COMPLETE GUIDE TO UNDERWATER VIDEO FOR SWIM COACHES

swimcoaching.com – updated 2026

Why do it? How does it work? How much does it cost? Is it easy to use? Is it time intensive?

If you want to introduce or expand underwater video analysis into your program you are on the right track. It is the most effective method to improve stroke technique or spot and correct stroke faults. That being said, there are many ways you can use underwater video and there are many different products out there with various features and costs. This creates confusion and coaches may hesitate … with questions like:

"How can this be used for MY particular needs and what are the advantages of different systems?
"What swimmers can I use it for, and how often, to give me be the best results?"
"I am busy enough, why add something else to my plate?"
"Is it technically complicated?"

FIRST …. WHY SPEND TIME AND MONEY ON IT ?

Underwater video is simply your best tool for teaching and fixing stroke technique, which is the single biggest area for improvement in swimmers, especially age-group swimmers. Visual feedback is exponentially more effective in teaching motor skills than its verbal counterpart. Even if you are showing video of Olympians to your swimmers, they don't know what **their** limbs are doing when they try to replicate it in the water. Giving a **visual comparison** will be a "light bulb" moment for them ….. ***"Wow. It doesn't feel like I'm doing that."***

And older swimmers, who perhaps have been "grooving in" bad habits over the years, may need detailed visuals and slow-motion playback to recognize and fix those problems. Plus, if the system is simple and portable, it can be used by coaches of all groups. Even if only the AG coaches use it, Senior coaches may not have to fix annoying stroke flaws later because they never became habit.

Sure, you can TRAIN to be stronger and faster. But a boat with a strong motor will ***still be slow*** unless the hull is streamlined and the propellor is efficient. Selecting the right system will minimize your time and maximize your results!

UNDERWATER VIEW ALLOWS YOU TO SEE, TO ANALYZE, AND CORRECT.

As the left photos show, You can NOT clearly see the critical underwater part of the stroke. The lighting, moving, splashing, and even water clarity can affect your view. You wouldn't look through binoculars with a smudgy lens, so why do all your evaluation above water? See clearer underwater (right photos) ➡ where the real action happens.

WHEN AND HOW CAN YOU USE IT?

Most coaches won't use underwater video like it is shown on YouTube . Those videos may show a nearly empty pool with only one swimmer in the lane perfectly framed and followed. You can't do this at a normal practice in a busy pool … and you may not have the pool (or coaching) time to do it on a one-on-one basis. Knowing how different systems work allows you to pick one that's right for your busy pool and valuable time.

HOW MOST UNDERWATER CAMERA SYSTEMS WORK

A waterproof camera takes video in a digital format that travels to some sort of display or a recording device through a wire or short-range wireless (Bluetooth) technology. Simply "viewing" only allows the coach to see it in real-time. Technique needs to be **recorded** it so the swimmer or coach can view it again later.

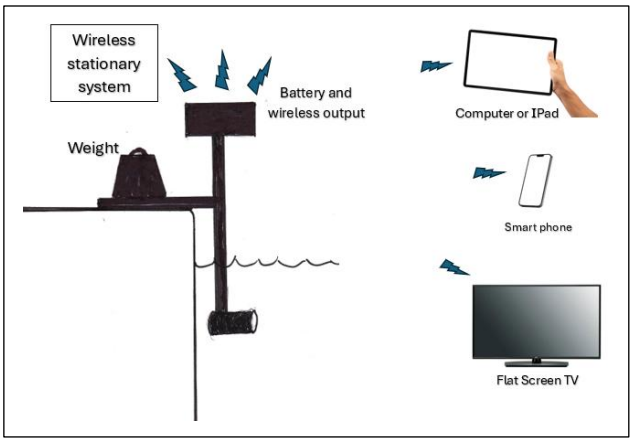
Recording the video is what makes an underwater video system a superior tool. Replaying those files for coach and swimmer using freeze-frame and slow-motion give immediate and effective results.

Underwater camera systems require a laptop, computer, phone, or tablet that can act as a DVR (Digital Video Recorder) or has a "video capture" feature. Some have this recording software already installed, such as QuickTime on a Mac laptop or tablet. Others need a video capture program installed. Simple and basic ones (which are all you need) are available free online or are included in your underwater camera purchase.

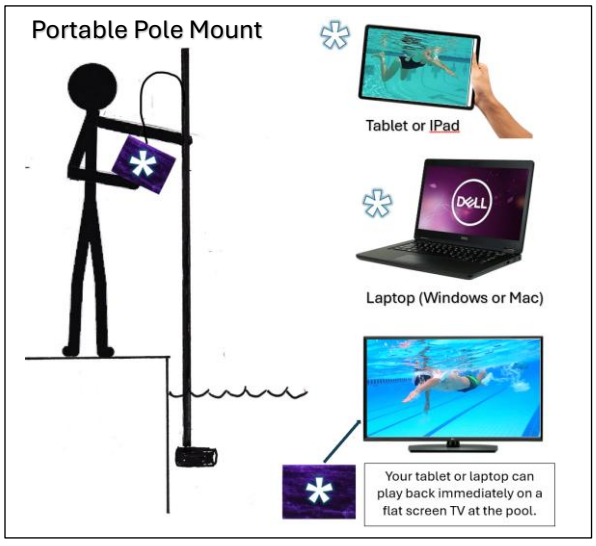
Wireless systems require additional software and "pairing" capability that will use more equipment, cost more, may require a subscription or license fee, and have a steeper learning curve. Any computer, tablet or laptop with a decent processor can use software which give it "video capture" capabilities.

