

# How To Buy A Baseball Bat

Whether you play Little League baseball or for a college team, buying a bat is a personal decision. New technology has delivered bats that not only enhance performance but also are tailored to an individual player's strengths. It is essential that you select a bat that fits your unique body configuration and skill level, height, weight, and hitting strength.

## Understanding Bat Materials

The world of bats now offers a large variety of choices in materials. These can be broken into three primary categories: aluminum, graphite/titanium lined, and wood. Each provides its own unique characteristics and advantages for today's players.

### Aluminum

- Aluminum is lighter in weight, which increases control and bat speed. Balls travel farther with aluminum over other metals.
- Despite generally higher costs than other materials, aluminum is durable and not prone to crack or break
- Aluminum bats come in a variety of alloys, each with a different weight
- Generally, lighter aluminum alloys are thinner and more durable. The one thing these have in common is that they are all different combinations of Zinc, Copper, Magnesium and Aluminum. The following is a list of the different alloys and their benefits.
  - 7046: This is the standard aluminum alloy used in most bats
  - CU31/7050: More durable than 7046, due to increased levels of zirconium, magnesium, and copper
  - C405/7055: Increased Zirconium content than 7050, giving higher strength
  - C555: 7% stronger than C405, has traces of scandium, which increases strength
- Lighter weight bats also increase the "sweet spot," the hitting zone on the bat's barrel that gives the maximum place to put metal to ball
- Aluminum bats, and those enhanced with other alloys, also come in single-layer or double-layer construction
- Double-layer bats offer more durability and power, since the ball rebounds off the bat with more authority
- Cryogenically treated aluminum--Alloy is frozen and reheated to provide greater durability, less vibration and 2-4% greater distance

### Graphite/Titanium lined

- Technology has enabled bat makers to use lighter, stronger materials. Graphite and titanium are just two of these.
- Both are usually added to thinner-wall aluminum bats, enabling bats to be lighter and increasing a player's swing speed
- These materials also increase durability and the batter's sweet spot
- Graphite and titanium also help reduce vibration and the sting of ball shock, the tingling feeling sent to the hands usually when you miss hitting the ball in the bat's sweet spot

## Wood

- Wood bats offer a classic feel and sound
- Look for a grain that is long and wide, which indicates a tree's age and density
- Wood bats offer more choices in shape and taper that can be customized to a player's swing
- Wood has three big disadvantages:
  - Bats crack and break
  - Reduced sweet spots on the barrel
  - Far less hitting power than metal bats

## Determine Which Bat Fits Your Body

There are some standard rules of thumb in selecting the appropriate bat length. The charts below offer some guidelines based on age and weight and height.

### Age

- Using your age as a guide, use the chart below to determine the bat length that fits your body

Determine Your Bat Length by Age	
Age	Bat length
5-7 years old	24"-26"
8-9 years old	26"-28"
10 years old	28"-29"
11-12 years old	30"-31"
13-14 years old	31"-32"
15-16 years old	32"-33"
17+ years old	34"

### Height and weight

- These are usually better ways to determine what bat length may work best for you

Determine Your Bat Length by Weight and Height										
	Your height (inches)									
Your weight (pounds)	36-40	41-44	45-48	49-52	53-56	57-60	61-64	65-68	69-72	73+
less than 60	26"	27"	28"	29"	29"					
61-70	27"	27"	28"	29"	30"	30"				
71-80		28"	28"	29"	30"	30"	31"			
81-90		28"	29"	29"	30"	30"	31"	32"		
91-100		28"	29"	30"	30"	31"	31"	32"		
101-110		29"	29"	30"	30"	31"	31"	32"		
111-120		29"	29"	30"	30"	31"	31"	32"		

121-130		29"	29"	30"	30"	31"	32"	33"	33"	
131-140		29"	30"	30"	31"	31"	32"	33"	33"	
141-150			30"	30"	31"	31"	32"	33"	33"	
151-160			30"	31"	31"	32"	32"	33"	33"	33"
161-170				31"	31"	32"	32"	33"	33"	34"
171-180						32"	33"	33"	34"	34"
180+							33"	33"	34"	34"

## Determining the Right Bat Weight

- Most bats are also weighted in ounces
- Manufacturers have done a great job in balancing the bat's weight to its length
- Many bats have a weight-to-length ratio, often shown as -4, -6, etc.
- This basically means a 34-inch bat with a -6 ratio weighs 28 ounces
- Selecting weight really depends on two critical factors--your strength and your hitting style
- It also depends a lot on your personal preference in weight and length, so the following are simply guidelines to follow:
  - Bigger, stronger players generally prefer a heavier bat since they get the benefits of both the heft and swing power
  - Smaller players with less strength should consider a lighter bat to generate a quicker swing
  - Younger players, too, should consider that a lighter bat increases control--great for singles hitters, while also reducing the risk of injury

## Understanding Bat Technology

Bat technology may seem a little confusing but it's not rocket-science. There are three essential elements to a bat: barrel size, bat taper and grip.

### Barrel size

- This includes both the length of the barrel--top part of the bat--and its diameter
- The longer the barrel, generally, the larger the sweet spot for hitting the ball
- As for diameter, the standard is 2 1/2, inches but many players prefer a smaller barrel that lightens weight and provides more swing speed

### Taper

- This is the diameter of the bat's handle
- Standard bats are tapered 31/32 of an inch but can be slightly larger or smaller depending on whether you want a lighter or heavier bat
- You may prefer the feel of a bigger bat taper, which can also reduce the sting when a ball isn't struck on the sweet spot
- Some players like a narrower taper for the lighter weight and to rotate their wrists faster when hitting.

## Grip

- The grip is simply the covering that bat manufacturers use on the handle of aluminum bats
- Rubber grips absorb more of the shock
- Leather or synthetic leather gives a tackier feel for a surer grip
- Some bats come with a cushioned grip to decrease the shock even more

## Bat Performance Factor (BPF) and League Regulations

An effort by some of governing bodies in Baseball and Softball (NCAA, NHSF, USSSA, NSA) to regulate the performance of a bat has led to the establishment of a method of measuring how a ball jumps off of a bat compared to how a ball rebounds off of a wall at a controlled speed.

BPF (Bat Performance Factor) is simply the increase in the liveliness of a ball hitting a bat compared to throwing a ball against a solid wall (i.e., 20% faster rebound = a BPF of 1.20).

Beginning with the 2009 season, non-wood bats used in divisions of play Little League (Majors) and below must be printed with a BPF (bat performance factor) rating of 1.15 or less.

Beginning with the 1998 playing season, USSSA and NSA league play must use a bat bearing a permanent marking indicating that the bat does not exceed a 1.20 BPF rating.

The NCAA/NFHS have dictated a "3 Prong" set of rules for bats to be legal for 2000 and beyond.

- The bats can have a diameter no larger than 2 5/8"
- The bats can be no lighter than 3 ounces less than the length (i.e. 32 in/29 oz)
- The bats can have an exit speed no higher than 97 MPH off the barrel of the bat. The bats must have a "BESR" logo on the barrel of the bat, designating that the bat meets the Ball Exit Speed Requirement

In July of 2003, the ASA changed their performance test method and standard. They refer to their new test as a "high speed test." This method determines the outgoing speed of a ball after an impact at 110 miles per hour. Past tests have had impact speeds of 60 mph. The new standard calls for an outgoing ball speed of no greater than 98 mph. All bats need to pass this test to be used in ASA play from 1/1/2004 and beyond.

- Bats manufactured after passing this new test will have a new "ASA 2004" logo on the barrel.
- Those that pass the standard will be placed on the ASA's website on an ASA 2004 legal bat list.
- Bats on this ASA list will be legal for play whether they have the 2004 logo or not.
- ASA umpires will have a copy of the ASA list and will use that list to determine if a bat is legal for play or not.