PART 2

Title 55

Chapter 13

§1311.1.b

Ammunition Knowledge & Fundamentals of Pistol Shooting

Ammunition Knowledge & Fundamentals of Pistol Shooting

Ammunition


25 auto
32 auto
32 S&W
32 S&W long
380 auto
9mm
38 super auto
38 S&W
38 special
357 magnum
40 S&W
44 special
44 Remington magnum
45 GAP
45 auto
45 long Colt
454 Casull
500 S&W

Caliber

- **Caliber is the diameter of a projectile or the distance between the lands in the bore of a firearm.**

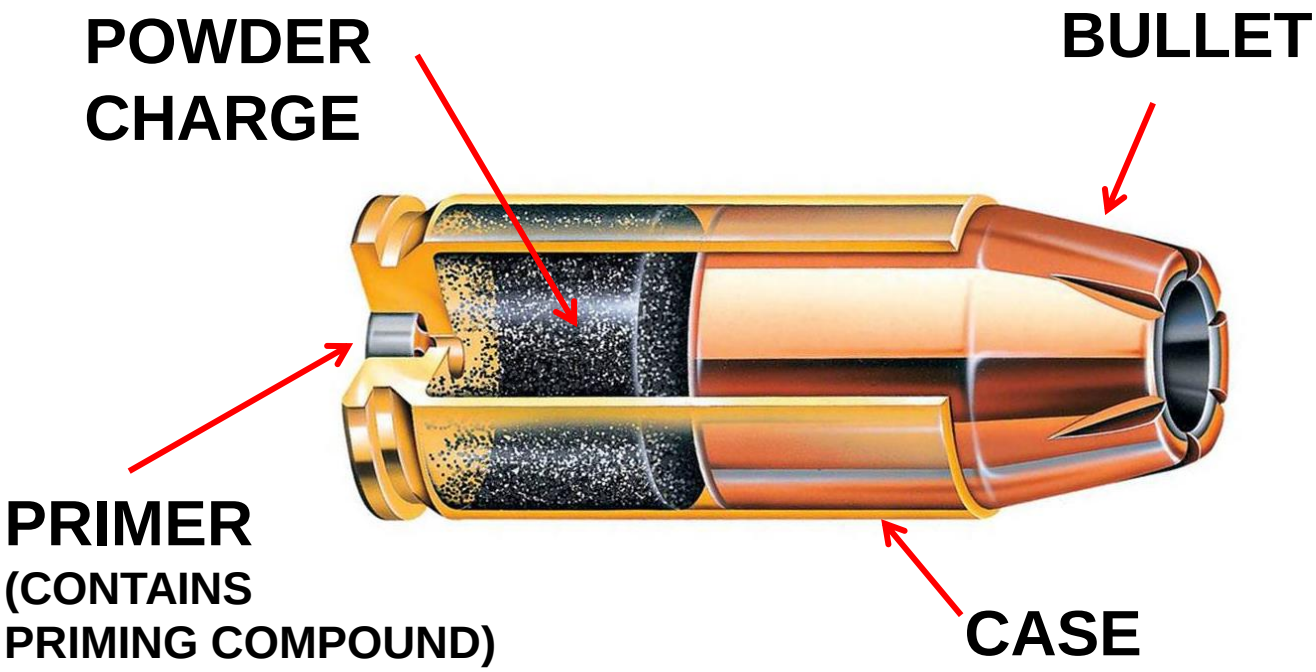
Ammunition

- **Ammo Cartridges Vary in Caliber**

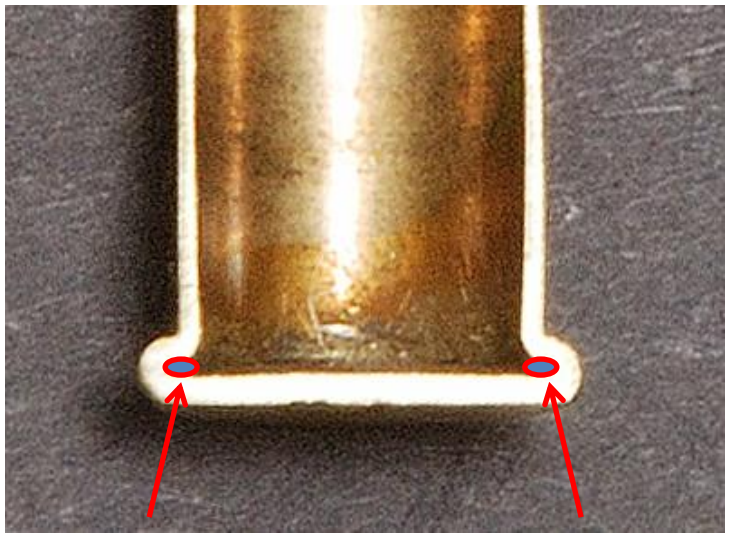
Ammunition

- **Ammo Cartridges of the Same Caliber Vary in Types**

CARTRIDGE COMPONENTS

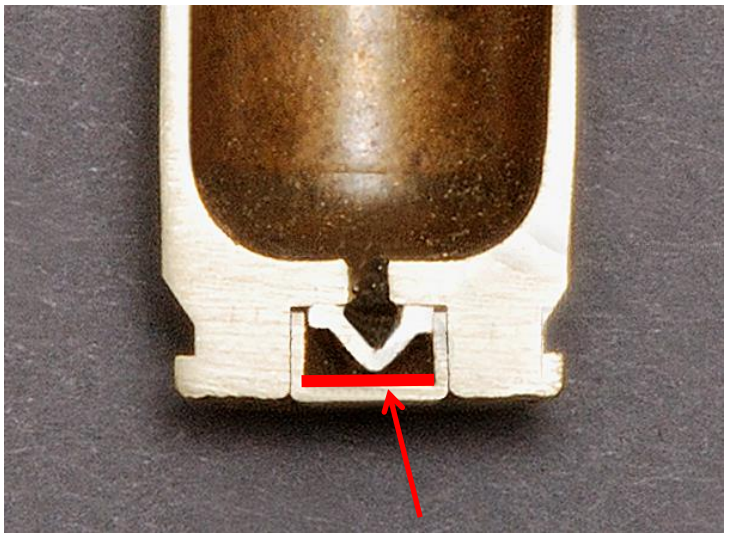


RIMFIRE AND CENTER-FIRE CARTRIDGES



RIMFIRE CARTRIDGE

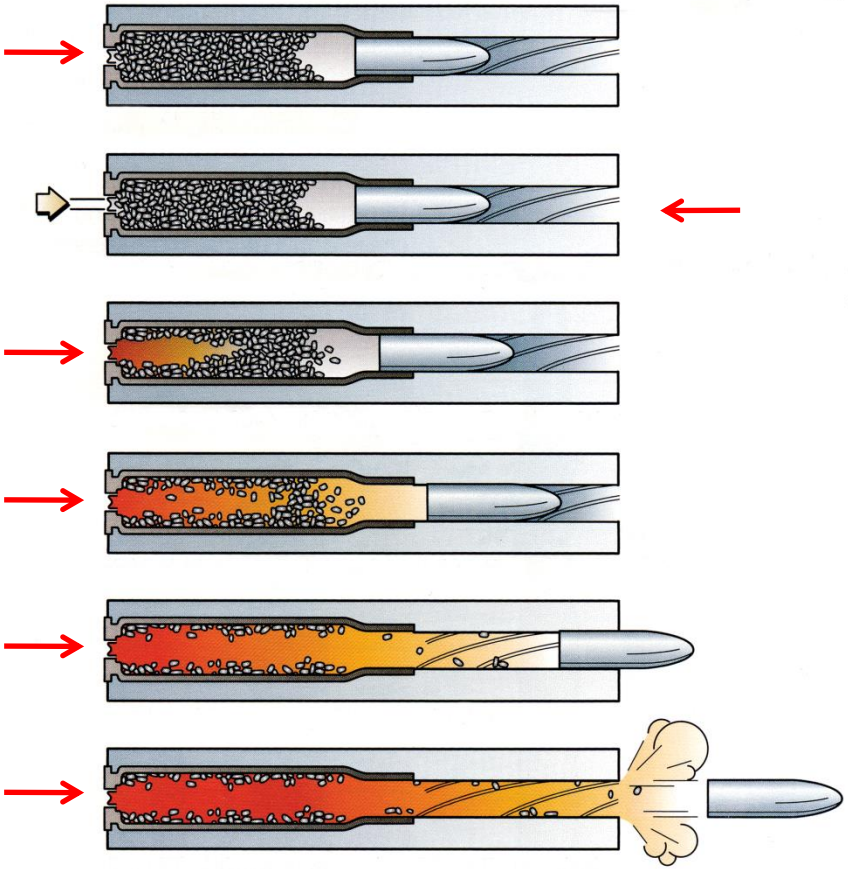
PRIMING COMPOUND IS CONTAINED IN THE INSIDE OF THE RIM OF THE CASE HEAD



CENTERFIRE CARTRIDGE

PRIMING COMPOUND IS CONTAINED IN A METAL CUP, CALLED A PRIMER, IN THE CENTER OF THE CASE HEAD

CARTRIDGE FIRING SEQUENCE



CARTRIDGE FIRING SEQUENCE

CARTRIDGE IN CHAMBER

FIRING PIN STRIKES PRIMER OR CASE RIM AND IGNITES THE PRIMING COMPOUND

FLAME GENERATED BY PRIMING COMPOUND IGNITES POWDER CHARGE

POWDER BURNS RAPIDLY, GENERATING A VOLUME OF HOT, HIGH-PRESSURE GAS

GAS PUSHES BULLET THROUGH BORE AT HIGH SPEED

