Widespread Education & Mandatory Product Warning Labels Are Keys To Preventing US Weight Training Injuries & Deaths

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5 Key Points

1. Since 2008, hospital-reported, weight training injuries have increased 9-10% per year and over the past 20 yr by ~55%. Yet, if cyclic peaks and troughs continue their pattern every 5 yr, our prediction equations indicate that U.S. weight training injuries will not exceed 100,000 until March of the year 2026.

2. Primary sites of injury include the lower trunk (back), shoulder, and upper trunk, but this varies based on gender and age. Females, infants and older adults have more peripheral injuries, while adolescent and adult males have more centrally located injuries.

3. Since April of 2008, there have been 25 deaths associated with weight training equipment, but this is a significant underestimation due to delays in reporting time, investigations & data entry. The performance of the bench press in the home without a spotter is a high-risk, potentially deadly activity. The primary mechanism of death is neck or chest compression with asphyxiation. Make up nearly all fatalities.

4. Parents must recognize that all weights and exercise equipment are potentially fatal and must be secured to ensure inaccessibility to unsupervised children.

5. Widespread education directed toward family practitioners, adults, and adolescents, as well as mandatory product warning information are the keys to preventing injuries and deaths.

The bench press is associated with death when adults use it without a spotter or children are unsupervised. The primary mechanisms are neck or chest compression with asphyxiation. Make the difference between life and death by always using a spotter when you lift and keeping young children away from all exercise equipment.

Special thanks to Vicky B. Leonard, Technical Information Specialist with the US CPSC National Injury Information Clearinghouse for her invaluable help with data access.

From April 10, 2008 until April 3, 2012, a period of 1399 days, 25 deaths (~1 death every 56 days) were associated with weight training equipment. Twenty three (92%) were males, ≥ 18 (≥ 72%) implicated the bench press, 15 (60%) were documented in the home, and involved asphyxia with neck or chest compression. For the 1st time in 20 yr, there was an adult female fatality implicating the bench press with a similar compression mechanism demonstrated strictly in males. Fatalities are significantly underestimated because investigations & data entry may be delayed 2 yr or more.

From 2008 until today, weight training injuries increased by 9-10% per yr which is the steepest incline in over a decade. For 2010, there were 94,692 hospital-reported injuries, yet based on peaks & troughs every 5 yr, we will likely exceed 100,000 until March of 2026 based on our prediction equations. Anatomical site of injury & diagnoses vary substantially with age & gender.

DEATHS ASSOCIATED WITH WEIGHT TRAINING EQUIPMENT & DEATHS ASSOCIATED WITH ALL OTHER EXERCISE EQUIPMENT US CPSC REPORTED INCIDENT FILES TRACKED FOR 2142 DAYS FROM JAN 2003 – NOV 2020

Equipment Reported Incidents Documented Deaths % Deaths/Reported Incident

Weight Training 40 22 54.9%

All Other Exercise Equipment 873 24 2.7%

% Deaths/Reported Incident for Weight Training divided by % Deaths/Reported Incident for All Other Exercise Equipment: 44.9/2.7 = 16.6

All Exercise Equipment 22 Deaths:

11 or 45% Older Adults Falling from Stationary Bikes or Treadmills
3 or 14% Adult Hanging from Exercise Equipment
1 or 5% Blunt Trauma to the Head Associated with CWT Lat Pull
1 or 5% Adult Hanging from Exercise Equipment – Weight Training??

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Based on ~25 yr of data, in Mar 2003, we requested the CPSC require a warning label on all bench presses to reduce or eliminate deaths due to the common mechanism of asphyxia caused by neck/chest compression. After review, in Aug 2004, the CPSC denied our request indicating: (1) 6 to 9 million bench presses were in use, (2) weight training “presumably present an unreasonable risk of injury,” (3) only 4 deaths in 4 yr (or 1 death per yr) were "potentially addressable" to the proposed mechanism & (4) a warning label "likely would be ineffective in any event." This prompted us to examine CPSC Reported Incident Files from 2003 to 2008 to evaluate deaths associated with weight training compared to other exercise equipment. Calculations implied that weight training was nearly 17 times more deadly. From 2008 to present, we've documented more unsent deaths implicating the bench press & the neck/chest compression mechanism. Thus, we feel compelled to petition the CPSC again in the future.