cancer: an analysis from the cardiac risk factors in childhood cancer survivors study', *Pediatric Blood Cancer*, vol. 60, pp.663-668
12. Macpherson, CC, Hooke, M, Friedman, D, Campbell, K, Withycombe, J, Schwartz, C, Kelly, K & Meza, J 2015, 'Exercise and Fatigue in adolescent and young adult survivors of Hodgkin Lymphoma: A report from the childrens oncology group', *Journal of Adolescent and Young Adult Oncology*, vol. 4, pp. 137-141