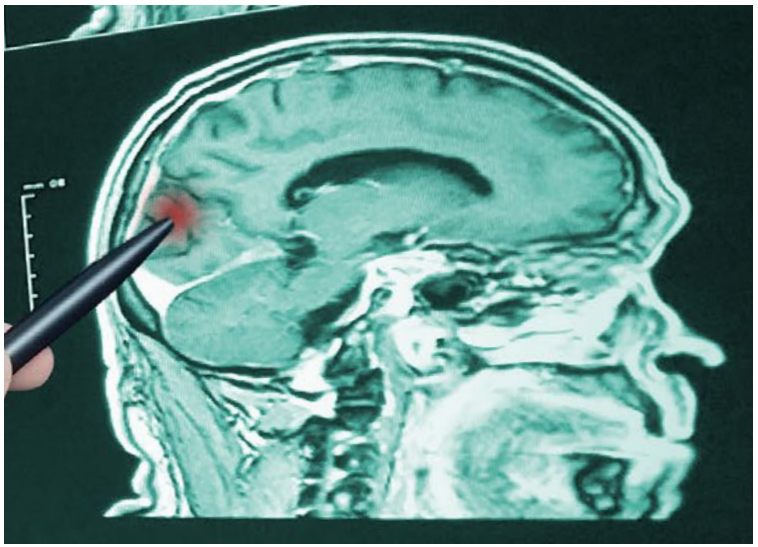
Hand & Head 2023

Contents



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Latex Versus Nitrile Gloves:

Which One Is Right for Your Needs?

By: **Shana McGuinn,** *Contributor*

Nitrile gloves are chemical resistant and allergen free.

You are in the process of selecting hand protection for your employees. You've narrowed it down to either nitrile or latex gloves, but you're a bit confused about the differences between the two. Which one would be better for the applications and tasks in your workplace? Is one more comfortable than the other, so that workers will be motivated to keep wearing hand protection that's necessary for their safety? And what about cost?

Latex gloves were the leader in the disposable glove space for decades, but nitrile gloves are becoming increasingly popular, thanks, in part, to a huge surge in demand during the COVID-19 pandemic. Which one is best for your needs? Here is a short comparison between the two:

MATERIAL

- Latex is a natural material found beneath the bark of a rubber tree. Composed of sugars, oils, proteins, starches, resins, tannins and other elements, this substance is blended, coagulated and dried to produce latex, which is used in gloves, rubber bands, balloons, swim caps, tennis shoes, mattresses and a variety of other goods.
- Nitrile is a synthetic rubber, nitrile butadiene rubber (NBR). Nitrile gloves also usually contain additional materials such as stabilizers, sulfur, antifoaming agents and accelerators.

COMFORT

- Latex gloves are generally considered more comfortable than nitrile gloves. They are slender and close-fitting, which offers the wearer a greater degree of dexterity and tactile sensations. Additionally, they are powdered to make them easier to put on and take off.
- However, nitrile glove fans say *they* are flexible and almost as soft as latex, thanks to their elasticity and the ability to adapt to the shape of the wearer's hand.

TOLERANCE

- People who suffer from latex allergies and who come into contact with latex can experience symptoms ranging from mild (itching, redness, hives, a rash) to severe (difficulty breathing, nausea, a loss of consciousness).
- Because they are allergen free, nitrile gloves are ideal for those with latex allergies or sensitive skin.

CHEMICAL RESISTANCE

Nitrile and latex both provide protective barriers, but the chemicals they are effective against differ. For this reason, it is important that a hazard assessment be conducted and potential chemical exposure in specific work areas be identified. Note: chemical exposure should be short-term with *any* type of disposable glove.

- Nitrile gloves are resistant to ammonium hydroxide, benzylic alcohol, fuel oil, fertilizers, hydrogen peroxide, turpentine, acids and caustics of a certain strength, petroleum products, greases, viruses, pathogens and some organic solvents. They are *not* particularly resistant to strong acids, aromatic and halogenated hydrocarbons, alcohols, ketones and sodium hydroxide.
- Latex gloves are resistant to acetic acid, ammonium hydroxide, citric acid, fertilizers and sodium hydroxide, but not to asphalt, diesel fuel, biological hazmat, fuel oil and turpentine.