There are two common systems

A **wireless camera unit** that is placed at the edge of the pool, with the camera on a post going underwater. A mount or weight keeps the unit from moving due to waves and splashing. Video is sent to another location at the pool where it can be viewed and recorded. Some allow playback on a phone (which may be too small for detailed viewing) or to a larger TV or monitor. These are stationary cameras. They can be moved from one lane to another, although not as easily as a coach-held unit with a phone, tablet or laptop for viewing. It might not track swimmers as easily as a hand-held system can.



The other setup is a portable "**camera on a pole**". A short wire between 6 and 15 feet connects the camera to the recording device and battery. This is held by a coach as they view and record from lane to lane, plopping the camera in when they see a swimmer they want to record. This is efficient in large pools with many swimmers as they don't have to rotate into the lane with a stationary camera. Tracking side shots from the side are much easier to get, keeping the swimmer in frame. This allows a longer view of the stroke and more angles. Video is recorded on a tablet or laptop held by the coach. **A pole camera can also be mounted stationary.** These are not wireless systems but it's easy to play back using freeze-frame or slo-mo for your swimmer(s) immediately on the hand-held device or connect to a TV at the pool with an HDMI or USB cable.



DEMO OF ANGLES FOR RECORDING DURING PRACTICE

The diagram and photos below show where a camera, whether stationary or "on-a-pole" portable, can be placed during a practice and not interfere with swimmers or their workout. Each different angle lets you spot critical things in a swimmer's stroke without disruption.

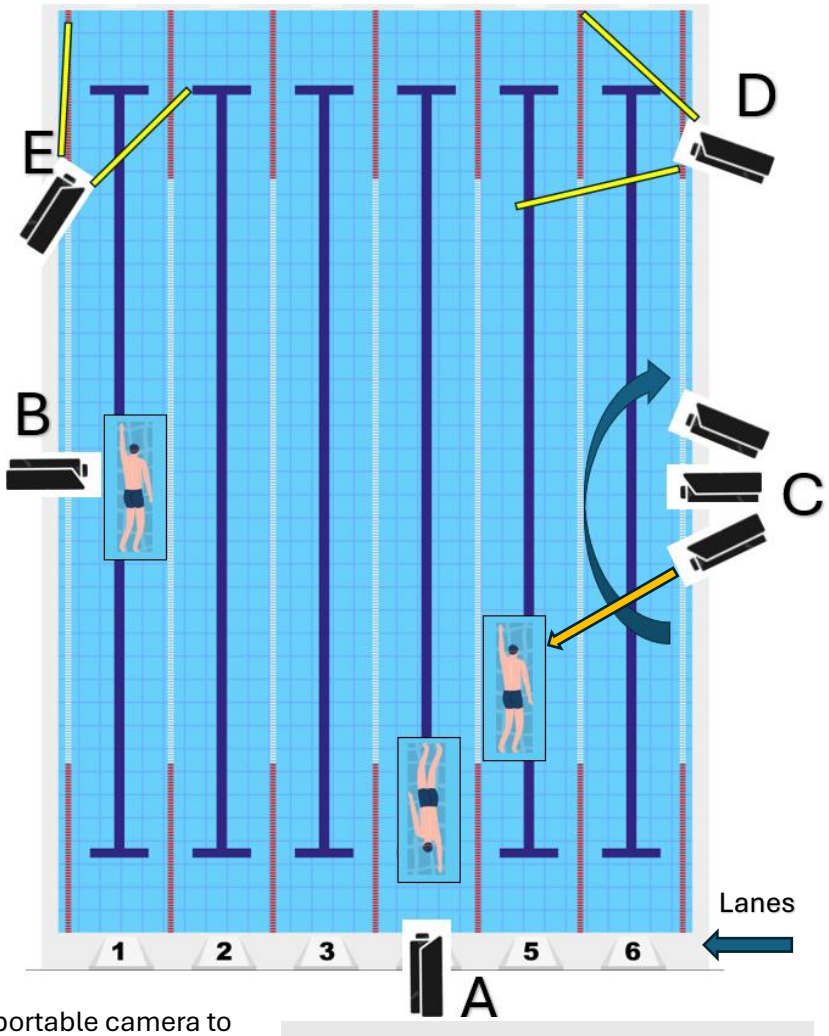
Front view (A) can show frontal streamlining (or drag), arm crossover, finger/hand/wrist position, hip wiggle, portions of the kick, breath timing, etc.

HD Video shot

Side view (B) (Stationary) shows length of stroke, elbow position, kick, potential drag from a non-horizontal body, timing, etc. The stationary position means you only get a few strokes before the swimmer moves out of frame.

Non HD video shot

Actual cameras are much smaller than diagrams shown



Side view (C) is similar to **B** but uses a coach-held portable camera to **track** a side view, following the swimmer the entire length of the pool, recording many strokes and the full rhythm during 25 yards, including what changes as the swimmer breathes. This is best done with Lane 6 clear of swimmers, unless the camera pole is placed deep enough to avoid seeing them. Coach can also follow the swimmer, walking along the deck to keep the swimmer in horizontal frame the entire way.



Angled view (D) best for recording turns and breakouts in Lane 5 with a wider field of vision. The swimmers in Lane 6 can be practicing dives from the blocks at the other end. Swimmers tread water near the middle as swimmers go one at a time. There is a sample video of this on our home page https://www.swimcoaching.com/

Angled view (E) is to record swimmers doing turns during a set in an outside lane. You may not get the full breakout due to the sharper angle but you do not have to move swimmers out of a lane. Swimmers should leave slightly more than 5 seconds apart so each swimmer is out of frame before the next swimmer enters.

Other positions are **overhead** (using a pole camera) or stationary at the **bottom of the pool** looking straight up.

RESOLUTION (SD, HD, 4K ?)

This can be a misunderstood topic. More resolution is always good …. but not if you don't need it. Swimmers viewing their strokes for correction can clearly see their errors on a laptop, tablet or 12-to-14-inch flat screen TV with a recording in SD (Standard Definition) which is 480p. Resolution of broadcast TV in the 80's and 90's (prior to HD) was **480p** and looked cinematically fine when watched on TV's that averaged 15 to 20 inches in size. Systems that utilize 1080p or higher give sharper images when viewed on a larger flat screen TV …… yet may cost more. Coaches need to see details like the swimmer's fingers, elbow, and body position, which Standard Definition can give you. But we now live in a High Dev (HD) world with 75" HD TV's that demand good resolution ….. and the viewing public is now spoiled:)

The two photos below probably best display the difference between a 480p resolution camera and a 1080p camera when the swimmer is moving their lower hand at its fastest point. The difference can be seen in the hand, cap, and the detail in her suit. ***Critical technique details***, such as head position, elbow position, hand position, kick, etc. are clearly visible with both SD and HD. However, the difference is more noticeable when you play back the video on a larger (40" or bigger) flat screen TV. In those cases, 1080p resolution is better when showing to a large group of swimmers.

An underwater video comparison of SD and HD can be seen at swimcoaching.com/underwater-video-systems

Also consider that a standard definition (SD) camera has a screen ratio of 4:3 instead of the 16:9 (widescreen) that HD gives you. See below.

It is important to note that a high-resolution camera is less useful if you don't have a high-resolution TV screen to view it on. If a large TV screen is needed, consider the time it takes to bring one out (and put it away) each practice. However, if time, money, and storage are not an issue, a hi-res camera and a large, high-res TV screen can give you that little extra if you need it.

Also, consider what the coach needs in showing swimmers the video they have taken. Most may analyze the video with <u>just one swimmer</u> as they freeze frame the stroke or show in slow motion. The screen should be large enough to point out an area with your finger. (Elbow, hand, finger, entry, etc.)

A portable tablet or laptop is plenty large enough for this and can be shown immediately to the swimmer at the end of a lane or at the side of the pool. You can analyze video with a large group on a large TV but consider the time each swimmer waits for their stroke to come up. Smaller groups may be better while the rest are in the pool training.

High Definition (1080p)

Standard Definition (480p)

FRAME RATE (Orange box is from a video production website.)

What is Frame Rate?
Frame rate represents the number of frames shown in a given time frame in video. It is typically measured in frames per second (FPS). High frame rates typically offer smoother motion due to less variation between frames. For example, a camera that records video at 24fps records 24 frames each second, while a camera recording at 120fps records 120 frames each second. These frames are then combined to create what we know today as video.

Best Video Frame Rates
Video production use many different frame rates. Some creators might believe that more frames are always better. However, this isn't always true, and there are uses for each frame rate your camera offers. Let's review some of the most common frame rates and when you'd want to use them for your video.

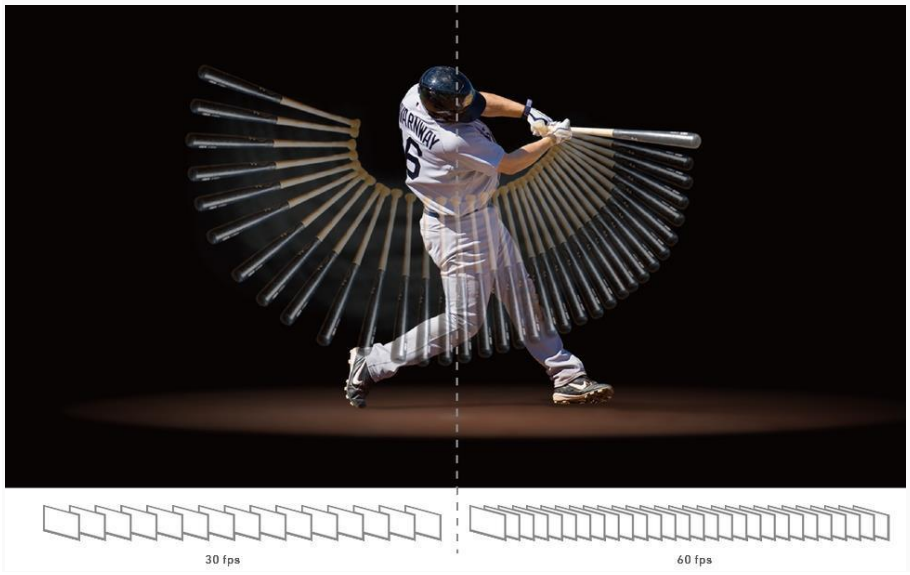
Standard Frame Rates

24fps
Typically, 24fps is the standard frame rate for cinematic movies, videos, and some TV shows. This frame rate is preferred for a cinematic look and feel.

