



Introduction to Body Armor

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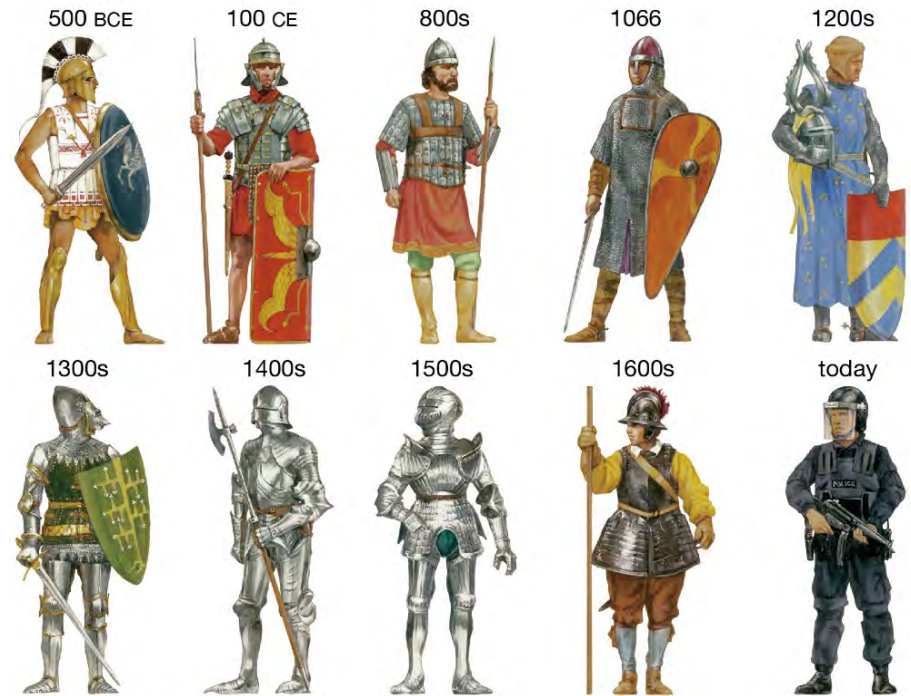
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Armor - Origins & History

- **Armor** - protective clothing with the ability to deflect or absorb the impact of projectiles or other weapons that may be used against its wearer.

- Until modern times, armor worn by combatants in warfare was laboriously fashioned and frequently elaborately wrought, reflecting the personal importance placed by the vulnerable soldier on its protection and also frequently the social importance of its wearer within the group.
- Modern technology has brought about the development of lighter protective materials that are fashioned into a variety of apparel suited to the hazards of modern warfare.
- With the rise of terrorism and the use of powerful personal weapons by criminals, armor is now frequently worn by police, by private nonmilitary security forces, and even by noncombatants who might be targets of attack."

Armour worn in Europe



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Dispelling Body Armor Myths

- If you get shot in the armor you will get hurt. Really hurt: broken ribs, internal bleeding, bruising, passing out, even a heart attack are all possible, even if a round is successfully defeated by the armor. You aren't likely getting back up and into the fight right away.
- Only some armor can withstand multiple hits, and all armor will fail at some point if repeatedly shot, especially in the same location.
- Not all armor is created equal. There is a huge variety of price ranges, features, materials and quality out there.
- Armor is designed to defeat specific rounds and calibers, it is not meant to stop everything.
- Steel plates alone are not effective. The bullets will shatter, sending fragments everywhere, likely into you as well.

Types of Body Armor

- **Soft Armor** is made of multiple layers of ballistic fibers, from woven or laminated aramid materials such as Kevlar or Twaron, or from Ultra High Molecular Weight Polyethylene (UHMWP) like Dyneema & Spectra. It is probably the type of armor you think of when you hear the term bulletproof vest. Some models can be concealed under a shirt or jacket, put into a backpack, or worn in a carrier.
- **Hard Armor** consists of hard plates. They require a carrier to hold them. This is what you might consider military style armor. There are three kinds of materials Hard Armor is typically made from:
 - Ultra-High Molecular Weight Polyethylene
 - Ceramic
 - Steel

Some armor is a blend of these materials. There are benefits a downsides to each.



