

Guidelines for the inclusion of Children and Youth in Road Races



Overview

Systematic training and participation in long distance endurance events pose certain risks for individuals who have not yet reached full maturity. The purpose of this guideline is to provide guidance to organizers of road races on the minimum ages for entry to mass participation races and the recognition of performances.

It is widely agreed that a progression of maximum distance at younger ages is recommended. Children are not small adults; their anatomy and physiology are developing and not fully mature. Some of the reasons for such recommendations include:

Risk of Overuse Injuries

- Stress fractures are a function of the number of repetitions and amount of applied force per repetition. A child with shorter stride length subjects himself to more repetitions of impact to cover the same distance as an adult.
- Immature articular cartilage is more susceptible to shear force than adult cartilage and predisposes children to osteochondritis dissecans. Injuries to the growth plate from repetitive trauma are possible factors in adult onset arthritis of the hip.
- Children are also prone to injury at apophyses such as the tibial tubercle, resulting in Osgood-Schlatter disease, and the calcaneus, resulting in Sever's disease.
- Asynchrony of bone growth and muscle-tendon elongation. During periods of rapid growth, bone growth occurs first with delayed muscle tendon elongation and resultant decreased flexibility.

Female Athlete Triad

Participation in certain sports predisposes female athletes to developing the female athlete triad. This triad consists of three interrelated conditions: disordered eating, amenorrhea, and osteoporosis, and is directly associated with intense athletic training. Sports which place athletes at higher risk of developing this condition include those in which leanness is believed to improve performance, such as long distance running.

Heat Adaptation and Thermoregulation

- Children adapt less well to exercise in the heat, especially at temperatures above skin temperature.
- At any exercise level, children produce more metabolic heat per kg of body weight (i.e., are less efficient).
- Their larger surface area/body weight ratio permits greater heat absorption from the environment when air temperature exceeds skin temperature. The smaller the child, the greater the potential for heat absorption.
- Children produce less sweat. Thus, the ability for evaporative cooling is lower. This is critical, as evaporation of sweat is the most important means of heat dissipation during exercise, especially under hot conditions.
- Children require longer to acclimatise to a hot climate.
- Hypohydration (lower body water content) has more profound effects on children.
- Children must be trained to drink frequently even when not thirsty.

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Context

While a progression in maximum distance as an athlete develops is widely accepted, apart from common consensus that 18 is the recommended minimum age to run a Marathon, there is variation in recommendations of maximum distance for younger ages. General consensus is that 10K and over should not be undertaken until after puberty; recognizing that each individual will enter and exit puberty at a different age and on average girls reach puberty one to two years prior to boys.

To learn more about these differences and how to manage athlete's training consult the Canadian Sport for Life Resource Paper: *The role of monitoring growth in Long Term Athlete Development (LTAD)* available at: <http://www.canadiansportforlife.ca/resources/role-monitoring-growth-ltad>

It is possible that given proper biomechanics and anatomy, a quality training program which progressively increases volume and intensity, in relation to the individual maturity, development as well as cognitive and mental abilities, a young athlete can have a positive experience from participating in distances beyond those recommended; however these individuals are the exception and not the rule and should be managed accordingly by qualified coaches and medical professionals. It is also noted, that the risks associated with such participation increase with the number of events in which a participant undertakes in a given year and the volume of specific training which is associated.

Recommendation

After review of recommendations from other jurisdictions, consideration of the growth and development factors at play and recognition of the most commonly run distances in Canada, the Run Canada Committee recommends the following progression of minimum age to participate in road races.

Age	< 10	10	11	12	13	14	15	16	17	18
Maximum Distance	3K	5K	5K	8K	8K	10K	10K	21.1K	21.1K	42.2K

Provincial/Territorial branches may choose include the application of minimum age requirements as a condition for sanctioning. While participation at these recommended distances is endorsed, caution is emphasized in not over-training/over-specialising athletes at a young age. Entry into races should emphasize participation and individual improvement, not performance. It is well documented that athletes born early in the year have a definite advantage over athletes born later in the year, simply because they can be up to 12 month older than their peers and that athletes of the same age may have significantly different biological ages. Therefore, events are encouraged to reward all athletes equally in these age groups by recognising participation, the achievement of personal best, maintaining consistent splits etc...

For these reasons, provincial/territorial branches do not offer provincial road running championships for younger age groups; do not keep records; do not keep rankings; and do not present annual awards.

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References

- The IAAF Medical Manual (<http://www.iaaf.org/about-iaaf/documents/medical#iaaf-medical-manual>)
- International Marathon Medical Directors Association, Advisory Statement (<http://aimsworldrunning.org/articles/Children&Marathoning.pdf>)
- Canadian Sport for Life, Long Term Athlete Development (<http://www.canadiansportforlife.ca/>)
- Athletics Canada, Long Term Athlete Development (<http://www.athletics.ca/page.asp?id=347>)
- Canadian Sport for Life, The Role of Monitoring Growth in LTAD (<http://www.canadiansportforlife.ca/resources/role-monitoring-growth-ltad>)