30fps
With six more frames per second than 24fps, 30fps offers a slightly different look. Many people consider 30fps to be the most realistic-looking frame rate. This is the reason why it's the most widely used frame rate across video, TV, and social media.

Slow Motion Frame Rates

60fps
60fps is used to record very fast-moving action like baseball pitches or batter swings. When slowed down you can capture smoother motion with twice as many frames per second as 30fps. Many videographers shoot in 60fps. They then slow down their footage by 50% in post-processing, giving them 30fps footage for 2x slow motion.



Less experienced swimmers may not move their limbs at a speed where 60 frames per second (FPS) will make much difference in slow motion playback. But if your camera has 60 fps capability, and your recording device has the storage space for the larger file size, it is nice to have.

RECORDING

- The ability to easily START and STOP the video at the push of a button is critical. This allows you to avoid recording needless "dead time" that coach or swimmer must wait through during playback. Most systems have this.
- Where are the coaches positioned for this start/stop recording? Do they need to stay at a central "control point" on the pool deck viewing monitors .... or can they roam poolside looking for specific things to capture while viewing the underwater live-action video on a held-held device?
- All systems reviewed at the end of this article can be mounted stationary and be kept in the pool during an entire practice. This is great for head-on, "end of lane" mounting, but if the coach is not watching the video to start and stop the recording, they may end up with an hour or two of video to sift through. Determining who each swimmer is at a later viewing can be difficult. Easily starting and stopping is the key.
- If you are tracking (following) a swimmer or framing for a shot or angle, you need to be able to see where the camera is pointing. This is best done with the coach viewing the recording device while setting up or recording the swimmer. This gives you clear, well-framed shots that make immediate analysis much easier.
- The video recording device should allow you to immediately play back your video file in slow motion as well as allow freeze-frame to point out errors. (Great for stroke analysis and finding specific issues.)
- **"Time delay" (aka "live delay")** Some systems feature time delay, which is recording on a delayed loop allowing a swimmer to sprint a length and have enough time to climb out, walk over to the monitor and watch the full length of what they just swam. (If the monitor is close to the pool they can see it from the water, but keep it far enough so the TV doesn't get spashed.) This is excellent for swimmers to experiment with stroke changes or drills. Older swimmers can do this with or without a coach standing at the monitor giving feedback, but younger swimmers can get confused unless a coach is there to comment and simplify.

VIEWING and PLAYBACK

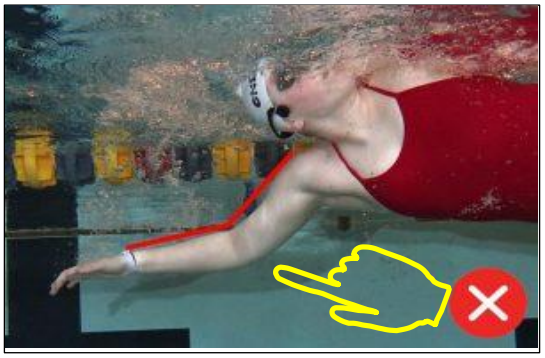
- Some systems allow immediate playback for a swimmer on the deck with a portable video unit. It is more effective when swimmers should see their video within 30 seconds so their "muscle memory" is still fresh for contrast and comparison.

- **Wireless systems vs. Hand held/Portable**:

  A wireless system has the advantage of a coach not needing to hold a pole camera in place. They send signal to a central "receiver/recording unit" elsewhere on deck. Instead of the coach holding the camera pole and watching a monitor in front of them, the coach can be at the central station where they can view or select what they want to record. Another advantage to wireless is the ability to have multiple cameras at different locations. These may use bulkier camera units that take more time to move to a different lane and may have a higher cost, especially with multiple cameras.

  Portable systems, such as a pole camera, allow the coach at the side of the pool to spot something and immediately drop the camera in to record and show the swimmer right away, or later. The pole and recording/viewing device should be lightweight, and the playback view should be large enough to display in detail.

Playback can be on a cell phone, tablet, laptop, or larger flat screen TV. The next page shows the scale of these display devices. Coaches want the display to be large enough for swimmers to see clearly what they are pointing to for correction.



PHONE:

- Easy to hold but very small screen.
- Super portable and can store video files internally.
- Allows coach to move easily around deck to coach and record.

LAPTOP or TABLET:

- Larger screen than phone but still portable and easy to carry.
- Can display to swimmers immediately on pool deck or plug in to larger screen TV for group playback.
- Allows coach to move easily around deck to coach and record.

FLAT SCREEN TV:

- Largest display.
- Stationary, not portable.
- Best with 1080p HD recordings.
- Good for showing video to larger groups.
- Can play recordings from any video system reviewed at the end of this article.

OTHER CONSIDERATIONS

- Can you easily move your system from one practice facility to another? (And Indoor / Outdoor?)
- How easy is it for busy coaches to set up and take down? Most coaches do not use underwater video recording every day, nor do they need to. It is an effective tool, but one that is to be used in conjunction with all your other coaching tools. Once a week, or once every two weeks, is more than enough. All your coaches will use it if it is easy to set up and operate.
- Are you using it for a small group of Senior swimmers or for a very large number of age group swimmers? (In general, viewing on a tablet is good for small groups and plugging it into a big TV for large.)
- Some coaches wonder about special editing software that pairs with expensive stroke analysis software. Many coaches might not use this due to the time and the cost involved. 95% of what coaches can glean from underwater video can be done with a basic **camera/record/playback** unit and simple, pre-installed playback/editing software such as QuickTime, Microsoft Clipchamp, or free software on the web. If you are a college coach or elite Senior coach, you may want this extra if your team can afford it.

BUDGET

Teams must decide what product gives them the best "bang for the buck". Will a $5000 system give you ten times more applications or benefits than a $500 system? Are you an AG team with multiple coaches that needs an easy-to-operate (and put away) system .... or a large-budget college team that wants all the bells and whistles?

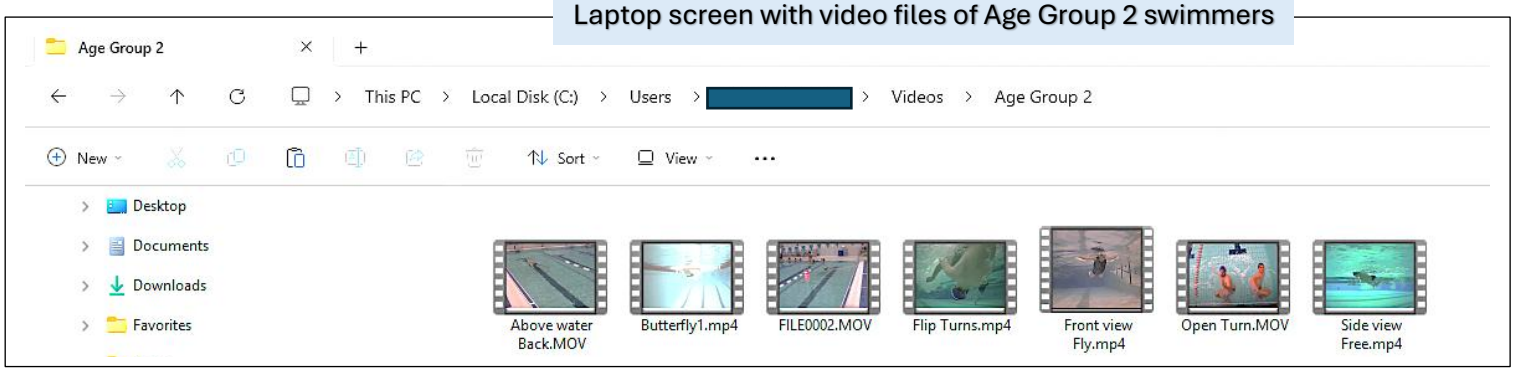
FILE FORMATS and STORING FILES FOR PLAYBACK

When you record video it is stored in a certain format by the device, depending on what system you are using. The best are .MP4 and .MOV These formats give the best video and are accepted by almost all software. Almost all devices and operating systems come preloaded with software that can play these type of videos, such as QuickTime (for Mac) or Windows Media Player.

MP4 is the best one for use across all platforms because you can play them on all digital devices and media formats. (Flat Screen TVs, both Windows and Apple devices, e-mailing, and sharing on Facebook, Instagram, YouTube, etc.)

The **.MOV** file is great for Apple devices because it was designed for use with the QuickTime software which is pre-installed with every MacOS. You can use this to record your screen. This format can be played on most devices without transferring, and files take up just a tiny bit more space than MP4.

Laptop screen with video files of Age Group 2 swimmers



STORING YOUR VIDEO FILES:

◆ Whatever file you end up with, knowing where it is stored is the next consideration. You want to be able to access the file **easily** to show swimmers, view it later, or send to another coach. As you add files, this becomes more important.

◆ Files with a higher FPS and higher resolution will be larger and take more space on your drive.

◆ Some wireless systems will automatically send your files to the Cloud, making access easier across devices. If wireless seems complicated or expensive, consider that most coaches will access video files for only two reasons ..... to play back for their own evaluation, or to play back for their swimmers on a flat screen TV or tablet/laptop at the pool. Both portable and wireless systems allow easy access to your files away from the pool.

◆ If you use a tablet or a laptop it may be easier to store the file on your hardware and play it back from there. If you need a larger display for showing to a large group, plug in an HDMI cable and play it on a large flat screen TV. If considering a wireless system, ask if it needs a strong internet/Wi-Fi connection to download files or does it use its own “Bluetooth” pairing of devices which is strong over short distances.

◆ Also consider if you want to use the video with some 3rd party stroke analysis software. These allow manipulation of video with a sketching pen and other cool features. From experience and contact with coaches who have used this over the years, its use is more common with much higher-level athletes and comes with additional cost and time commitment. Realize that most of the impactful things you will use video for can be done with slow-motion, freeze frame, and pointing to the monitor with the swimmer watching. This takes a lot less time, especially with age group swimmers. But again, it is an option your team may desire.

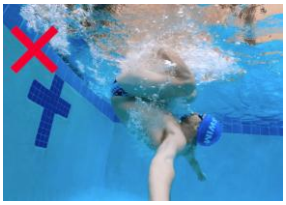
WRAP-UP

Not enough coaches, especially AG coaches, understand …

1.) **How important and effective underwater video is to spot and correct stroke flaws.**
2.) **How easy it is to use and what options and price points there are out there. It doesn't matter what system you buy if you can use it easily and frequently.**
3.) **You can use it for both teaching and correcting. View the video during a coach's meeting so each can comment on what they are seeing. One video analysis session will more than justify your purchase of an underwater video system.**
4.) **You can use it in a wide variety of situations and conditions.**


Breaststroke


Freestyle


Turns

Regardless of the system you purchase, we have come a long way from the "Coach Scope" days of the 1980's. The ad to the right was featured in Swimming World magazines in the late 80's and early 90's and was a submergible box with mirrors that acted as a periscope. You video-taped with a VHS camcorder in the upper mirror box and submerged the lower part of the box in the water. Times have certainly changed.

Following are current companies selling underwater cameras that can be used by swim coaches. (Found and reviewed through internet searches.) If your company is not listed, contact me through swimcoaching.com and I will add you to the list.

Although we sell one of these systems, I believe in the value of it for coaches and realize there are systems for every team, need, and budget. Automobile shoppers buy used cars, new cars, and some costing 200 grand, depending on their need. Hopefully you will find a system that helps your swimmers improve their strokes and speed. All systems, except the fish finders, allow playback in slow-motion and freeze frame.

AquaCam - High Dev (1080P @ 60 fps)

Website: swimcoaching.com

System type: Camera on a pole (portable)

Cost : $399 to $499 (SD or HD depending on your use)

Compared to other products, this video system emphasizes portability and ease of use at a price affordable to any team. Show high-definition video to swimmers immediately at poolside (on a 12 to 15" display) or on a large flat-screen TV elsewhere on deck or in a conference room. 1080p waterproof camera plugs into to **your own** Win tablet or Win/Mac laptop. SD "start-up" cameras also offered at a lower price.

★Immediate feedback in slow-motion and freeze-frame.

★In business since 1990. Never a leak or return.

★One year warranty.

Features:

- Video capture software for Mac or Windows OS
- No battery needed for HD unit. 3-hour rechargeable battery and charger is included with the $399 SD unit.
- Multi-angle swivel allows for well-framed recording at any angle, including overhead.
- Clips easily to any pool brush pole. Simple to store and carry.
- Can easily be used as a stationary camera.
- Optional: Laptop harness for hands free operation.

1080p HD playback can be immediate on the laptop, tablet or connected to a TV with a USB or HDMI cable.

Time-delay option INCLUDED with both systems, using the included software. No initial or recurring (monthly or yearly) fees.

Unit allows easy following of a swimmer by twisting the camera pole or walking along the deck at the same speed as the swimmer you are recording. (aka Tracking View) **{Stationary systems with a side view (shown below) only allow the coach to record a couple strokes before the swimmer moves out of frame.}**

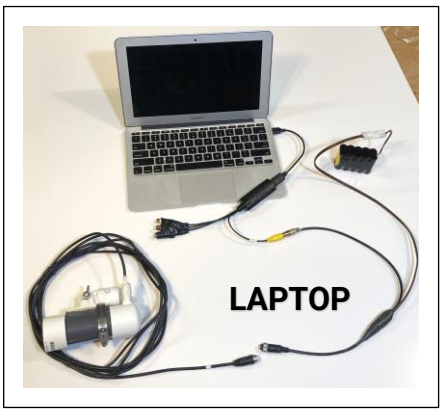
Tracking (following) view allows the coach to record the swimmer for a longer distance and multiple strokes.

View AquaCam setup and video at www.swimcoaching.com and click the AquaCam tab.
Also demonstrates slow motion and freeze frame functions.

*The OS on some tablets may not work with the software. E-mail for info.

Laptop recording with laptop harness

Tablet recording *



360 degree Multi-Angle Swivel Adjustment

GoPro

Website: Gopro.com

System type: Wireless waterproof video camera that needs to be adapted for use as a camera on a pole. May need swivel head and pole grip accessories.

Cost: $250-$350 for basic GoPro. Does not include adaptations or accessories needed for adapting to be a "camera on a pole". (Est: $75 to $125, plus time and knowledge) May need GoPro Cloud app at additional cost depending on storage needed.

Notes: Needs a waterproof GoPro model. Out-of-the-box is not specifically designed for swim coaches because you cannot view and track the swimmer unless you are in the water watching the tiny screen. See photos to right.
Recording is on the SD card in the camera and the view screen is on the camera itself so, to **record <u>and view</u>** out of the water, you need a wireless connection from the GoPro to a phone you can store the videos to the cloud. (But this may cost a monthly subscription.)

You can rig a GoPro with "wireless wires" but this may take time and technical know-how. This Youtube video explains how this can be done.
https://www.youtube.com/watch?v=5V9u4B4yAQo

The following 3 min video is also a good one with more details showing the slight delay (1/2 second) you get with the wireless connection.

https://www.youtube.com/watch?v=KLgEWqlj7cU

Most GoPros are 1080p resolution but have a slight (wireless) delay of 1/2 second between your camera movement and your above-water view which may affect your ability to track or follow a moving swimmer.

You can connect the GoPro to an Android or iPhone with the free GoPro Quik app and view the swimmer on the phone while the GoPro is in the water. However, this requires a good wireless feed from the GoPro and it does not work well when submerged underwater without the above modifications.

Playback for swimmers is on the phone (small screen) unless you download it on a separate device like a laptop or iPad from the cloud. This takes extra time that may interrupt your coaching.

If you decide to attempt this, realize that the GoPro Black 9 and 10 versions do not allow the GoPro Quik app to "preview" to view the swimmer on a phone held by the coach once recording has started. (According to GoPro support.) But newer models (11 – 13) <u>do</u> allow this.

Keep in mind these modifications are needed to use it effectively as the GoPro was not designed for on-deck use by coaches.

*Modifications are needed as well as a separate view screen, (phone, etc.) so coach does not have to enter the water to keep the swimmer in frame.

Sideline Scout

Website: sidelinescout.com/about/

System type: Wireless w/poolside mount shown right.

Cost: Elite system $8895 (multiple cameras) Pro system $4870, **Swim Starter Kit** $1200 plus $499 yearly subscription (after 1st year) shown below right.

Youtube shows the system and general setup here: https://www.youtube.com/watch?v=UofvaiRwG6E

Shows how to set up your wireless network and camera: https://www.youtube.com/watch?v=4mq0JQeK6x4

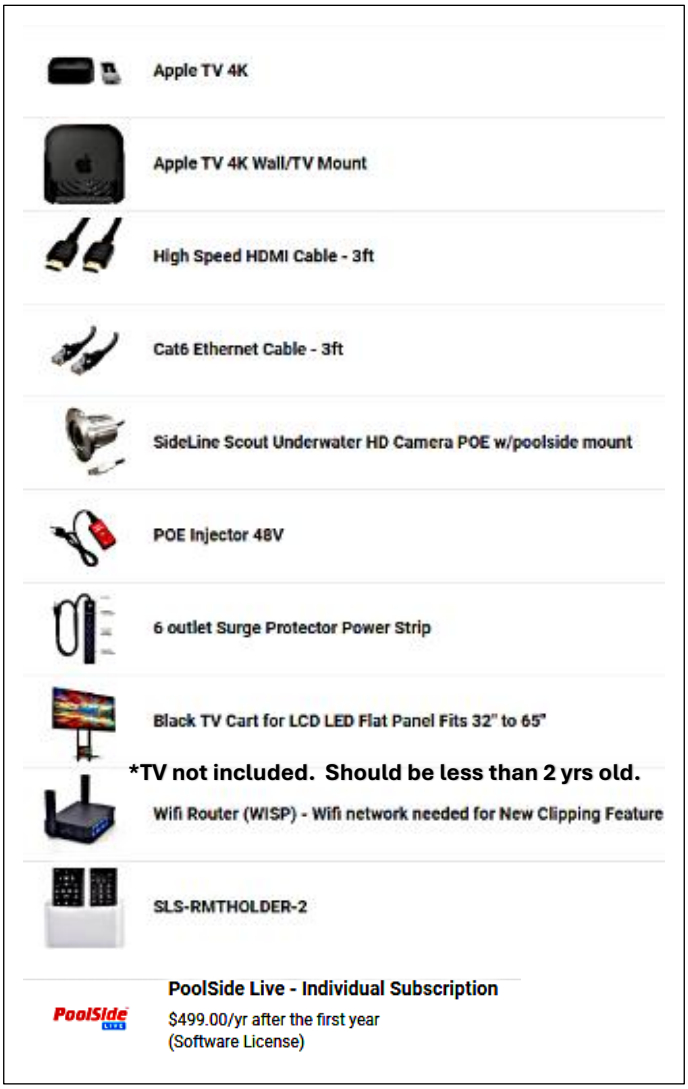
Notes: Sideline Scout originally designed for above-water applications in multiple sports like baseball, basketball, gymnastics, diving, etc. It can now be used for livestreaming swim meets and underwater video using their underwater cameras.

"Our systems work with most all cameras that support Real Time Streaming Protocol (RTSP requires 3rd party software to view the video) ***as well as HTTP*** (streaming protocol) ***and RTMP."*** (Real-Time Messaging Protocol is a live video streaming technology.)

The mount is stationary but can be moved from lane to lane as necessary. May not be as portable as pole systems.

Includes and uses the equipment shown to the right.

System includes:



Athlee

Website: www.athlee.com

System type: Wireless

Cost : $3800 (one camera) to $11,600+ (4 cameras)

Estimate $68 to $173 yearly for software subscription fee.

https://www.athlee.com/pricing

Very good system, but pricier than most.

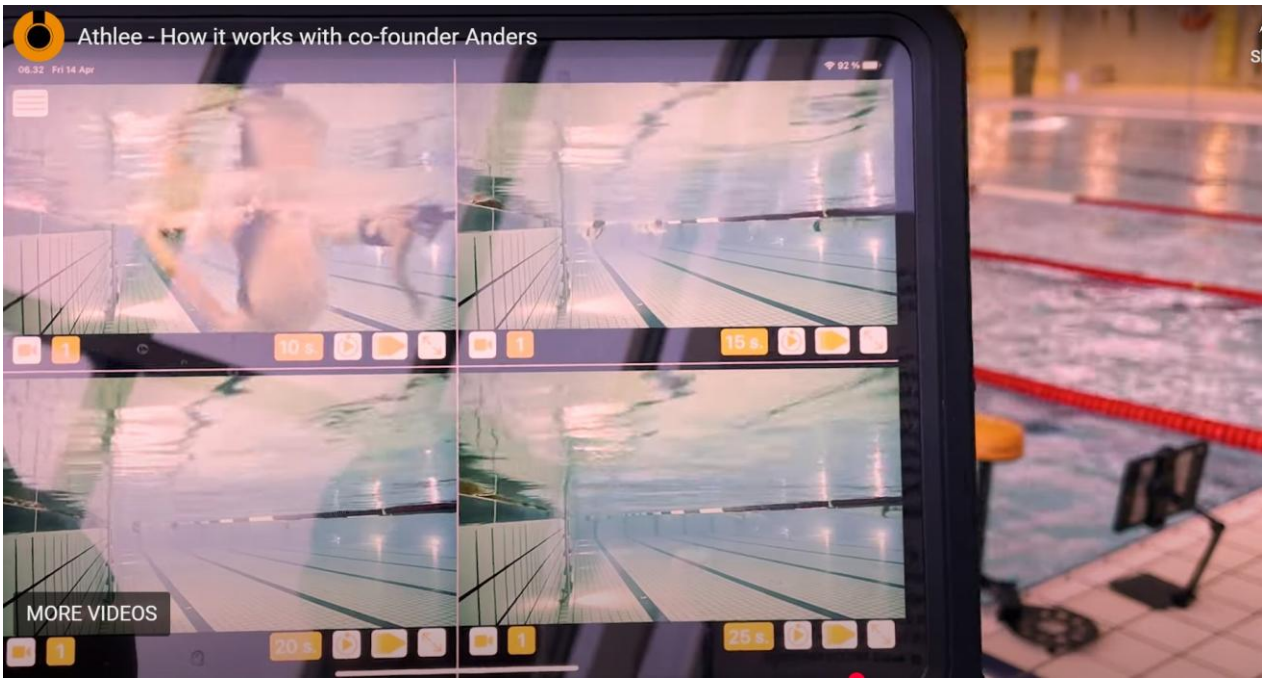
More options to play with.

Not as portable as others with a steeper learning curve.

Notes: Uses their proprietary software which allows multiple cameras on the display screen. (see photo below)

Dry Bag weight holds camera mount in place.

4 camera split screen on tablet
(screenshot from a video on their website)



SwimPro

Website: swimpro.com

System type: Wireless, Basic 2-cam system includes a pole cam and a wall mount camera. (shown to right)

Cost : From $5162 Australian dollars (2 cam package) to $15,333 Australian dollars (6 cam package)

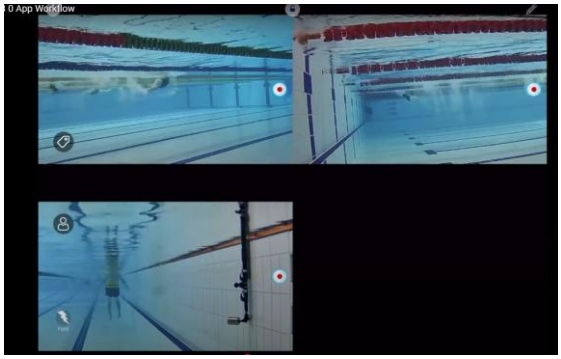
Equipment included is shown in photo below.

- 2K resolution (great resolution if you have a TV monitor that can utilize it.)
- Needs an iPad or Mac to use
- Proprietary software but no subscription or ongoing payments needed.
- Time delay availability is unknown
- Playback on an Apple iPad, Mac or connected to a TV.

Video on product setup:
https://www.youtube.com/watch?v=vQDi740F1tg
and
https://www.youtube.com/watch?v=UH64eArBOb

Stationary Wall Mount camera

Three-cam system display shown



Two-cam package. Does not include iPad.

Fish Finders

Company: multiple

Website: multiple

System type: Some can record but most can't. See details below.

Cost : from $100 to $800

Notes on "Fish Finders": You will be rolling the dice. Most in the lower price range are made cheaply overseas and many are returned for leaking and poor video, although you might get lucky and snag a good one. They have low resolution and small, weak LCD screens making playback viewing harder.

Formats: Most ***don't*** record and the few that do store video on small capacity SD cards using AVI file format. That format is older, larger, usually needs conversion software and can't be used on a MAC. AVI is a poor format for streaming or sharing. Converting them to MP4 needs software and, although the software can be free, it adds a lengthy step and when you transfer the video you lose even more resolution.

Also, you may not be able to access the SD card, you may not be able to erase old video, and you can't play back on a larger screen or TV.

Buyer beware.

A review of a standard fish finder can be found here:

https://www.youtube.com/watch?v=s9sVVMKK_lQ (look for his evaluation at 14:49)