BULLET EXITS MUZZLE, HOT GAS MAKES "BANG"

CARTRIDGE DESIGNATION AND IDENTIFICATION

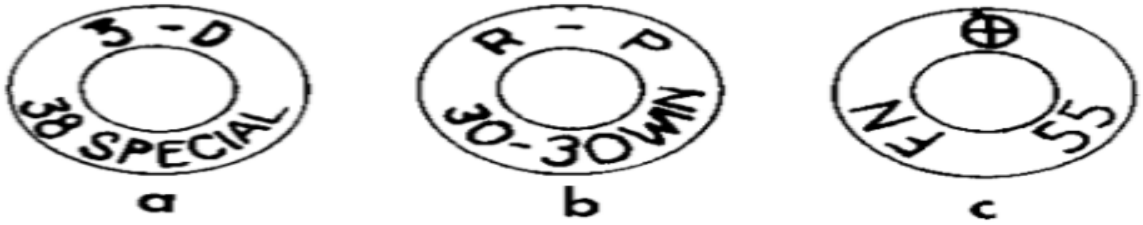
PROPER CARTRIDGE IDENTIFICATION IS NECESSARY TO ENSURE THE CORRECT AMMUNITION IS LOADED INTO THE PISTOL.

THE CARTRIDGE DESIGNATION IS:

- **MARKED ON THE PISTOL**
- **STAMPED ON THE HEAD OF THE CARTRIDGE CASE (HEADSTAMP)**
- **PRINTED ON THE FACTORY AMMUNITION BOX**

SOME CARTRIDGES HAVE MORE THAN ONE DESIGNATION, SUCH AS 9 MM PARA/9 MM LUGER/ 9X19 MM, AND 45 AUTO/45 ACP.

Head Stamps



Virtually all cartridge cases have head stamps on their bases.

The head stamp is a series of letters, numbers, symbols, and/or trade names.

They are either imprinted or embossed on a cartridge case head for identification purposes.

Civilian cartridges are usually marked with the initials or code of the manufacturer, as well as the caliber.

HEADSTAMP .38 Special Plus-P

+P AND +P+ CARTRIDGES

SOME AMMUNITION HAS A "+P" OR "+P+" DESIGNATION, INDICATING IT IS LOADED TO HIGHER-THAN-STANDARD PRESSURE LEVELS FOR BETTER BALLISTIC PERFORMANCE. THIS HIGHER-PRESSURE AMMUNITION MUST BE USED ONLY IN THOSE GUNS CERTIFIED FOR IT, AS SHOWN ON THE BARREL, SLIDE OR FRAME.

+P AND +P+ CARTRIDGES HAVE THE SAME DIMENSIONS AS STANDARD CARTRIDGES, AND CAN BE CHAMBERED IN GUNS NOT CERTIFIED FOR HIGHER-PRESSURE AMMUNITION. ALWAYS USE THE PROPER AMMUNITION IN YOUR PISTOL.

AMMUNITION STORAGE

- **AMMUNITION SHOULD BE STORED IN A COOL, DRY PLACE**
- **ALWAYS KEEP THE AMMUNITION IN THE ORIGINAL FACTORY BOX OR CARTON**
- **STORE AMMUNITION IN A LOCATION WHERE CHILDREN OR OTHER UNAUTHORIZED PERSONS CANNOT ACCESS IT**
- **DO NOT EXPOSE AMMUNITION TO WATER, SOLVENTS, PETROLEUM PRODUCTS OR OTHER MATERIALS THAT CAN CAUSE CARTRIDGE DETERIORATION AND MALFUNCTIONS**
- **WIPE FINGERPRINTS OFF CARTRIDGES TO AVOID CORROSION DUE TO SALTY RESIDUE**

Gunshot Wounds

&

Wound Ballistics

An Introduction

USE AMMO THAT WILL STOP THE THREAT

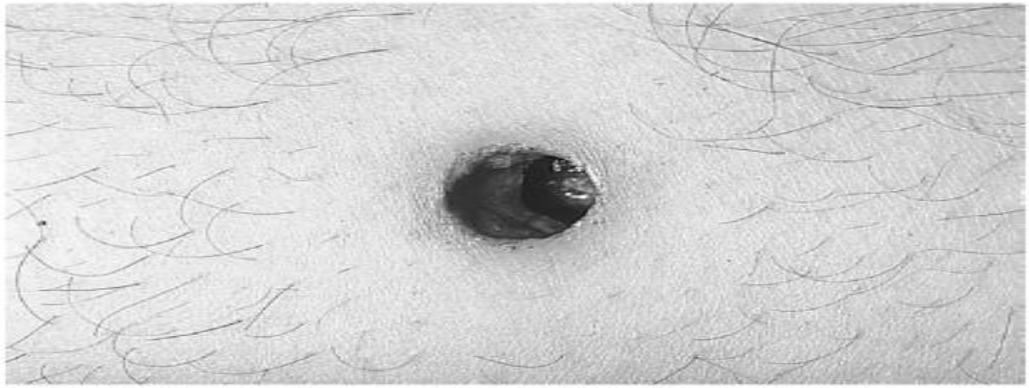
Gunshot Wounds: An Introduction

- When a projectile strikes an object, such as a body, there are some different things that can happen to the projectile:
  - If a bullet passes through a body or intermediary target, or ricochets off a hard surface, fragments of tissue or target material may adhere to, or be imbedded in, the bullet.
  - If the bullet is a hollow point, a relatively large section of this material may be deposited into the bullet (hollow point) cavity.

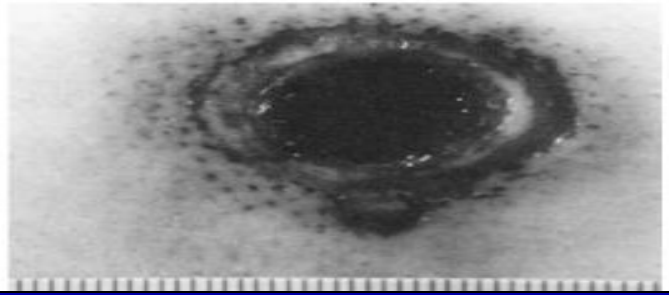
Gunshot Wounds

- Some of the things that can happen to a human body when struck by a projectile from a gun

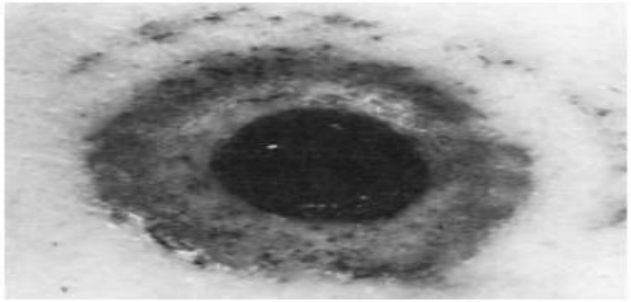
9-mm to left cheek



Entrance wound to the back showing absence of abrasion ring. The bullet was a .357 Magnum.

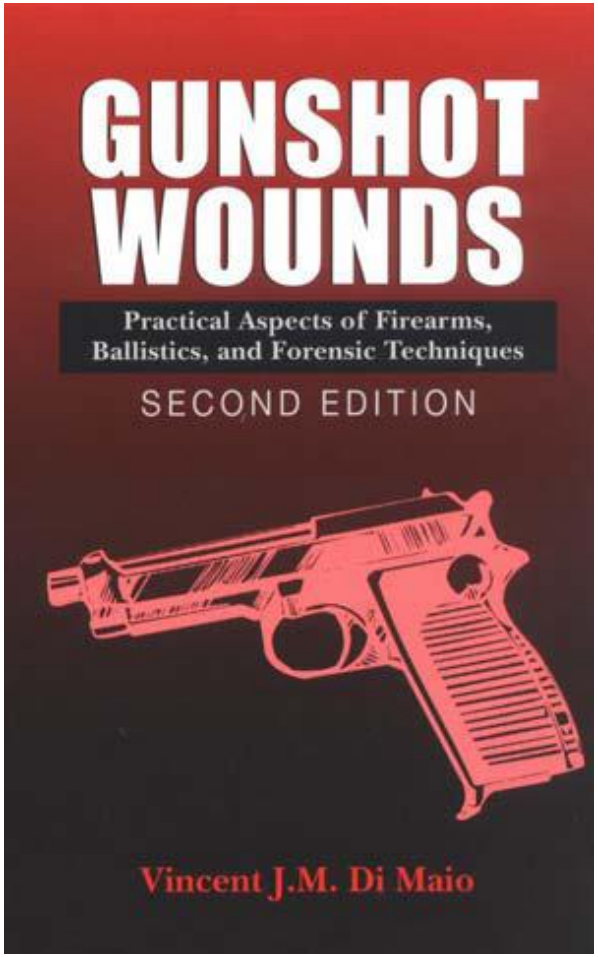


“Hard” Contact Wounds Showing Muzzle Imprint



Ammunition Stopping Power

“Stopping Power” and Hollow-Point Pistol Ammunition: Myths and Facts



Stopping Power

- **“Stopping an individual depends not only on the CARTRIDGE CHARACTERISTIC, but on other factors, as well:**
  - *1—ORGANS INJURED*
  - *2—SEVERITY OF THE WOUND (S)*
  - *3—THE PERSON SHOT*

Stopping Power

- ***Whether using a hollow point or a solid lead bullet which is likely to stop a threat (also likely to inflict a mortal injury), the bullet must strike a vital organ (or an artery).***
  - *Although hollow points, in comparison to traditional solid lead bullets, theoretically have a greater ability to inflict a "threat stopping" injury by virtue of greater physiologic injury to an organ, such differences ARE ONLY THEORETICAL!!!*

Stopping Power

- **An individual shot through the heart with a solid, round nose bullet is just as likely to become completely incapacitated as an individual shot through the heart with a hollow point bullet.**

Stopping Power

- **In the case of a gunshot wound to the lung, theoretically the hollow point would be more likely to cause death.**
  - *In reality, the speed at which a wounded individual is transported to the hospital is a greater determining factor as to whether the individual will live or die than the type of ammunition used.*

Stopping Power

- **More important than the theoretical concept of greater "stopping power," hollow point ammunition does posses two virtues.**
  - 1—hollow points tend to stay in the body.
    - *Less likely that this bullet will exit and injure an innocent bystander.*
  - 2—hollow point bullets tend to break up, rather than ricochet (if they strike hard objects)
    - *Again, this trait can work to prevent injury to innocent bystanders.*
      - *Know your target—and what is beyond!*

Stopping Power

- **Is there a situation in which a hollow point handgun bullet will invariably stop an individual “dead in his tracks?”**

Stopping Power

- **YES . . .**
  - IF THE BULLET INJURES A VITAL AREA OF THE:
    - *BRAIN*
    - *BRAIN STEM or*
    - *CERVICAL SPINAL CORD*

Stopping Power

- **HOWEVER—<u>Any</u> <u>bullet</u>, <u>regardless of caliber</u> injuring these organs will cause instant incapacitation.**
  - *This is about the NATURE OF THE STRUCTURE INJURED—NOT THE NATURE OF THE BULLET—that causes the incapacitation.*

Stopping Power

- *Aside from areas in the central nervous system, while a bullet may produce rapid incapacitation, there is no guarantee that it will produce INSTANT INCAPICATATION.*
  - ***This is because in these other areas, incapacitation is produced indirectly by depriving the brain of blood and oxygen***
  - ***Since the brain can function for 10 to 15 seconds without oxygen, even if all blood is cut off by the wound, the individual can function for this time period***

Stopping Power

- *If the injury does not shut off the flow of blood to the brain completely, an individual will be capable of normal activity until they lose approximately 25% of their total blood volume.*

Stopping Power

- The time necessary for this to happen can vary from a few seconds (plus the 10 to 15 second oxygen reserve of the brain), to minutes, to hours depending on the:
  - *Structures injured*
  - *Compensatory mechanisms of the body, and*
  - *Attempts to stop the bleeding by the victim*

Stopping Power

- AN INDIVIDUAL CAN BE MORTALLY WOUNDED, AND YET STILL BE CAPABLE OF AGGRESSIVE ACTIONS AND A THREAT
  - ***Sometimes for a prolonged amount of time!!!***
  - ***The real world is not like television and the movies!!!!!!***

Stopping Power

- **There are numerous cases where an individual has received a mortal wound and continued to function.**
  - There are also numerous cases where an individual has collapsed immediately after receiving a non-lethal—even minor, wound.
    - ***In these cases, the rapid incapacitation is due to psychological and physiological reactions to the trauma, specific to the victim—and not the nature of the wounds.***

Stopping Power

Taken from:

Gunshot Wounds: Practical Aspects of Firearms, Ballistics and Forensic Techniques, 2nd Ed.
Vincent J.M. Di Maio

Fundamentals of Shooting

- **Successful pistol shooting is based on the fundamental principles of marksmanship.**
  - These fundamentals are
    - Aiming
    - Breath control
    - Hold control
    - Trigger control and
    - Follow through

Fundamentals of Shooting

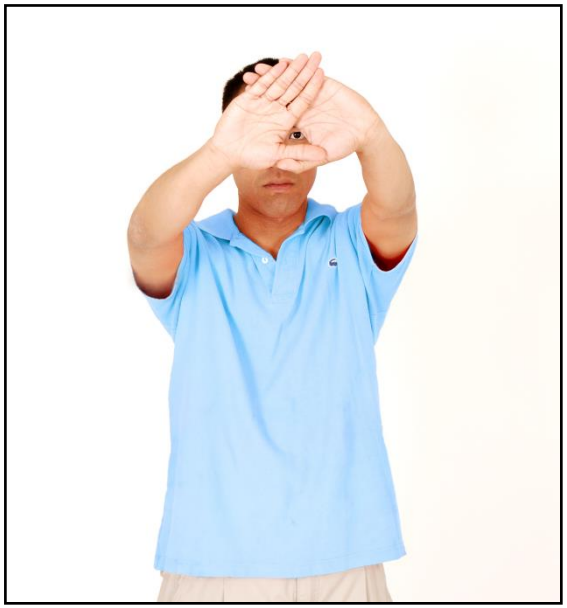
- **PRIOR TO MASTERING THESE THOUGH, THE PISTOL SHOOTER MUST MASTER TWO OTHER CRITICAL ASPECTS OF TECHNIQUE:**
  - Hand and Eye Dominance AND
  - Grip

Hand and Eye Dominance

Establishing Eye Dominance

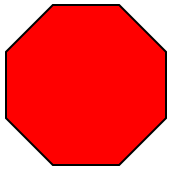
- Shooting any firearm involves coordination between the eyes and hands.
  - For the majority of people, the best shooting is accomplished by firing the gun with the dominant hand while aiming with the dominant eye.
- Most people have a dominant hand
  - Making them definitely right or left handed.
    - Relatively few people are truly ambidextrous (able to use either hand well)
- The dominant hand is, most often, the “strong hand.”
- Just as one hand tends to be dominant over the other, the brain also has a preference for one eye other the other
  - EYE DOMINANCE . . .

DOMINANT EYE EXERCISE



- **EXTEND ARMS FORWARD AND FORM OPENING BETWEEN THE HANDS**
- **LOOK AT DISTANT OBJECT THROUGH OPENING**
- **BRING HANDS TO FACE WHILE LOOKING AT OBJECT—OPENING WILL BE ALIGNED WITH THE DOMINANT EYE**

Establishing Eye Dominance



1. **FROM 10-12 FEET AWAY . . . Focus on the red octagon with both eyes open.**
2. **Extend the hands forward with the hands brought together to form a hole between the thumbs.**
3. **Look at the object through this hole.**
4. **Bring the hands close to the face, still observing the object.**
5. **When the hands are just a few inches from the face, the hole between the hands will be directly in front of the dominant eye.**

Grip

- Two handed grip—or one handed grip . . .
  - Today, we will train with two handed grip . . .
  - We will not be using one handed grip during this class. . .
- Two handed grip provides:
  - More control over the firearm
  - Steadier aiming
  - Better recoil absorption AND
  - Stronger gun retention

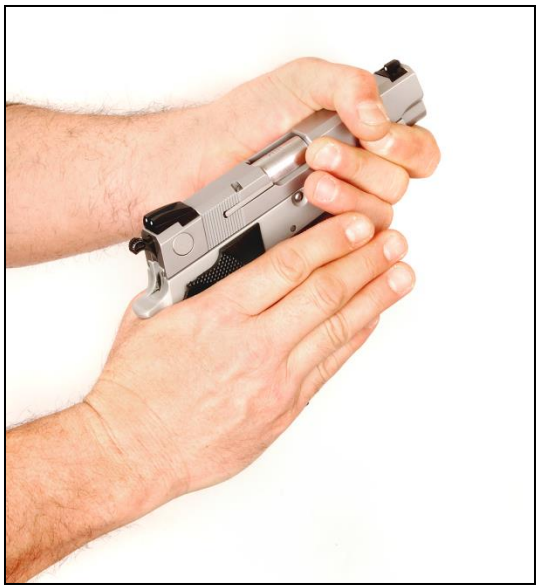

CORRECT

WRONG ! ! ! ! ! !

WRONG
The strong hand is too low

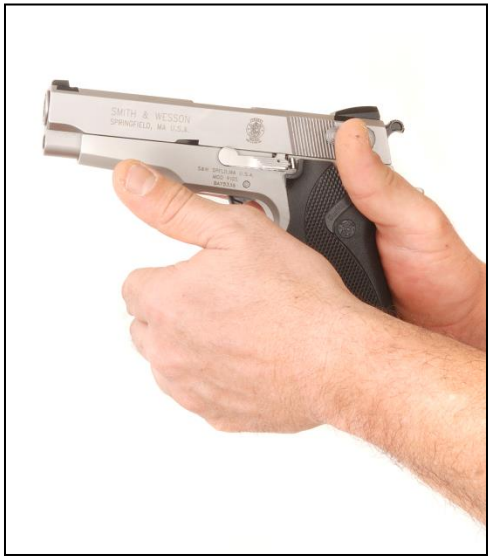
WRONG
The weak hand is holdiing the gun at the bottom

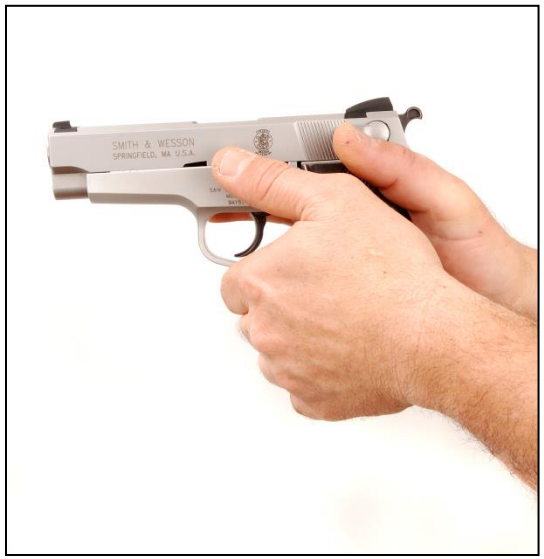
ASSUMING A TWO-HANDED GRIP



- **NON-SHOOTING HAND SAFELY PUTS PISTOL IN SHOOTING HAND**
- **"V" BETWEEN THUMB AND FOREFINGER OF SHOOTING HAND IS PLACED HIGH ON PISTOL BACK STRAP**
- **PISTOL IS GRIPPED WITH BASE OF THUMB AND LOWER THREE FINGERS. GRIP PRESSURE IS STRAIGHT TO THE REAR, TRIGGER FINGER IS ALONG FRAME**

ASSUMING A TWO-HANDED GRIP (CONT'D)





- **BRING SUPPORT HAND TO SHOOTING HAND**
- **WRAP SUPPORT-HAND FINGERS AROUND SHOOTING-HAND FINGERS**
- **BRING HEEL OF SUPPORT HAND FIRMLY AGAINST HEEL OF SHOOTING HAND**

THUMB POSITION
THE TWO-HANDED GRIP

REVOLVER:
NON-SHOOTING-HAND THUMB LIES ATOP SHOOTING HAND THUMB

SEMI-AUTOMATIC:
NON-SHOOTING HAND THUMB IS UNDER SHOOTING HAND THUMB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FUNDAMENTALS OF PISTOL SHOOTING

- **AIMING**
- **HOLD CONTROL**
- **BREATH CONTROL**
- **TRIGGER CONTROL**
- **FOLLOW-THROUGH**

THESE FIVE FUNDAMENTALS SHOULD BE PERFORMED WITH *EVERY* SHOT.

