



Photo Credit: Carrie Minshall, USAG

# Toxic Flame Retardants in Gymnastics Equipment

Flame retardant chemicals are intentionally added to commercial and consumer products to meet flammability standards but easily migrate out of the products to which they are added. They are found in homes because they are used in furniture and building materials and are also found in gymnastics training facilities because they are used in foam pit cubes, landing mats, and carpet-bonded foam. Some flame retardants have been linked to environmental and health issues.

## FLAME RETARDANTS CONNECTED TO HEALTH ISSUES

- Flame retardants disrupt action of the thyroid hormone system, which is important for development and metabolism, particularly during early life.
- Studies in humans have found effects on fertility and neurodevelopment.<sup>1-3</sup>
- One of the flame retardants found in gyms is considered a carcinogen by the State of California.<sup>4</sup>

## FLAME RETARDANTS ESCAPE FROM FOAM

Flame retardants were originally added to polyurethane foam to meet flammability standards for furniture components starting in 1975.

They are continuously released into air and dust from foam, regardless of age.

They get on our skin where they can be absorbed or accidentally ingested. They are also inhaled.

PentaBDE flame retardants were phased out of use in 2005 due to health concerns, but were replaced with other flame retardants (TDCIPP, Firemaster 550®) that are also harmful.

## GYMNASTS CAN HAVE HIGH EXPOSURES TO FLAME RETARDANT CHEMICALS

Levels in gymnasts were found to be up to 6 times higher than the general population.<sup>5</sup>

One flame retardant, PentaBDE, has been measured at levels >200 times higher in dust in gyms than in homes.<sup>5</sup>

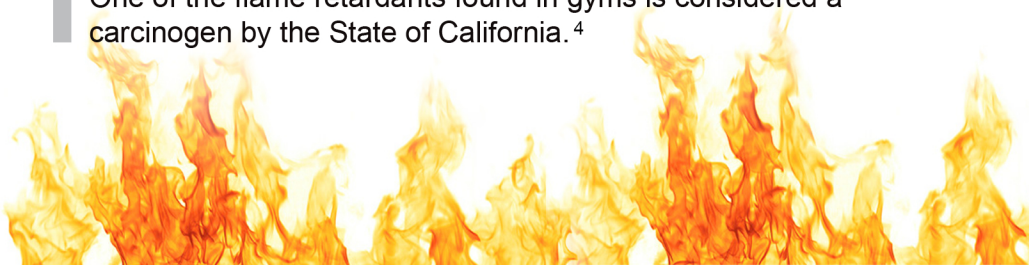
Children are particularly vulnerable due to their size and stage of development.

Competitive gymnasts and coaches may be more highly exposed due to the length of time spent in the gym.

## THE FOAM IN YOUR GYM LIKELY CONTAINS FLAME RETARDANT CHEMICALS

89% of the pit cubes in a recent U.S. survey contained flame retardants.<sup>6</sup>

Landing mats, generic sting mats and carpet-bonded foam may also contain flame retardants.<sup>5</sup>



## WAYS TO HELP REDUCE YOUR EXPOSURE

Wash your hands with soap and water after practice and before you eat. This should help reduce the amount of chemicals entering your body. Hand sanitizer is not effective at removing flame retardants.

Encourage your gym to purchase flame retardant free equipment and to consider replacing the foam pit using a flame retardant free option. Approval from the local fire inspector may be needed, and it may be helpful for parent groups to assist gyms with these conversations.

## FIRE SAFETY WITHOUT FLAME RETARDANTS

Gym fires are rare (<1/year in the US since 1988) but tend to be severe and to occur at night. Causes have included arson, welding sparks, frayed electrical wire and cigarette.<sup>7</sup>

Many gyms have historically been required by their local Fire Department to purchase equipment containing flame retardants.<sup>7</sup>

However, a recent study testing flammability of pit cubes found minimal fire safety benefit from the use of flame retardants or a polyester cover when considering potential gym fires.<sup>7</sup>

Fire detection and suppression systems provide measurable fire safety benefit.<sup>7</sup>

Firefighters in Massachusetts are in support of legislation that would ban flame-retardant chemicals in children's products and upholstered furniture. The opposition stems from the fact that the chemicals have been found to be both ineffective and highly toxic.<sup>8</sup>

Work is currently underway in Massachusetts and beyond to ensure that the public and workers are protected both from fires and from exposure to toxic chemicals. The Gymnast Flame Retardant Collaborative has formed a partnership with scientists, vendors, and gym owners to determine when flame retardants are necessary, and if they are, identify a suitable non-toxic alternative.

JOIN THE GYMNAST FLAME RETARDANT COLLABORATIVE TO RECEIVE UPDATES [www.gymnastcollaborative.org](http://www.gymnastcollaborative.org)

## ACKNOWLEDGEMENTS:



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# Did you wash your hands?



Use soap & water.

Rub hands for 20 seconds.

Rinse.

Dry with paper towel.

Use towel to turn off faucet.

*clean*  
**Your health is in your hands**

Photo Credit: Mass.gov

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