Latex gloves are comfortable and biodegradable.
© Antonioguillem - stock.adobe.com

PUNCTURE RESISTANCE

- Nitrile gloves are the clear winner in this category. Nitrile's thickness and durability enhance its ability to withstand punctures. It is also easier to see punctures in nitrile gloves when they do occur, which enables the wearer to remove the gloves and avoid hazardous exposures that can occur through the punctures.
- Latex gloves are not as strong as nitrile gloves, and small holes are not easily seen in latex.

COST

- Nitrile gloves tend to be slightly higher in cost than their latex counterparts.
- The cost of latex gloves can fluctuate, due to changes in the price of natural rubber.

USAGE

- Latex gloves can be found in health care, dentistry, janitorial, beauty salons, pharmaceutical manufacture and in other settings where dexterity, tactile sensitivity and skin protection is required. Both their allergens and the powder used to make donning and doffing them easier could affect customers, so latex gloves are not recommended for restaurants or anywhere food preparation takes place.
- Nitrile gloves are found in many labs and industrial and manufacturing facilities. They are a good choice for workers who must handle sharp cutting tools or who work with hazardous materials. They are also used in many of the same applications as latex gloves, along with food processing - because they are powder and allergen free.

SUSTAINABILITY

- Because they are derived from natural materials, latex gloves are biodegradable (they will break down into their simplest elements and compounds). Latex gloves can be disposed of in compost bins. They will biodegrade faster if they are shredded or cut into small pieces.
- Nitrile gloves' synthetic materials mean that they are not biodegradable. If not properly disposed of, they can release harmful chemicals into the environment. Nitrile gloves *can* be recycled, but only if they have not had contact with biohazardous chemicals or materials. ***WMHS***

Shana McGuinn is a freelance writer specializing in topics surrounding PPE, workplace safety and chemical safety.

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You CAN Have It All

Safety, Comfort, Efficiency and Cost Savings in Hand Protection for the Busy Safety Professional.

By: **Jamie Bonnema,** *Contributor*

Magid's AeroDex glove is lightweight, and available all the way up to ANSI Cut Level A9. *Image courtesy of Magid.*

According to the U.S. Bureau of Labor Statistics (BLS), more than 100,000 workers are impacted by hand injuries yearly. But when you're busy on the job and the options seem limitless, it can be difficult to find hand protection that will keep your workers safe AND compliant. They say you can't always get what you want, but with new technologies, you CAN have it all. It's time to find gloves that will not only keep workers safe but will also keep them comfortable and make their jobs easier.

COMFORT AND COMPLIANCE

PPE manufacturers are offering new solutions so workers can get comfortable and breathable protection for even the most dangerous jobs. The latest technologies and innovations provide gloves all the way up to ANSI Cut Level A9 that are more than 50% lighter compared to HPPE of an equal cut level. Some materials are even engineered to feel cool to the touch! Even impact gloves, notorious for being hot and uncomfortable, now have venting systems that improve airflow and allow for heat dissipation and breathability.

Lightweight options also lend themselves to increased dexterity. We've all seen it happen: Bulky and stiff gloves lead to hand fatigue after hours of use. When this happens, the worker pulls his/her gloves off to get the task done without the hassle and strain, and as a result, they're left unprotected. The flexibility of lightweight gloves gives your workers the tactile sensitivity and dexterity they need to finish the job without feeling uncomfortable, or as though their gloves are getting in the way. Even high-cut level gloves have become so dexterous that workers can pick up small parts such as nuts and bolts with ease.

With combined breathability and dexterity, workers won't have a reason to pull their gloves off because their hands are sweaty, or because they can't flex their fingers enough to easily perform their tasks. You might even be amazed that workers are wearing their PPE all day without complaints.