AIMING

- **The process of aligning a firearm with a target so that a bullet fired from the firearm will strike the target where desired.**

AIMING

AIMING **IS THE PROCESS OF ACHIEVING THE PROPER RELATIONSHIP BETWEEN THE TARGET, THE FRONT SIGHT AND THE REAR SIGHT.**

AIMING CONSISTS OF TWO COMPONENTS:

- **SIGHT ALIGNMENT**
- **SIGHT PICTURE**

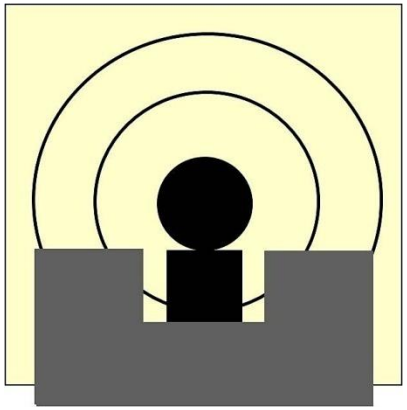
SIGHT ALIGNMENT

***SIGHT ALIGNMENT* REFERS TO THE PROPER RELATIONSHIP OF THE PISTOL'S FRONT AND REAR SIGHTS.**

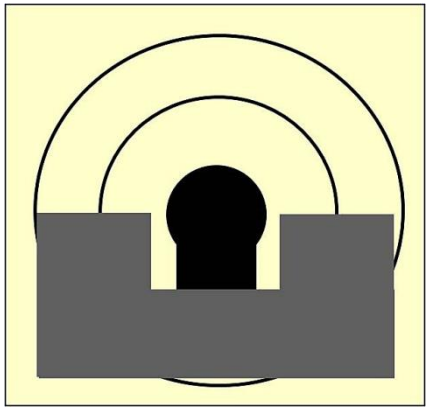
WITH POST-AND-NOTCH SIGHTS:
- **THE TOPS OF THE FRONT AND REAR SIGHTS ARE EVEN**
- **THE FRONT POST IS CENTERED IN THE REAR NOTCH**

SIGHT PICTURE

PROPER *SIGHT PICTURE* IS OBTAINED WHEN THE ALIGNED SIGHTS ARE PUT INTO THEIR PROPER RELATIONSHIP WITH THE TARGET.



SIX O'CLOCK HOLD

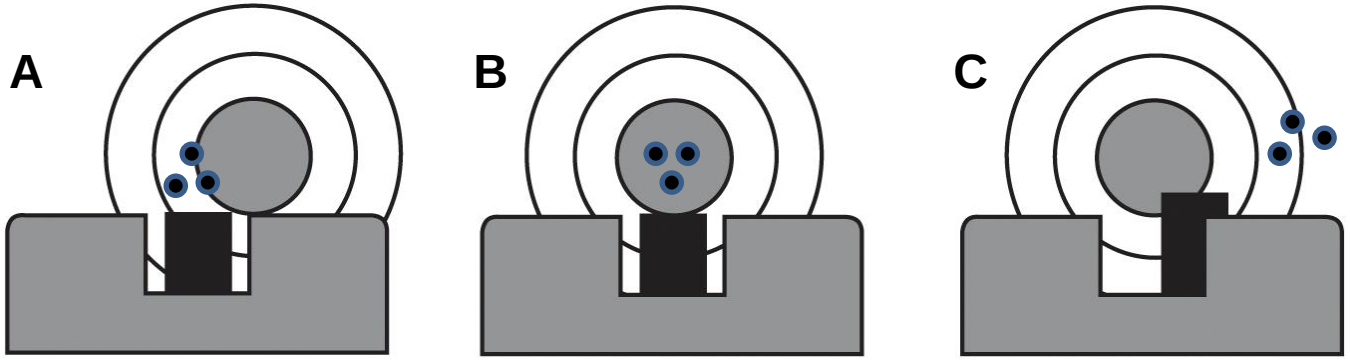


CENTER HOLD

Sight Alignment

- **Sight alignment refers to the proper positioning of:**
  - The shooting eye
  - The rear sight and
  - The front sight
    - In relation to each other . . .

ERRORS IN SIGHT ALIGNMENT AND SIGHT PICTURE



SIGHT ALIGNMENT IS MORE CRITICAL THAN SIGHT PICTURE.

A SIGHT PICTURE ERROR (A) YIELDS A SLIGHTLY OFF-CENTER GROUP.

A SIGHT ALIGNMENT ERROR (C), PRODUCES A MUCH LARGER DEVIATION OF THE GROUP FROM THE TARGET.

PROPER SIGHT ALIGNMENT AND SIGHT PICTURE IS PICTURED IN (B).

FRONT SIGHT FOCUS

WHEN SHOOTING A PISTOL WITH IRON SIGHTS, VISUAL FOCUS SHOULD BE ON THE *FRONT* SIGHT. THIS WILL LEAVE THE TARGET AND REAR SIGHT SLIGHTLY FUZZY, AS SHOWN AT LEFT, BUT CLEAR ENOUGH TO ESTABLISH PROPER SIGHT ALIGNMENT AND SIGHT PICTURE.

Fundamentals of Pistol Shooting & Shooting Positions

Sight Picture

- **Sight picture refers to:**
  - The relationship between the gun's properly aligned sights and the target.
    - For defensive shooting purposes, the pistol's aligned sights are placed on the center of exposed mass of the target area exposed (sights placed in middle of exposed target area).