Soft Armor



Hard Armor Plates

Soft Body Armor vs. Hard Body Armor

Soft Armor Pros:

- Can be concealed under clothing
- Provides greater coverage area
- Protection from street threats like knives, clubs
- Easier for day-in day-out wear, flexible

Soft Armor Cons:

- Generally not rifle round defeating, with exceptions being expensive
- Hard to store properly
- Will wear out with use

There's a reason LEOs generally wear soft armor, it protects them from the random threats they come up against when dealing with arresting criminals. They typically aren't getting into rifle fights.

Hard Armor Pros:

- Handles projectile threats better
- Can be less expensive
- Easier to store, can last longer than soft
- More popular for civilian use

Hard Armor Cons:

- Requires a carrier
- Smaller protection area
- Bulky, not easily concealable

Military personnel wear hard armor because they are expecting to be shot at by rifles. They need to carry a lot of gear and ammo so they need the extra carry space the carriers provide.

NIJ – Understanding Body Armor Ratings

Understanding armor levels is crucial for choosing appropriate protective gear. As defined by the National Institute of Justice (NIJ), there are five distinct body armor ballistic levels: Level IIA, Level II, Level IIIA, Level III, and Level IV. Each level signifies the armor's capability to resist specific types of rounds at particular velocities:

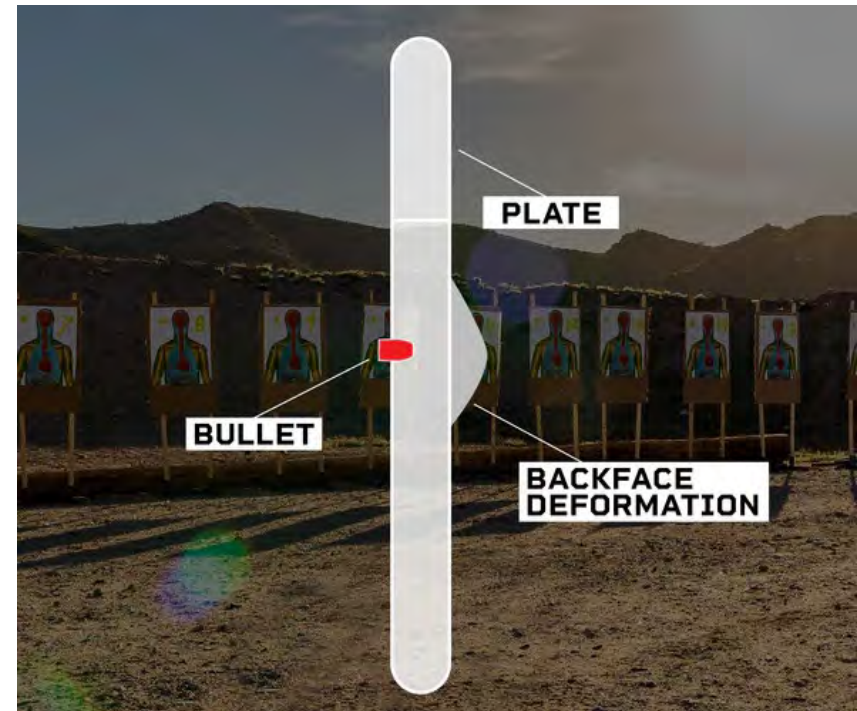
- **Level IIA:** This level offers protection against lower velocity 9mm and .40 S&W ammunition.
- **Level II:** Provides increased protection, including higher velocity .357 Magnum and 9mm ammunition.
- **Level IIIA:** Offers even greater protection, suitable for high-velocity 9mm and .44 Magnum ammunition.
- **Level III:** Resists rifle rounds, specifically 7.62mm FMJ lead core rifle ammunition.
- **Level IV:** The highest NIJ body armor level, designed to withstand armor-piercing rifle rounds.

In essence, each increase in armor level offers enhanced ballistic protection, but it's crucial to consider factors like comfort and mobility when selecting the appropriate level for your specific needs.

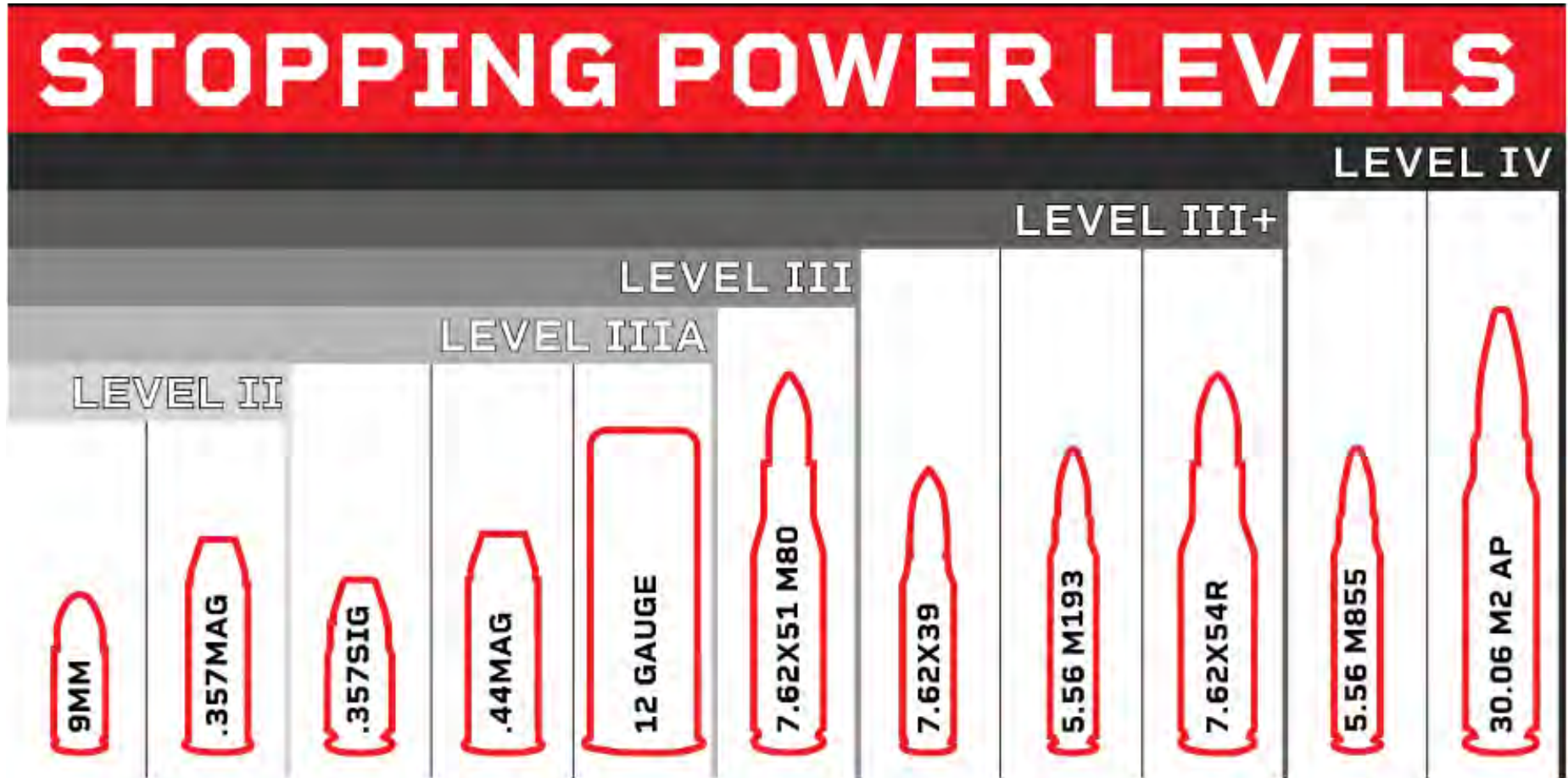
The National Institute of Justice (NIJ) is the research and standardization department for the U.S. Department of Justice. They scientifically research crime, assess community needs, and evaluate safety products (body armor in this case), with the end goal of reducing crime and fortifying the justice system.

NIJ Protection Levels Continued

- The industry is currently governed by the 6th revision of the body armor standard 0101.06. You will often hear it referred to as the “.06 Standard”. The NIJ protection levels refer to the type of ammunition body armor can resist against for different body armor levels.
- In the .06 Standard, there are five protection levels (IIA, II, IIIA, III, IV). The “A” in levels IIA and IIIA means that the body armor is more effective than the level below it, but doesn’t meet the standards of the next level. Think of it as a half (for example: level IIIA = 2.5). Each of the levels are tested with a specific round, at a particular distance (5 meters for level IIA, II, & IIIA and 15 meters for level III and IV), at a specific velocity.
- The bullet obviously cannot pass through the armor to pass the test, but it also can not exceed a specified amount of back force deformation (how far the back of the armor is pushed out).
- Sometimes you will see a + after IIIA or III. The + is not an official designation given by the NIJ and can mean different things from different manufactures.