GLOVES FOR MULTIPLE (OR ANY!) ENVIRONMENTS

In many industries, workers aren't doing just one task. Throughout the day, workers may be assembling items with small parts, transporting rough materials, and working with oily or wet pipes. With so many different environments and gloves to pick from, busy workers are likely to use the wrong gloves or even remove their gloves entirely if they get in the way of their job. And, every time a worker moves to a new task and must change their gloves, productivity is lost.

Today, safety professionals can worry less about making sure everyone is wearing the right glove for their

The Versatek glove features an adaptive palm coating that adjusts to the workers' environment. *Image courtesy of Magid.*

multitude of tasks. The newest glove coating technology uses engineered stabilizers to read and adapt to the environment. This means workers can leave the same pair of gloves on while working in almost any environment including wet, dry, slick, abrasive or oily conditions. As a result, employees can stay focused, productive and even increase their efficiency by eliminating the time it takes to consider the application and change their gloves. Plus, it takes the guesswork out of which glove to use.

COST SAVINGS AND QUALITY

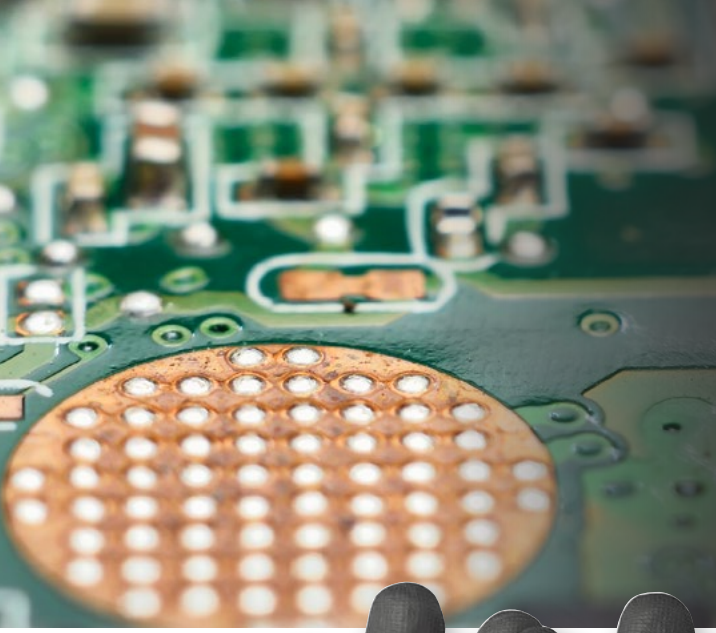
By selecting a comfortable glove with multiple features that work efficiently in many different environments, you can save money by ordering fewer styles, buying in bulk, and limiting the hassle and expense of keeping many different types of PPE in stock. Instead of buying a glove for wet conditions, a glove for dry conditions and a glove for abrasive conditions, purchase one glove that does it all. Or, if your workers keep pulling their gloves off because they need higher cut protection for one task and more dexterity for another, find a lightweight option that will serve both purposes.

After finding the perfect fit with all the features you're searching for, you might be tempted to look only at the cost-per-pair of a glove. However, when you test these gloves in your environment, you'll find that the latest innovations are made with more durable materials that may actually end up saving you money in the long run. New palm coating technologies are testing out at over 50 % more abrasion resistance than other coatings, for a glove that may last significantly longer than a cheaper alternative, costing you less over the use-life of the glove.

As a safety professional, safety is your priority, and you understand that comfortable PPE plays a large role in keeping workers compliant while helping reduce injuries. So, save yourself the hassle of searching through hundreds of PPE options and look to new innovations in hand protection. It's never been easier to find comfortable, adaptable and durable PPE.

For once, you really can have it all. ***WMHS***

Jamie Bonnema is a safety writer at Magid — the proud U.S. manufacturer, innovator and distributor of head-to-toe PPE since 1946. For more information about Magid's safety products and expertise, visit magidglove.com or call 800-203-0417.