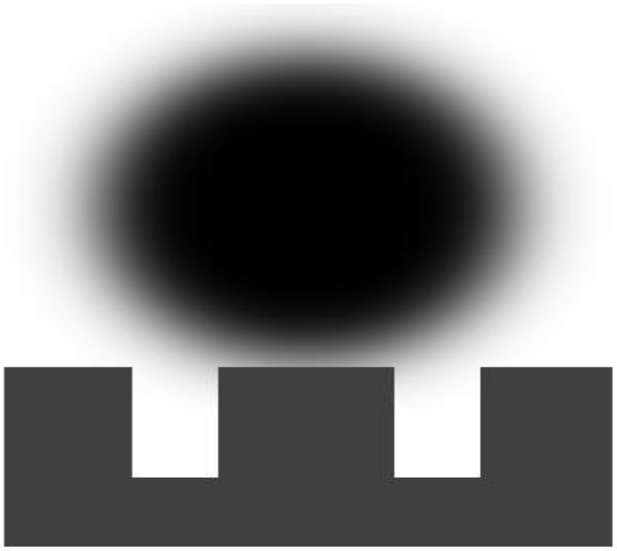
Clear Front Sight - Correct

Clear Target – Not Correct

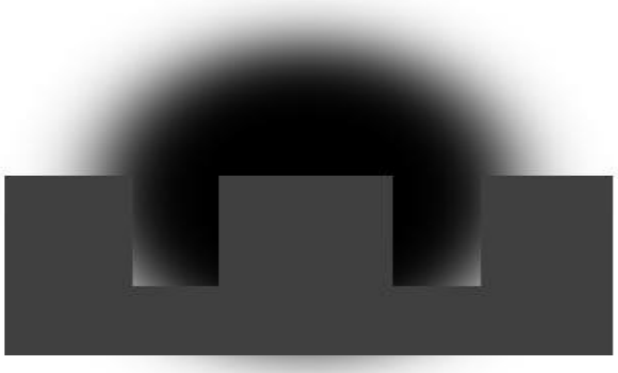
Clear Rear Sight – Not Correct

6 o’Clock Versus Center Hold

Six O’clock Hold



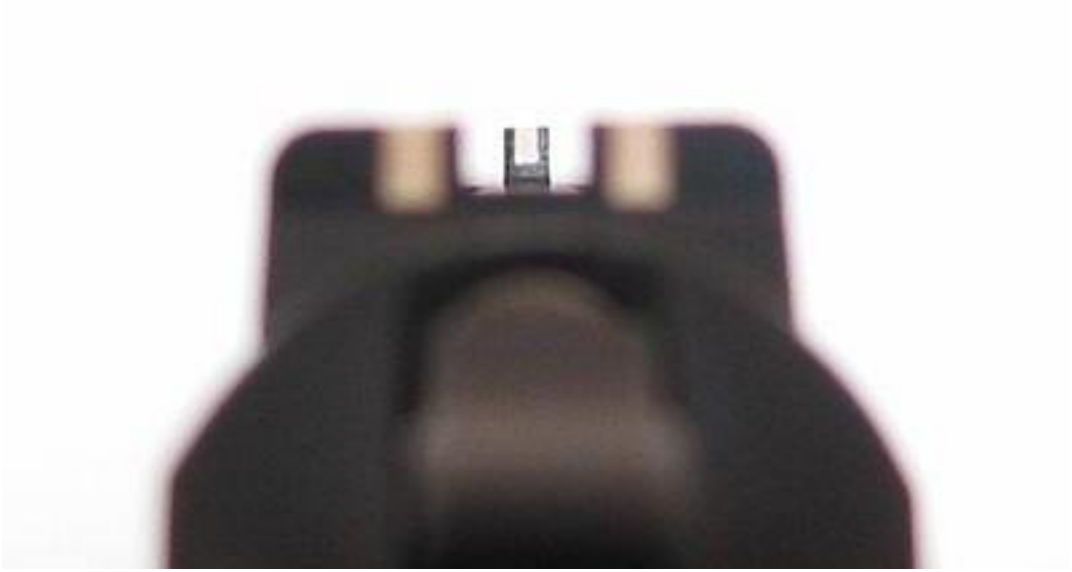
Center Hold



This shows the difference in sight pictures between a six o’clock hold and a center hold. You can see with a blurry target, your eye cannot find the exact bottom of the target, but your eye has the ability to find the center of any object.

Center Mass Group, LLC **http://centermassgroup.com**

Fundamentals of Pistol Shooting & Shooting Positions



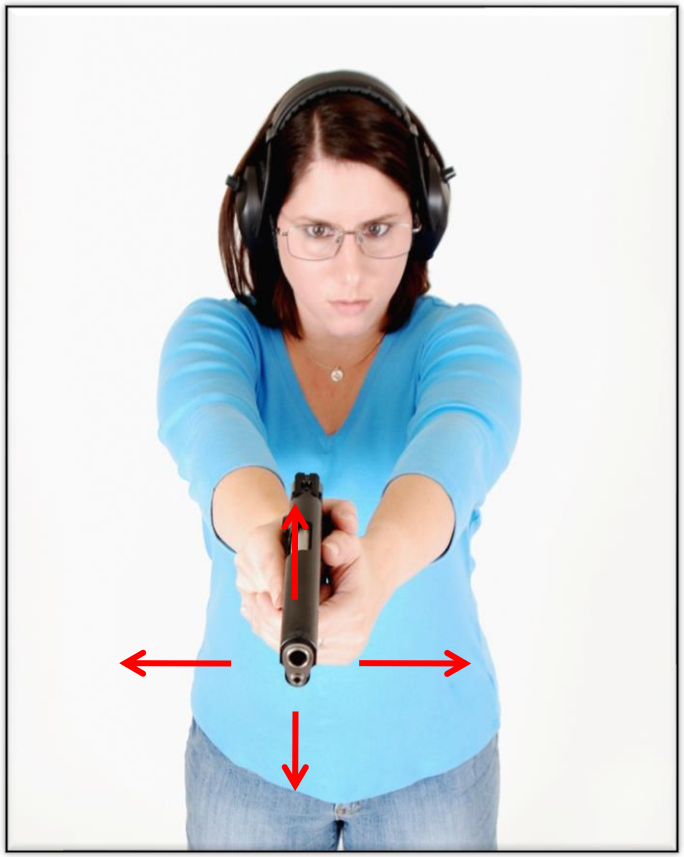
FOCUS ON THE FRONT SIGHT

HOLD CONTROL

***HOLD CONTROL* ALLOWS THE SHOOTER TO MAINTAIN PROPER SIGHT ALIGNMENT AND SIGHT PICTURE WHILE FIRING THE SHOT.**

- **A PROPER GRIP IS CRITICAL TO HOLD CONTROL**
- **ONE GOAL OF HOLD CONTROL IS TO MINIMIZE THE ARC OF MOVEMENT**

ARC OF MOVEMENT



ARC OF MOVEMENT **REFERS TO THE UNAVOIDABLE MOTION OF A PISTOL HELD IN A SHOOTING POSITION.**

PRACTICE DECREASES THE ARC OF MOVEMENT.

Breath Control

- **Breath control method is used to minimize gun movement due to breathing.**
  - With each breath the ribcage expands and your shoulders rise slightly.
    - This movement is transmitted to your arms
      - This causes your pistol to shift position in relation to the target.

BREATH CONTROL

***BREATH CONTROL* MINIMIZES THE BODY MOVEMENT PRODUCED BY BREATHING, WHICH CAN IMPAIR GOOD SHOOTING.**

- **TAKE A BREATH BEFORE EACH SHOT, LET OUT ENOUGH AIR TO BE COMFORTABLE, AND THEN SIMPLY STOP BREATHING WHILE FIRING THE SHOT**
- **AVOID HOLDING THE BREATH TOO LONG—THIS CAN CAUSE TREMORS**

Breath Control

- **In pistol activities involving a deliberate and unhurried pace of shooting, breath control is achieved by:**
  - Taking a few normal breaths
  - Expelling about half the air out of the lungs; then
  - Holding the breath for the few seconds required to fire the shot.
    - Typically, maximum steadiness is achieved within about 3 to 8 seconds after breathing has stopped;
      - The shot should be fired within that time period.
        - After the shot is fired, the shooter resumes breathing and starts the process over again.

TRIGGER CONTROL

***TRIGGER CONTROL* IS THE PROPER METHOD OF ACTIVATING THE TRIGGER TO MINIMIZE MOVEMENT THAT CAN MISALIGN THE SIGHTS.**

- **TRIGGER IS BETWEEN FINGERTIP AND FIRST JOINT OF INDEX FINGER**
- **TRIGGER IS SQUEEZED STRAIGHT REARWARD IN A SMOOTH, CONTINUOUS MOVEMENT**
- **THE TRIGGER SQUEEZE SHOULD PRODUCE A "SURPRISE BREAK"**
- **TRIGGER SQUEEZE AND SIGHT ALIGNMENT ARE DONE WHILE MAINTAINING MINIMUM ARC OF MOVEMENT**

Trigger Control

- **Trigger control is one of the most important shooting fundamentals.**
  - It is pulling the trigger without causing any movement of the aligned sights.
    - It is achieved by:
      - GRADUALLY INCREASING PRESSURE TO THE TRIGGER UNTIL THE SHOT IS FIRED “PRESSING”
      - PRESSURE IS APPLIED IN A REARWARD DIRECTION
        - NOT TO THE SIDE OR UP OR DOWN
      - GOAL IS TO PRODUCE A “SURPRISE BREAK
        - WHERE THE SHOOTER CANNOT PREDICT THE EXACT MOMENT AT WHICH THE GUN WILL FIRE.

Trigger Control

- **A surprise break is desired to prevent the shooter from ANTICIPATING the shot.**
  - New shooters are not accustomed to the:
    - Recoil
    - Flash and
    - Blast
  - And are therefore prone to reacting more or less instinctively by tightening their muscles, squinting their eyes, and making movements that attempt to counteract the gun's recoil.
    - Flinching or anticipating the shot . . .
      - These have a negative effect on accuracy by disturbing sight alignment.

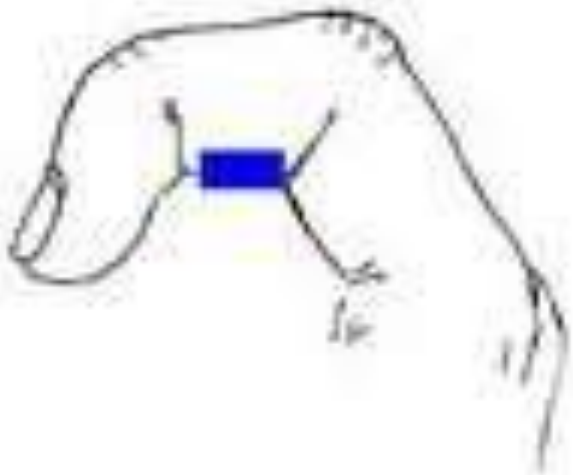
Trigger Control

- **Even in a shooting situation in which a slow gradual pull may not be possible, such as during a defensive encounter, trigger control should still be practiced.**
  - In such situations, trigger control involves speeding up the process of squeezing the trigger without jerking or flinching.
    - The smoother the trigger is pulled, the less the gun's sights will be disturbed during the firing process.

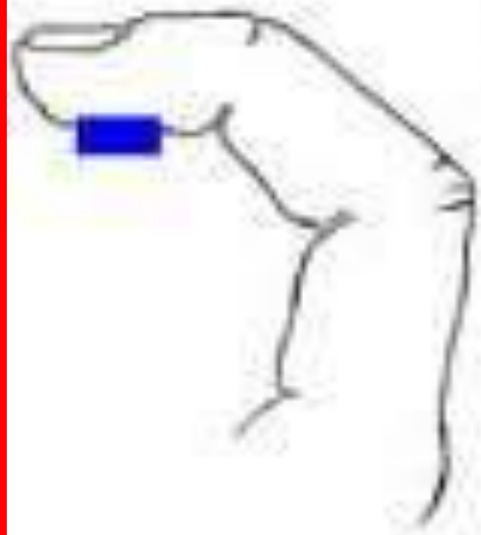
Trigger Control

- **Good trigger control also involves proper placement of the trigger finger on the trigger.**
  - A properly placed trigger finger allows the force of the pull to be directed straight to the rear, minimizing the tendency to jerk the gun to the right or left.
- Proper placement also allows the gun to be fired by moving only the trigger finger.

Trigger Control



Common incorrect contact will cause poor accuracy



Correct contact for accuracy and control

Old style, used for strong trigger pull (DA)

FOLLOW-THROUGH

FOLLOW-THROUGH **IS THE CONTINUATION OF THE APPLICATION OF THE FUNDAMENTALS OF SHOOTING THROUGH AND IMMEDIATELY AFTER THE FIRING OF THE SHOT.**

FOLLOW-THROUGH ENABLES THE SHOOTER TO INTEGRATE, MAINTAIN AND CONTINUE THE SHOOTING FUNDAMENTALS BEFORE, DURING AND AFTER THE SHOT.

Follow Through

- **The concept of follow through is common to many sports.**
  - In shooting, follow through is the effort made by the shooter to integrate, maintain and continue all shooting fundamentals before, during and immediately after firing the shot.
  - It is important to consciously maintain shooting fundamentals for a brief time after the shot has been fired because only by doing so will you absolutely be certain that those fundamentals are applied before and during he firing of the shot.
  - Follow through sets up many successive shots, whenever a shooter may be called upon to fire multiple times accurately and rapidly.

Follow Through

- **During follow through, trigger finger pressure is relaxed, allowing the trigger to reset. However, the trigger finger still maintains contact with the trigger face.**
- **The two most important fundamentals are aiming and trigger control.**

Correct

Aligned Right

Aligned Left

Canted Up

Canted Down

Questions?