NIJ Protection Levels Graphical Chart



Body Armor has a “Shelf Life”

- In reality, soft body armor is typically composed of multiple layers of tightly woven fibers like kevlar or dyneema, which are strategically designed to absorb and distribute the energy of an incoming projectile. When a bullet strikes the armor, these fibers catch it, slow it down, and spread the force over a larger surface area. This dispersion of energy minimizes the impact on the wearer’s body, reducing the risk of injury
- Over time, like any other garment, these fibers gradually relax and separate ever so slightly. As a result, the vest will become less and less effective after the end of its certified service life.
- Likewise for the plate carriers used with hard armor plates. They can deteriorate over time and with regular use. Note that if hard armor plates are struck by a bullet, the plate can shatter or have its surface deformed. Many types of armor plates, it should be noted, are capable of sustaining one hit, but not multiples.
- Everything from abrasion, physical stress, and UV exposure can weaken the fibers in soft armor or degrade the materials in hard armor, ultimately reducing their protective capabilities.
- Bear in mind, too, that extended exposure to moisture and high humidity can also weaken the fibers in soft armor and lead to corrosion in hard armor plates. Such deterioration compromises the structural integrity of the armor.
- In the same way, extreme temperatures—whether hot or cold—can also negatively affect the materials used in body armor. More specifically, heat can cause delamination or weaken the fibers, while extreme cold can make the materials brittle.

Body Armor Labeling Examples



Sword & Shield Strategic
PO BOX 586
New Tazwell, TN 37824
(w55)MR-ARMOR (672-7667)
www.swordandshieldstrategic.com

PERSONAL BODY ARMOR

Issued To: _____

Size: 11x14 Model: GS3A06_IIIA

MFG Date: October 2021 Date of Issue: _____

Lot: S05332 Serial Number: PTF000232

Manufacturers Declared Warranty Period: 5 YEARS


For warranty information, please contact (423) 377-1186

Threat Level (NIJ Standard 0101.06) _____

WARNING!

This garment is rated **ONLY** for the **BALLISTIC** threat level stated above. It is **NOT** intended to protect against rifle fire, sharp edged or pointed instruments.

**** WEAR FACE ****
THIS SIDE TO BE WORN AGAINST BODY.



Care Instructions for ballistic panel:
DO NOT WASH OR DRY CLEAN.
Wipe with a damp cloth.

MADE IN THE UNITED STATES OF AMERICA

RMA Armament, Inc.
22800 Dewey Rd.
Centerville, IA 52544

Model: 1155



Size: 10x12
Threat Level (NIJ 0101.06): IV
Serial Number: 20210290272
Lot Number: 235835
Location of Manufacture: Centerville, Iowa USA
Date of Manufacture: 01/29/21
Date of Issue: _____

Manufacturer's Declared Warranty Period: 10 Years
For Warranty Information: info@rmadefense.com

WARNING!

This garment is rated **ONLY** for the ballistic threat level stated above.

**** Wear Face ****

Proudly made in **the USA**

This side to be worn against body
Care Instructions for Ballistic Panel:
1. Do Not Wash or Dry Clean
2. Wipe with a Damp Cloth



Questions?

BONUS SLIDE – Body Armor Levels Chart via Armored Republic

ARMORED REPUBLIC BODY ARMOR LEVELS CHART

	Level II	.22 LR / 380 / 9mm* .40 / .45 ACP / .357 MAG*	S2	AR500 ARMOR® HERITAGE PLATE	P2	A1, A2 & A3	C2
	Level IIIA	.357 SIG* / .44 MAG*					
	Level III	7.62x39 / 7.62x51* / 5.56 M855 7.62x39 / 7.62x51* / 5.56 M193					
	Level III+	7.62x39 / 7.62x51 / 5.56 M193 5.56 M855 (penetrator) .223 WIN / .308 WIN					
	Level IV	30.06 AP*					

*NIJ 06 Certification Calibers