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Choosing the Right Safety Gloves

By: **Rick Pedley,** *Contributor*

A worker's hands are an invaluable tool, so it's crucial to protect them from potential hazards on the job. Safety gloves aim to do just that, but each pair is equipped with different features that protect workers' hands from a range of worksite dangers.

Workers should consider various factors when choosing safety gloves, including temperature, puncture resistance, chemical exposure, dexterity and maintenance requirements. They can be exposed to extreme temperatures, sharp objects that can penetrate the skin, and hazardous chemicals that cause severe burns. Professionals should use safety gloves to protect their hands on the job, but they must choose the right pair for the task.

Professionals should use safety gloves to protect their hands on the job, but they must choose the right pair for the task. *Image courtesy of PK Safety.*

There are hundreds, if not thousands, of different types of gloves on the market, and they are all designed for a particular purpose. Workers may want to use gloves that offer the maximum amount to protect their hands from multiple hazards simultaneously, while others may want to use gloves that only protect against one danger.

Here are some of the most important factors to consider when choosing safety gloves to best fit your needs:

CHEMICALS

Different types of chemicals, including liquids, vapors, gasses and powders can cause severe damage to the skin and underlying tissue. Even a splash of fluid can lead to permanent injury or scarring. Workers should use chemical safety gloves when handling these substances.

TEMPERATURE

A person's hands aren't meant to endure extreme temperatures. Hot surfaces and open flames can burn the skin, and the frigid cold can cause their joints and muscles to freeze up. If workers are working in extreme temperatures or coming into contact with hot or cold materials, they should wear insulated or flame-resistant gloves to stay comfortable and safe.

CUTS, PUNCTURES AND ABRASIONS

Sharp objects, fine points and certain chemicals can break open the glove or wear down the outer layer, reducing its

protective properties. It's also worth considering whether your hands will need protection against abrasions caused from rough surfaces or punctures caused from jagged edges or needles. If workers are exposed to these surfaces or hazards, they should wear puncture-resistant gloves that won't rip or tear apart under stress.

DEXTERITY

All gloves must fit properly for the greatest protection and control. Workers should also consider how much dexterity they will need on the job. Thinner gloves come with more flexibility but may have less protection. Thicker gloves may offer more protection but may make it harder to do one's job properly, which can be deemed unsafe. Also, consider gripping wet, dry and oily surfaces. It's about finding the right balance between protection and dexterity.

STORAGE AND MAINTENANCE

Workers must also decide whether they will use disposable or reusable gloves. Disposable gloves are only designed to be worn once before they are discarded. They must be disposed of properly if exposed to toxic chemicals and the wearer must wash their hands after removing them. For reusable gloves, follow manufacturing guidelines for maintenance and care. These must be inspected before each use for signs of damage or degradation, and replaced when necessary.

Choosing appropriate safety gloves is more complicated than some people realize. Workers should ensure they are using the proper safety equipment based on the hazards in place. ***WMHS***

All gloves must fit properly for the greatest protection and control. *Image courtesy of PK Safety.*

Rick Pedley, PK Safety's President and CEO, joined the family business in 1979. PK Safety, a supplier of occupational safety and personal protective equipment and manufacturer of its own new FR line GRIT, has been operating since 1947 and takes OSHA, ANSI, PPE and CSA work safety equipment seriously (www.pksafety.com/contact-us).


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TBIs can cause symptoms ranging from headaches and dizziness to seizures and depression. © Richman Photo - stock.adobe.com

New Research on Head Protection Research Takes Aim at TBIs

By: **Maureen Paraventi**

Traumatic brain injuries (TBIs) among professional athletes such as football players have drawn an increasing amount of scrutiny in recent years, deservedly so. A TBI can occur in an instant and have long-range, even dire consequences. Sometimes symptoms appear right away, at other times, they emerge days or weeks after a bump, blow, jolt to the head or object penetration. Effects can be both physical and psychological, short- and long-term. Symptoms of a mild TBI may include headaches, nausea or vomiting; fatigue; speech problems; loss of balance; blurred vision; sensitivity to light and sound; memory or cognitive problems; mood changes; depression or anxiety or difficulty sleeping. A severe TBI can cause a loss of consciousness; convulsions or seizures; numbness in fingers and toes; profound confusion; agitation; slurred speech and coma.

