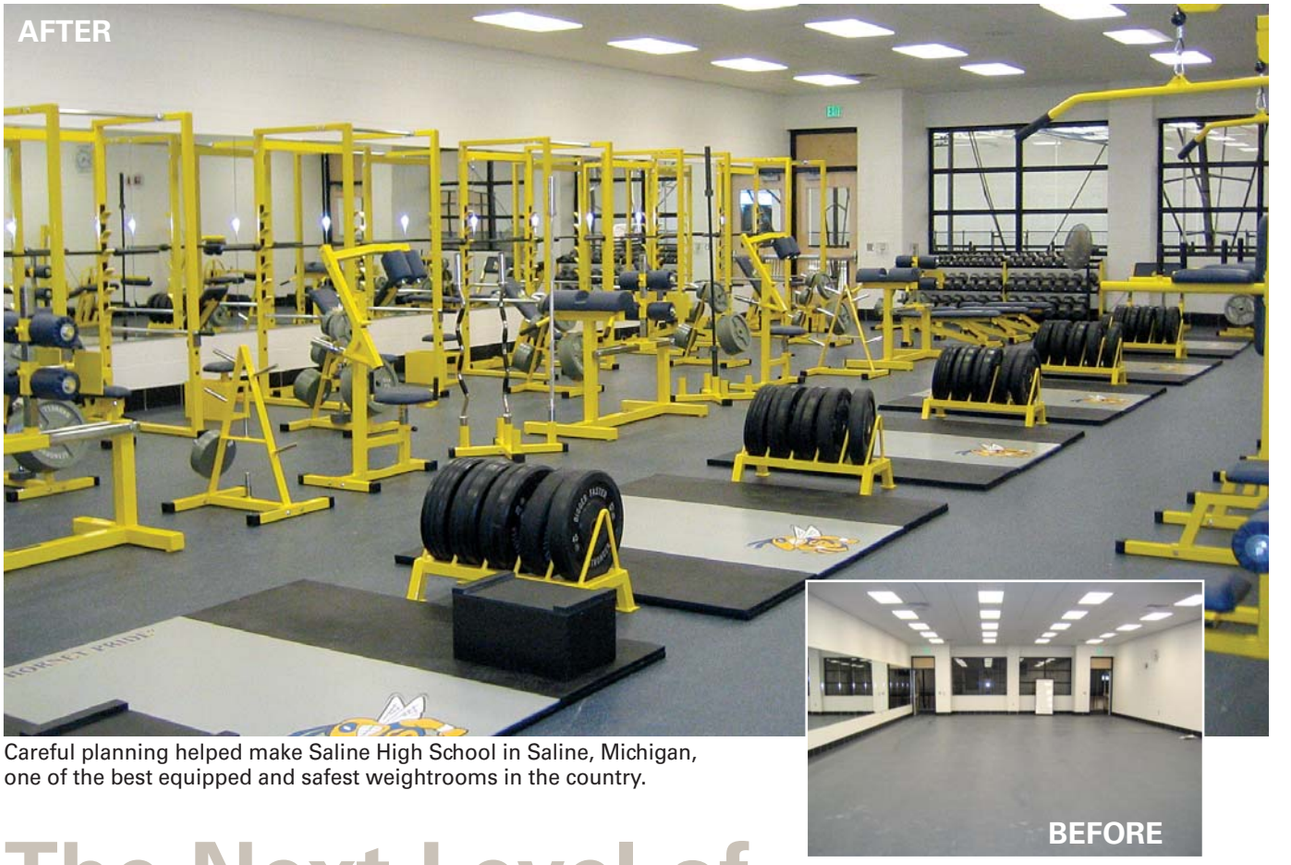


Careful planning helped make Saline High School in Saline, Michigan, one of the best equipped and safest weightrooms in the country.

