

# Exercise is Medicine: Keeping Kids with Arthritis Active

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By Kristin Houghton, MD, MSc, FRCPC, Dip Sports Med

The importance of physical activity (PA) to health and well-being is clear. There is a linear relationship between PA and health: those who are active and fit live longer, happier and healthier lives. However, even with common knowledge of the tremendous benefits of PA, the high prevalence of physical inactivity remains a major public-health concern. It is estimated that at least 50% of Canadian children are not active enough for optimal growth and development and 90% of children do not meet the recommended PA guidelines (60 minutes of daily moderate-to-vigorous physical activity [MVPA] with at least three days per week of vigorous-intensity activity, including activities that strengthen muscle and bone).

Exercise is medicine that everyone needs. Exercise is the ideal “drug”: it is safe, inexpensive, widely available and the “dose” can be individualized. Exercise is now considered an important part of therapy for children with juvenile idiopathic arthritis (JIA). Research has shown that exercise therapy is safe and may improve short-term clinical outcomes, function, quality of life and physical fitness. Children with active arthritis may begin with therapeutic exercises focusing on improving range of motion,

neuromuscular strength and proprioception around their joints. If morning stiffness is a problem, children can exercise later in the day. Children who have inactive arthritis can participate in age-appropriate recreational and competitive athletics.

As physicians we can encourage PA and exercise. The very act of asking about PA tells the patient/family that PA is important. Physicians should ask about current PA (the exercise “vital sign”) at every visit. Studies in primary care show that a two-to-four-minute intervention can effectively promote PA. Exercise prescription follows the frequency, intensity, time (duration) and type (FITT) principle. In patients who are inactive, begin with lower-intensity PA and progress in duration and intensity over time with a goal of reaching the recommended one hour of MVPA per day. It is important to write an exercise prescription as this signals that PA and exercise is therapeutic. If a child requires individualized adaptation of the exercise prescription for a unique or complex clinical problem, referral to physical therapy or another exercise specialist is advised. Finally, it is important to follow up to chart progress, solve problems and set goals.

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“Cassie and Friends” team at the 2016 ScotiaBank Charity Challenge at the Vancouver Half-Marathon and 5K on June 26, 2016. “Cassie and Friends” is a parent advocacy group for children with juvenile arthritis and other rheumatic diseases. They were the top fundraising team for the 9th year in a row.

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been published and data analysis is ongoing. The Linking Exercise Activity and Pathophysiology (LEAP) study, led by Dr. Ciaran Duffy and Dr. Lori Tucker, is also a prospective longitudinal cohort study that focuses on physical activity in patients with JIA. Patients have been enrolled at 12 pediatric academic health science centres throughout Canada. This study differs from the ReACCh-Out Study in that there is far greater inclusion of investigators from outside of the field of pediatric rheumatology, with a number of kinesiologists as well as longitudinal study data analysts. The study commenced in 2011 and to date almost 700 patients have been enrolled. The dataset includes demographic data; detailed clinical information, including medication use as well as laboratory data; physician and patient/parent global assessments; functional and quality of life questionnaires; and a questionnaire on physical activity. A subset of LEAP patients also provides biosamples at certain study visits, accelerometry data, detailed bone structural analysis and muscle-function testing. This study will ultimately acquire highly specialized and quite detailed information on the association between JIA and physical activity and the effects of physical activity on JIA, with a particular emphasis on effects on bone and muscle, as well as effects on measured biomarkers. Additionally, linkage to longitudinal biosamples offers the chance to explore novel biomarkers in the context of disease change over time. A number of abstracts emanating from this study have been presented at scientific meetings and a number of early descriptive papers are in process. Most recently, CAPRI has undertaken the devel-

opment of a national registry that will track all Canadian children with JIA.

After several years of intense discussion and debate, the “Section of Pediatric Rheumatology” was formed in 2006 as the first section of the CRA. This section evolved from its predecessor, the Canadian Pediatric Rheumatology Association (CPRA), formed in 1986, with the recognition that by joining forces, both the CRA and CPRA would be stronger entities. The section serves to strengthen the voice of pediatric rheumatology across Canada and areas of focus include advocacy, education and human-resource planning; see article by Dr. Janet Ellsworth on p.15. Over the last few years the group has advocated for the availability of liquid naproxen and triamcinolone hexacetonide, as both had become unavailable for our patients.

With our increased numbers and strong collaborative spirit, pediatric rheumatology in Canada will continue to evolve. There is a cadre of young, energetic, well-trained, talented Canadian pediatric rheumatologists who will no doubt continue to produce high-quality research and attract the very best trainees to our specialty. The potential is enormous, and the future looks very bright indeed.

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Exercise prescription in JIA will evolve with advances in research, and Canadian rheumatologists are leading the way. The Linking Exercise, Physical Activity and Pathophysiology in Childhood Arthritis (LEAP) study, a longitudinal observational cohort at 12 pediatric rheumatology centres across Canada (n = 709), aims to explore the relationships between JIA, physical activity, and bone and muscle development ([www.leapjia.com](http://www.leapjia.com)).

As physicians, we can promote the power of exercise. I encourage you to take the PA challenge by following these three simple steps: 1) ask your patients/their family

about PA at every consultation; 2) write an exercise prescription; 3) follow up to chart progress, solve problems and set goals. We can also lead by example and integrate PA and exercise into our daily lives.

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