You're not a polar bear: Any plunge into cold water comes with risks

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Jumping into icy cold water in the dead of winter might seem like a

crazy idea, but the so-called polar bear plunge has become a popular activity, often paired with raising money for charity.

Boosting its allure is another anything-but-hot trend, the practice of cold therapy, based on the belief that exposing the body to cold water and air may strengthen the immune system and improve cardiovascular health. Actor Chris Hemsworth of "Thor" fame helped promote the idea when he took an Arctic swim without a wetsuit as part of National Geographic's "Limitless" television series.

But evidence supporting the health benefits of cold therapy remains scant. Experts caution that for some people, shocking the body with cold water could do more harm than good, even at less-than-frigid temperatures. The National Center for Cold Water Safety warns that sudden immersion in water under 60 degrees Fahrenheit can kill a person in less than a minute.

"That cold shock can be dangerous," said Dr. Jorge Plutzky, director of preventive cardiology at Brigham and Women's Hospital in Boston. "Whether there are health benefits or not is not clear and has not been established."

Plunging the body into cold water triggers a sudden, rapid increase in breathing, heart rate and blood pressure known as the cold shock response. That can cause a person to drown within seconds if they involuntarily gasp while their head is submerged. The shock also places stress on the heart and makes it work harder.

Within minutes, the loss of heat begins causing other problems.

Blood rushes away from the extremities to the body's core to protect vital organs, Plutzky said. That leaves the arms and legs without good circulation, which can lead to a loss of strength and coordination. The

rapid loss of heat also can lead to hypothermia, making it harder to think clearly or move well. Being immersed in cold water triggers hypothermia faster than just being out in the cold, because water takes heat away from the body 25 times faster than air.

Some studies suggest that people who adapt to cold water immersion through routine ice bathing or winter swimming may reduce inflammation and other cardiovascular risks. But others have found evidence of higher levels of troponin in people who compete in winter swims, suggesting that prolonged cold water immersion could lead to heart muscle damage.

"I would caution against it for anyone with a cardiac history," said Plutzky, who noted that little research on the health effects of cold water immersion included people with heart conditions.

People with heart conditions also may take medications, such as beta blockers, that lower blood pressure and reduce the heart rate, which could make it harder for the body to adapt to the shock of a sudden temperature drop, Plutzky said.

The shock response can be lessened by acclimating the body to increasingly colder water over time, said Lee Hill, an exercise scientist and a postdoctoral fellow at the Research Institute of the McGill University Health Centre in Quebec, Canada. Hill was a cold water swim coach in South Africa before moving to Canada, where he continues to practice winter swimming.

Hill said people who routinely swim in cold water follow a series of safety measures to get their bodies prepared.

"For those not habituated, I would suggest starting slowly," he said. Hill recommends spending time in lakes or other outdoor water sources

before temperatures drop and continuing to do so as the weather gets colder. If there's no place to swim outdoors, he suggests taking increasingly cooler showers or baths at home, as well as exercising outside.

"Get your lungs exposed to the cold air," he said. "Put cold water on the back of your neck. Prime your neurological system that a cold shock is coming."

The most dangerous time is the first 10 seconds to a minute, when people try to get their breath under control, Hill said. "You can survive for up to an hour moving around but for those who are not accustomed to that cold water shock, it can be incredibly risky."

The risk for hypothermia continues when you get out of the water, he said. "You should immediately get out of cold, wet clothes and into warm ones. Get near a space heater and drink a warm beverage."

Hill cautioned against doing a cold water swim without medical personnel on hand and access to supplies that allow immediate rewarming.

"Never, ever do a cold water swim on your own," he said. "That is a recipe for disaster."

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