

# Best Practice: SPORTS

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## ***Key Points***

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- Use **Timewarp** (TW) for immediate feedback to big or small groups.
- Use **Pro** for analysis and feedback to small groups.
- Use **Siliconcoach Live** (SC Live) for analysis and communication with any sized group.
- If they are *novices*:
  - Give them video feedback more often (TW).
  - Compare them to experts so they get the general idea of the movement (Pro or SC Live).
  - Keep the analysis and feedback simple (TW, Pro, SC Live).
- If they are *experts*:
  - Give them video feedback less often (TW).
  - Compare them to themselves to refine their own style (Pro, SC Live).
  - Do more detailed analysis and feedback (Pro).
- Everyone in between is on a continuum of the concepts presented above.
- Use SC Live for distance coaching.
- An athlete doing some *individual* training would use the delayed feedback feature in Timewarp to get immediate feedback and learn to self-analyse and then SC Live to communicate with their coach online.

## ***Introduction***

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Video analysis and feedback is like coaching, it’s a combination of art and science.

The science is not definitive and this is really no surprise given the huge variety of people needing skill analysis and the vast numbers of movements available to analyse. However, there are some general guidelines that can help anyone wanting to capture, analyse and give feedback to athletes.

This document pulls together information from a variety of sources into a collection of clear guidelines. These guidelines should be used in conjunction with good coaching practice.

The siliconcoach products mentioned in this resource will be:

<b>Pro</b>	Designed for making the process of capturing, presenting, analysing and sharing movement analysis data from video simple, fast and effective.
<b>SC Live</b>	SC Live is an online learning environment where coaches and athletes can undertake movement analysis and partake in discussions with coaches/athletes.
<b>Timewarp</b>	A delayed playback system designed for use in the session for immediate feedback and minimal disruption.

**NOTE:** To find out more go to [www.siliconcoach.com](http://www.siliconcoach.com) and click on **Products** on the top menu.

## Preparation

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- If you are using **Timewarp** you are working with live-delayed video so you must be using a camcorder connected to your computer providing a live feed. To find out more information go to [www.siliconcoach.com](http://www.siliconcoach.com) and click on **Support** on the top menu then look on the Timewarp Support Centre and look for the Hardware resource link.
- If you are using **SC Live** you will capture your video on virtually any device and then upload it to the web using the SC Live uploaders. To find out more information go to [www.siliconcoach.com](http://www.siliconcoach.com) and click on **Support** on the top menu then look on the Uploaders Support Centre.
- If you are using Siliconcoach **Pro** you can get your video 2 ways
  - *Capture live.* This is the fastest way to get video into your computer, however, it does require someone operating the camera and computer. It is the best option in a sporting situation where immediate feedback is essential but if immediate feedback is not essential then the next option may be better.
  - *Import files.* As you don't have to worry about the live capture-to-computer process this is a less stressful option for those new to video analysis.  
Make sure you keep your clips short, (e.g. about 5-20 seconds).  
Once you have captured the video to the camera's memory just transfer the files to your computer and then import them in Pro. HD files will retain their HD dimensions.
- Capturing your footage. There is a trade-off between capturing in a match situation and in a practice situation. Footage from a match gives you the athletes performing under the pressure of the competition; however, it often doesn't give you good video as you can never be sure where they will be during the game. Further, they're almost never at right angles to the camera which creates perspective error during analysis. A practice session gives you control over the athletes position but takes away some of the pressure. Some sports like tennis, gymnastics, athletics, swimming, track cycling, weightlifting and volleyball are not so bad but the likes of football, hockey, road cycling, rugby, etc are very hard. A good option in these situations is match simulation drills with as much pressure as possible.
- Light is the biggest factor in getting a good image. If your clip looks blurred it is not the software, set your camera to a higher shutter speed or to Sports Mode and boost the lighting. To find out more information go to [www.siliconcoach.com](http://www.siliconcoach.com) and click on **Support** on the top menu then look at the Timewarp or SC Live support pages for the How to get good video resource.
- Use a tripod and set it at height equal to the middle of the total height of the movement you are studying.
- If you want to take distance or speed measurements off the video you will need an object of a known length (calibration scale) in the same plane as the movement and the same distance from the camera as the movement.
- To minimise perspective error you should capture from right angles to the movement or in line with the movement.
- If you want to measure angles and distances, position the camera back far enough so you don't have to pan the camera. You can pan the camera if you are only 'eyeballing' the movement or using time measurements.
- Generally a laptop is the most versatile type of computer.
- For more information go to [www.siliconcoach.com](http://www.siliconcoach.com), click on **Solutions** on the top menu and look for the **Education** option.

## ***Novice Athletes***

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When someone first starts learning a technique they normally display novice movement patterns. As they approach national or international status we could call them experts at that technique. Most people will never get to the top of the expert range however many people you work with may get into the lower expert range. Everyone else lies between the two extremes somewhere. This key point here is that these are just labels on a continuum and there is no robust definition for any point along that continuum. To identify where your athlete lies is a combination of experience and common sense. Fortunately you don't need to be extremely precise with your definition as the analysis and feedback strategies are also on a continuum.

### **Summary of this Section**

- Training sessions with larger groups (e.g. 5 – 25) use Timewarp.
- Training sessions with smaller groups (e.g. 1- 5) use Timewarp or Pro.
- After training or distance coaching use SC Live or Pro.

### ***Training Sessions with Larger Groups (e.g. 5 – 25)***

<b>What</b>	<b>Timewarp</b> (More information at <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Products</b> from the top menu)
<b>Why</b>	<ul style="list-style-type: none"> <li>• Fun and engaging for athletes because skills are being acquired faster.</li> <li>• Spend time to save time. Providing feedback to your athletes results in a faster uptake.</li> <li>• Less repetition of the instructions because they can see what you mean and they 'get it' faster.</li> <li>• Athletes can train on their own using technique guidelines prepared by a coach.</li> <li>• Allows athletes to study their own technique in a self-learning environment.</li> <li>• Easy to use, just set the required time delay.</li> <li>• Tag and loop video, watch in slow motion or pause for a closer look - all whilst Timewarp continues to record 'live'.</li> <li>• Simple to use drawing tools provide an onscreen reference for assessment.</li> <li>• Capture and review using remote control.</li> </ul>
<b>How</b>	<ul style="list-style-type: none"> <li>• Set the Timewarp delay ('Warp') to an appropriate period, usually about 5 – 15 seconds. The great feature here is you do not need to touch the computer at all from now on, ideal for someone wearing gloves, inside a cage, in a pool, on an apparatus, lifting a heavy weight, etc.</li> <li>• Just let them see what they did and perhaps offer some simple feedback and suggestions. Keep it simple.</li> <li>• They will probably want to look at every attempt, let them.</li> <li>• You could use the Exemplar feature in Timewarp to show clips of experts doing the skill. You might get them to watch the expert and then watch themselves.</li> </ul>

<b>Examples</b>	<ul style="list-style-type: none"> <li>• <b>Batting:</b> Your athlete can bowl or bat then look at the screen and wait for their performance to be replayed on screen. You then can repeat this over and over for an hour or so. You do not need to touch the computer at all, ideal for someone wearing batting gloves!!</li> <li>• <b>Kicking:</b> Your athlete can perform the kick and then watch themselves, as they get better they will tend to only watch the ones that miss the target.</li> <li>• <b>Swimming:</b> Set up with a computer data projector and an underwater camera the swimmer can watch their last few strokes without being near any electronics.</li> <li>• <b>Weight training:</b> Your lifter can watch their form from angles they can't see in the mirror without having to put the weight down or press anything on the computer.</li> </ul>
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### **Training Sessions with Smaller Groups (e.g. 1- 5)**

#### **Option 1**

What	<b>Timewarp</b> (More information at <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on Products from the top menu)
Why	<ul style="list-style-type: none"> <li>• Fun and engaging for athletes because skills are being acquired faster.</li> <li>• Spend time to save time. Providing feedback to your athletes results in a faster uptake.</li> <li>• Less repetition of the instructions because they can see what you mean and they 'get it' faster.</li> <li>• