



The
Video
Analyst

Choosing The Right Camera

A quick guide to choosing your next camera.





What's important when choosing a camera?

Choosing the right camera can be hard work. Just looking at the detailed specs of some camera's can turn you off. Hopefully this article will offer some insights into what to look for when buying your next camera.

Types of Cameras

High definition, standard definition, optical zoom, aspect ratio, shutter speed and frame rates all refer to the quality of video you will get. But before we get to the quality of picture I want to quickly look at the different types of cameras currently on the market.



Mini DV

These cameras require mini tapes and although not obsolete, they are becoming rare. Tapes generally only hold about 60 mins.



DVD

These cameras require mini DVD's, I think these are more for home users that sports users. Can be inflexible and storage on the DVD's is limited.

Recommended



Hard Drive Camera

These cameras have built in memory, meaning no tapes or DVD's. They are becoming the most popular format for cameras.

The Hard Drive Camera's are the most popular by far. They avoid having to remember little tapes and the transfer to laptop afterwards is much quicker than by tape.



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High Definition or Not?



There has been a lot of buzz about High Definition (HD) over the last few years, mainly because it is appearing in peoples living room through their TV. In a nutshell HD means better quality – a clearer picture. Who wouldn't want a clearer picture? Well everybody does, but it can come at a cost both financially and in terms of storage space on your computer. In order for HD to give you a better image

it has to use more data so therefore it takes up more space. So you have to make a trade; sacrifice hard drive space for image quality.

I have 2 camera's both shoot standard definition (SD), if I was buying a camera tomorrow I would get a HD camera but I wouldn't be rushing out to replace my current cameras. SD will do a more than adequate job.

Frame Rate

Frame rate refers to the number of pictures per second a camera records.

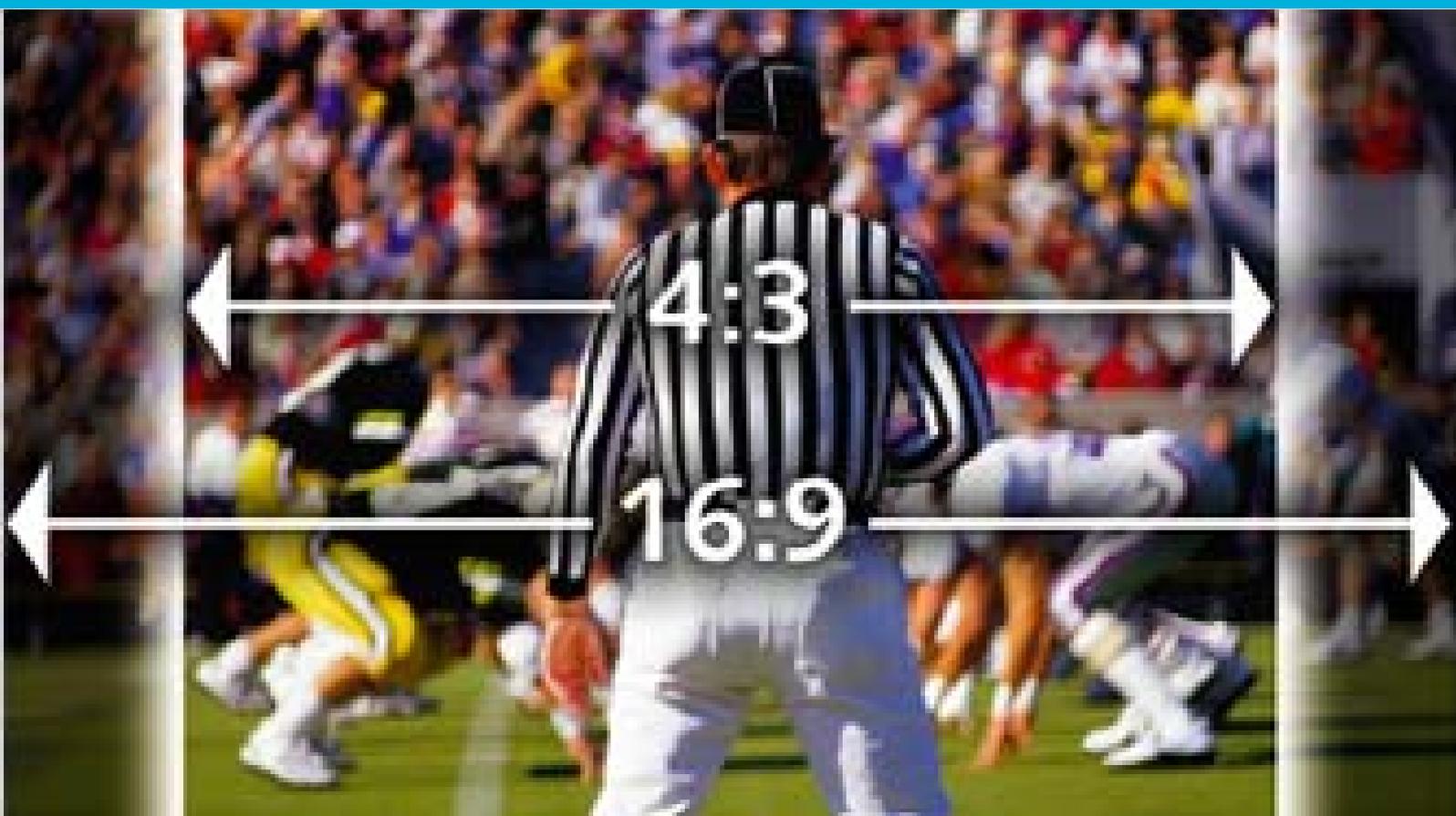
- In North & South America, Korea and Japan cameras record 29.97 frames per second(fps).
- In Europe, China and the rest of the world cameras record 25 fps.

These refer to standard cameras – however there are cameras now allowing you film at up to 1200 fps. Unless you are really looking for a high number of fps I would suggest sticking to the standard 29/25 fps applicable to where you live.

A word of caution here: Make sure that your video analysis software can play the format of your camera, and vice versa. If you bought software in one jurisdiction and are now living in another check with the manufacturer what format it can play.

Aspect Ratio

If you are shooting your video in HD the aspect ratio will be 16:9 meaning you get more of a panoramic shot than shooting in SD which will usually give you a 4:3 aspect ratio. Basically, this means the video will take up slightly more room on your computer screen in HD mode. This can be an advantage if videoing team sports as you get a slightly more panoramic view of the pitch, however when videoing technique this wider view might just be wasted footage.





Picture Size

You will often see number of pixels mentioned in the camera specs, be careful they are not referring to the still image pixels. Make sure to check for the video dimensions, the same rule applies; the Bigger the Better!

- SD will shoot either 720 x 576 (PAL) or 720 x 480 (NTSC)
- HD, for example, will look something like 1440 x 1080 or 1920 x 1080

Remember that the bigger these numbers the sharper the image you are getting, but don't forget that you are always trading quality v's hard drive space.

Shutter Speed

Most cameras, especially in the consumer range, are designed as point and shoot cameras. That means the manufacturer has designed them so that anybody can take it out of the box, press record and capture some video. Be aware that the default settings will not always (nearly never) be set to the optimum setting for sports use.

Shutter speed determines exposure time, or how long the cameras sensor is open to receive light and therefore record the frame. In sports analysis the higher the shutter speed the less blurred the image will be. However there is a trade off – a faster shutter speed will allow less light onto the cameras sensor and therefore if we use a high shutter speed we need to make sure that we have sufficient lighting



Caused by low shutter speed



Live Recording & Streaming

In some cases but not all you will need to record the footage to your camera and stream it to your laptop. This will allow you do live coding/tagging of matches or give you a much quicker feedback loop between recording and playback.

Mini DV camera's are great for doing this. They have the capability to record to tape and using Firewire (see image) to stream the footage to your laptop simultaneously.



Firewire Cable

As the camera types moved from Mini DV to Hard Drive this functionality became less prevalent. Most home users wouldn't have the need to record and stream at the same time, they were happy to video the birthday party and then look at it on the computer later.

Camera type and record/stream functionality

- If using **Mini DV** cameras these will have a firewire connection, and this cable should come with the camera.
- If using a **DVD** camera I am not sure you can record and stream simultaneously.
- If using a **Hard Drive Camera** (built in memory) it is very rare that they will have Firewire capabilities, therefore you will need some type of converter box/cable. These boxes tend to use the USB port on the camera and either USB or Firewire on the laptop.



Converter Cables/Boxes

There are numerous makes and models of these boxes but I am going to stick to 3 I have used.



Ezcap

Capture and edit analogue video sources to MPEG 1/2 format on your hard disk. Simply plug the SVideo or Red, White and Yellow cable into your camera and the USB into your computer. Easy to use & video quality is fine.



Canopus ADVC 55

This device is very similar to the Ezcap. It will capture from any analogue device or your camera. The connection to your computer is via Firewire. The image quality improves using this device compared to the Ezcap.



Canopus ADVC HD50

This device will allow you capture from any device using a HDMI cable, if you have bought a HD camera this cable should come supplied. You then connect the other end to your computer via Firewire and you will have HD video.

And Finally...

1. Buy a camera that is fit for your purpose. Don't buy bells and whistles if you don't need them.
2. Although not absolutely necessary I think everyone is moving towards HD video and it is a good idea to have a high quality video, after all your analysis depends on the quality of the video.
3. Buy a hard drive camera (built in memory). Nobody wants to be messing around with tapes etc... get a camera with plenty of storage and if possible with Firewire functionality.
4. If you are going to be analysing technique make sure there is an adjustable shutter speed. If you are videoing team sports this is not important.
5. Don't break the bank, but be willing to invest in a camera that will last.
6. Think about the extras; Long lasting battery, water-proof, cables and tripod.



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