Work-related TBIs (WR TBIs) haven't made the headlines the same way sport-related ones have, but they are nonetheless a serious issue, particularly in the construction

industry, where TBIs claimed the lives of some 2,210 workers from 2003 to 2010[1]. A nonfatal WR TBI can be life-changing for the employee who is unable to return to work in a timely manner – or ever - and costly for the employer who must foot the bill for long-term rehabilitation and disability.

Several recent and ongoing research projects by the National Institute for Occupational Safety and Health (NIOSH) are aimed at decreasing the number of WR TBIs through evaluations of the performance and design of personal protective equipment.

CHIN STRAPS AND SUSPENSION SYSTEM TIGHTNESS

In one, *Evaluation of the Fall Protection of Type I Industrial Helmets*[2], researchers John Z. Wu, Christopher S. Pan, Clayton Cobb, Andrew Moorehead, Tsui-Ying Kau and Bryan M. Wimer analyzed the fall protection performance of Type I industrial helmets, which are designed to reduce the force resulting from a blow to the top of the head. An instrumented manikin was used in head impact tests to determine how the use of a chin strap and the suspension system tightness affected protection performance. A total of 192 impact tests were done using two basic and two advanced helmet models. The variables that resulted in a dozen combinations of conditions were: with or without chin straps; three levels of suspension system tightness and two impact surfaces. The findings: All four helmet models demonstrated "excellent performance for fall protection compared to the barehead control group." Predictably, the fall protection performance of the advanced helmet models was "substantially better" than that of the basic helmet models. The use of chin straps and differences in suspension system tightness did not product statistically significant effects.

SHOCK ABSORPTION IMPROVEMENTS

Air bubbles are not just for packing material anymore. If you are in the construction industry, your head – or the heads of workers you supervise - may soon be safer due to those air-bubble cushions that ensure that those fragile items you order online arrive to you intact. This material's shock-absorbing ability is attracting considerable interest, especially after 2021 NIOSH research found that adding liner made of it to a Type I construction helmet substantially increased shock absorption from large and repeated impacts. The personal protection industry took notice; newer construction helmet designs are in the works that have an additional foam layer between the belt-type suspension and the shell.

Because falls account for a significant number of WR TBIs in construction, one NIOSH study focused specifically on fall risks and head protection. Manikins wearing different types of construction helmets were hoisted to a height of five feet and then dropped onto two different surfaces. While all of the helmets performed well, the fall protection performance of the newer helmets was "substantially better than the basic helmets," according to a NIOSH summary.

And finally, in collaboration with helmet manufacturers and ANSI representatives from the Z89.1 Standard for Industrial Head Protection Committee[3], NIOSH is embarking upon a new research project to evaluate improvements in helmet shock absorption performance with new, custom, air-bubble cushion liners.

YOUR INPUT IS BEING SOUGHT

If construction helmets are or should be used at your workplace, NIOSH would like your responses to the following questions:

- Is your workplace using Type I or Type II helmets?
- What do you see as the advantages and drawbacks or limitations to Type I or II helmets?
- Do your helmets have chin straps? Are the chin straps being worn? If so, during which applications?
- Have you used any of the 'newer' helmets? If so, have you experienced advantages, drawbacks, or limitations?
- For companies using 'newer' helmets, what factors were considered in deciding to purchase them?

Go to https://blogs.cdc.gov/niosh-science-blog/2022/11/10/construction-helmets/ to provide input or learn more about NIOSH research into head protection. ***WMHS***

1 https://www.sciencedirect.com/science/article/pii/S0749379711002005

2 https://link.springer.com/article/10.1007/s10439-022-02922-3

3 https://blog.ansi.org/2016/06/ansiisea-z891-industrial-head-protection/

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