The Next Level of Weightroom *Safety*

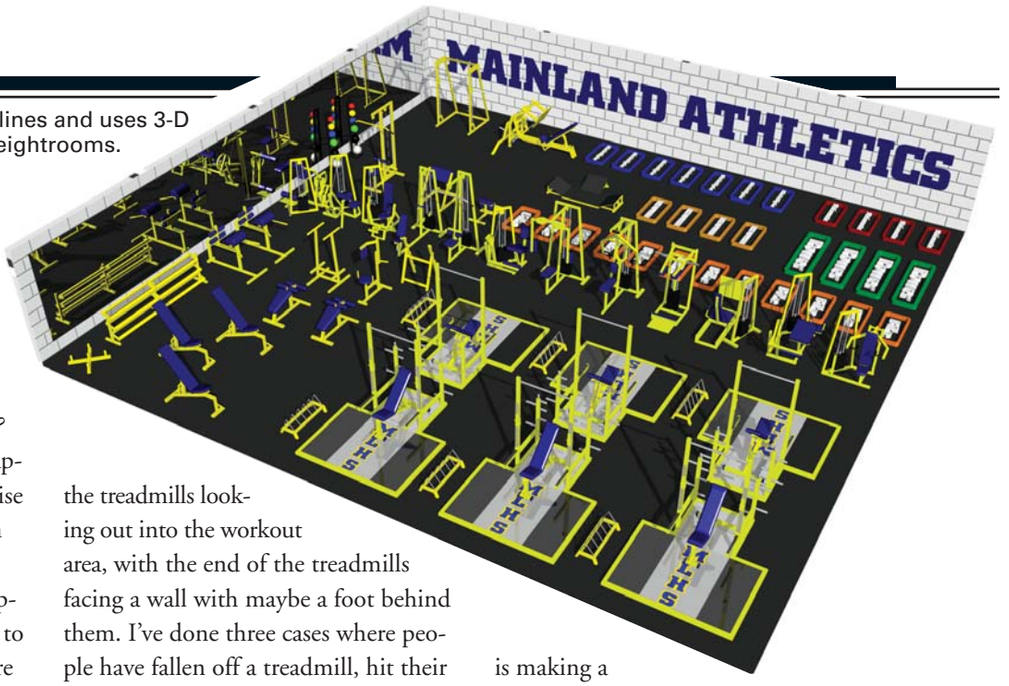
Practical advice on reducing injuries, and the risk of lawsuits, in your weightroom

"Every day, in every way, I'm getting better." Although this inspirational mantra might be much overused by self-help gurus, the idea is actually a useful philosophy when addressing the issue of safety in the weightroom. Just ask Dr. Marc Rabinoff.

For the past three decades, Dr. Rabinoff has been on a mission to promote safety in the weightroom. A full professor at Metro State College in Denver, Colorado, Dr. Rabinoff teaches weight training classes with an emphasis on safety. For the past 30 years he has conducted lectures and seminars, written articles, served on committees and sat through hundreds of interviews to get his message across that making your weightroom safe requires common sense and a lot of work.

One aspect of Dr. Rabinoff's work involves serving as an expert witness in lawsuits. Having served on over 200 legal cases, he understands the causes and devastating effects of injuries. Each severe injury or death is a tragedy – especially when you consider that virtually every case Dr. Rabinoff has seen could have been prevented by following a few simple measures.

In this exclusive interview, Dr. Rabinoff shares his insights into weightroom design and offers practical advice on



BFS follows safety guidelines and uses 3-D models to design safe weightrooms.

how to make your weightroom safer.

BFS: *With the popularity of weight training in this country, is it a problem in high schools with there being too much equipment in weightrooms?*
Rabinoff: Absolutely! What often happens is that companies that sell exercise equipment will do a free weightroom analysis. Using a computer program, they will show how to put their equipment into your facility and lay it out to maximize available space. But if you're going to have weight equipment, you have to make certain there is adequate space, and that may mean checking with the manufacturers, rather than the marketers, to determine what the actual spacing needs are.


Dr. Marc Rabinoff

BFS: *Are there standards in weightroom design that should be referenced when designing weightrooms?*
Rabinoff: There are some standards, some by BFS in articles published in your magazine, but the basic minimum standard is at least two feet to three feet of space around a piece of equipment. But that's just for most exercise equipment; it's different with a treadmill. I believe you have to have at least six feet behind the end of a treadmill, and at least three feet on each side.

BFS: *Why is more space needed for treadmills?*
Rabinoff: What I've seen in cases that I've testified in is the gym owner lines up the treadmills looking out into the workout area, with the end of the treadmills facing a wall with maybe a foot behind them. I've done three cases where people have fallen off a treadmill, hit their head on a wall and died of trauma. Also, if you don't have enough space between the treadmills, there is the risk that when someone gets on the treadmill and another gets off, they could hit each other.

BFS: *Many equipment distributors do not have warehouses and simply ship their equipment from their manufacturers. What is the distributor's responsibility in regard to providing equipment that is safe?*
Rabinoff: My feeling is if you're putting your name on something, then you should be responsible for what it is. If you're distributing equipment made in Taiwan and they used the wrong kind of bolt so if you get up to a certain poundage the bolt breaks and causes injury, then the distributor is partly responsible. It's just not a matter of who is making a piece of equipment but also who is selling and marketing it. If you're misrepresenting the equipment you sell, that's fraud, and I've seen a lot of cases where distributors were sued because they misrepresented what their products can and cannot do.

BFS: *Some weight training machines have a counterbalance system with levers that extend behind them. Are there any special precautions that need to be taken for these machines?*
Rabinoff: There certainly should be warning labels on the machine from the manufacturers, such as "Steer clear of moving parts" or "Stand back while in use," but that's not enough. The coach, gym owner and other people in the gym all need to understand how these machines work. At our gym every instructor explains every piece of equip-

"I've done three cases where people have fallen off a treadmill, hit their head on the wall and died of trauma."

— DR. MARC RABINOFF

ment to each student who uses that facility, and we supervise them 100 percent of the time. That's one way we minimize the chance of injury.

BFS: *Are warning signs important?*
Rabinoff: Definitely! At our gym at school we have warning signs posted all over the place, not just on the equipment. We also have general weightroom rules posted on our walls.


Weight training equipment must be properly maintained to prevent accidents.

BFS: *If someone does not want to go through an orientation on how to use your equipment, can they simply sign a waiver to release them of liability?*
Rabinoff: No. If an individual can't understand how to use your equipment safely, effectively and efficiently, then you can't have them use it. What it comes down to is if you're going to present yourself as a professional and invite people into your venue, then you have to teach them how to use the equipment.

BFS: *Are waivers for weight training classes important at the high school level?*
Rabinoff: I think you certainly have to have waivers in high school. Parents have to understand what their children are doing and what the risks are so they can determine if they want to allow their children to do those activities.

BFS: *Do waivers hold up in count?*
Rabinoff: A waiver is a process for edu-

BFS Weightroom Safety Guidelines

BY ROGER FREEBORN AND JEFF SELLERS, BFS CLINICIANS

To ensure a high level of performance and maximum safety in your weightroom, follow these commonsense guidelines.

- **Do not use homemade equipment.** The money saved in using homemade equipment not designed by reputable manufacturers is not worth the risk of injury.
- **Bolt equipment to the floor when possible.** Bolt to the floor all equipment that must be secured to the floor by design.
- **Position weight trees near appropriate racks,** benches and platforms. Reduce traffic flow and risk of injury from walking with plates by keeping weight trees close to the racks and benches they support.
- **Provide adequate space between equipment.** To ensure that spotters can move freely and do their job, allow at least 24 inches between racks and benches.
- **Ensure all equipment is in good repair.** Replace, repair or remove all worn/damaged equipment immediately – pay special attention to cables. Post signs on equipment being repaired so that it will not be used.
- **Provide lifting belts.** Keep enough belts on hand for athletes who need them, and supply a variety of belt designs appropriate to the various lifts.
- **Place weights on the bars properly.** The lettering should be on the inside so you can be certain the correct weight is on the bar. Also, placing the weights this way allows for a more secure grip on the plate.
- **Use collars whenever possible.** If there is weight on the bar, use collars on the bar. Keep an adequate supply, plus four extra in case of breakage, so that no athlete is forced to lift without them.
- **Return equipment to appropriate areas.** A place for everything and everything in its place! There should be nothing on the floor, such as weight plates or belts, that could cause someone to trip.
- **Maintain proper heating and air conditioning.** Supply appropriate heating, cooling, ventilation and air conditioning.
- **Have water available.** Provide water coolers or drinking faucets.
- **Have a safety orientation.** Have all students complete a safety curriculum at the beginning of each cycle: Watch videos, read posters, demonstrate safety-spotting techniques. Provide written materials about your safety practices to parents and administrators.
- **Have a first-aid plan.** Keep a first-aid kit and appropriate emergency procedures on hand, as well as forms to document injuries.
- **Use posters.** Prominently display posters listing gym rules and safety guidelines.
- **Establish and enforce a dress code.** Do not allow athletes to lift while wearing inappropriate clothing and footwear. Prohibit any jewelry that has the potential to cause injury.
- **Clean vinyl upholstery daily.** Use soapy water or a disinfectant to maintain maximum sanitation.
- **Vacuum and mop at least once a week.** Vacuum to improve sanitation and appearance.
- **Keep a maintenance log.** Monitor your maintenance to ensure compliance.

cating everyone about the risks of an activity. As long as everyone appreciates it and understands it, then a waiver could be an affirmative defense on the part of the entity.

BFS: *Should all heavy equipment be bolted to the floor?*
Rabinoff: I would consult the manufacturer's guidelines, as there is some equipment that must be bolted down to be used safely.

BFS: *Are there some exercises that probably should never be taught in a high school setting? For example, standing or performing bench presses on a Swiss ball?*
Rabinoff: Absolutely – there are exercises that are just plain stupid. First of all, using a Swiss ball under a piece of weight equipment, as opposed to a weight bench, is stupid because there are absolutely no standards for such an exercise.


Proper spotting is key to gym safety.

BFS: *Do you see many injuries caused by poor spotting?*
Rabinoff: I've heard about injuries caused by no spotting – that happens all the time – but I don't see a lot of injuries caused when an individual lifting was being spotted.

BFS: *What is your opinion about using bands on lifts such as squats and bench presses, especially in the high school environment?*
Rabinoff: Over the past 40 years I've seen a lot of new exercise gadgets, but I'm always hesitant about using them because they are usually marketed as the best way for everyone to do it. Not every exercise, or every method of exercising, is good for everyone. But to answer your question, when you get something like a band that's going to react to torque and stress and pressure, then you have to understand how that band works mechanically along with the muscle group that you're working. It's a whole new variable. That being said, I certainly wouldn't recommend bands at the high school level unless the coach was very knowledgeable about using this type of equipment. Also, I don't recommend them because I haven't seen any research that says that bands will make athletes stronger than conventional training, and I read the literature all the time.

BFS: *Many athletes will not use the spotter rods in a power rack or a Smith machine. Do you see this as a problem?*
Rabinoff: A coach should not allow their athletes to do that because those are optimal safety operation procedures. Let's talk about Smith machines because I just did two cases where the users became quadriplegics. Some people think the process of disengaging the bar and then rotating your hand forward or back to reengage the hook over the pin is the safety mechanism. That's not the safety mechanism! It's the operating mechanism of the apparatus, because you can't do a Smith machine exercise without disengaging and then reengaging the hooks. The safety mechanism is the adjustable stop at the bottom. If you have a Smith machine that doesn't have an adjustable stop, you've got a defective Smith machine because there's no safety mechanism on it.

BFS: *So, providing the equipment is complete and functioning properly, who or what is responsible for any injuries that happen?*
Rabinoff: You can't blame an inanimate object for an injury. If the person who gets hurt never knew how to use a piece of equipment, you can blame whoever was responsible for letting them on that piece of equipment in the first place. Or you can blame the person performing the exercise because they knew how to do it and didn't do it. And if the equipment was poorly designed, you can blame the manufacturer. But to ban Smith machines simply because of one injury is ridiculous.

BFS: *At the high school level, have supervision and weightroom design generally improved?*
Rabinoff: Unfortunately, I think they're getting worse. There are more students in weight training classes and fewer PE teachers, so you have bigger classes and more stress on the teachers. Many schools don't have a lot of money to update equipment, so there is a lot of older equipment that may not have been maintained appropriately. And I'm dumbfounded because so many coaches simply don't do anything about safety until a kid gets hurt and files a lawsuit. Then they say, "Well, we didn't know." Well, yeah, you did.

BFS: *What general advice would you give our readers about weightroom safety?*
Rabinoff: What we can do is minimize risk greatly by doing our jobs as coaches, teachers, administrators and club owners by making sure that each day we open that gym door is a new day with a higher standard of care. BFS

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