

Opinion: 'Extraordinary levels' of ice use at summer Olympics not always evidence-based and bad for the planet

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The use of ice at the summer Olympic games has reached "extraordinary levels," but much of this isn't evidence-based, and the amount of energy

and water needed to produce, store, and transport the ice isn't good for the planet, to say nothing of its cost, argue a group of international researchers in an opinion piece, published online in the *British Journal of Sports Medicine*.

Around 22 tons of ice were delivered to the competition venues of the Tokyo 2020 Summer Olympic Games for medical purposes. Another 42 tons were provided to the residences of the Olympic Village, in part via ice-dispensing machines. But how much was actually used and how much was wasted isn't known, explain the editorialists.

But the requirement for Paris 2023 vastly exceeds those figures, they say.

"The first estimation done by Paris 2024 based on the initial requests presented by the International Federations was 1,624 tons of ice, at a cost of €2.5 million. No independent vendors were able to fulfill the public tender. Subsequently, this estimate has been reduced to 650 tons (450 for the Olympics and 200 for the Paralympics)," they write.

Cryotherapy (ice treatment) in the form of ice packs, compression pumps, ice baths, and cold water immersion is widely used by athletes and their support teams to manage injury and illness and speed up recovery, note the editorialists.

However, they point out, "Apart from logistical challenges related to production, transportation, and storage, ice is often used to obtain benefits which are not evidence-based. More importantly, ice could have the opposite effect to that expected, such as delayed tissue regeneration or impaired recovery."

For example, pooled data analyses show that [cold water immersion](#) is better for [muscle power](#) and perception of recovery than active recovery,

massage, or contrast baths (hot water followed by cold), they explain. But recently published studies report that cooling decreases long-term strength adaptations and may impair performance after exercise.

Cold water immersion is good for fast relief of heat exhaustion after exercising in hot temperatures, the relief of muscle soreness after prolonged exercise in normal temperatures, and helpful if muscle soreness is anticipated after several days of training, advise the editorialists.

But it shouldn't be used for recovery between consecutive bouts of high intensity training, nor immediate or long-term recovery after resistance exercise, they say.

Cold water immersion accounted for around 10% of treatments prescribed by physiotherapists at the Olympic polyclinics in Athens 2004 and London 2012, rising to 44% by Rio 2016—mainly for recovery purposes (98%), with the rest for injury.

Ice is also commonly recommended for the treatment of injuries, particularly soft tissue injuries. But there's little current evidence to support that approach, note the editorialists.

They conclude, "Ice usage at the Summer Olympics has reached extraordinary levels, potentially stressing local and regional resources. The sport and exercise medicine community needs better data on the actual amount of ice consumed at [major sporting events](#), for what purposes, and at what financial and environmental costs.

"When planning for the provision of ice, organizers should aim to minimize the use of non-evidence-based practices and promote better sustainability. Ice should, however, remain available for certain situations, including acute pain relief, specific [recovery](#) needs, and

management of exertional heat stroke."

More information: Ice challenge in recent summer olympic games, *British Journal of Sports Medicine* (2024). [DOI: 10.1136/bjsports-2024-108664](https://doi.org/10.1136/bjsports-2024-108664)

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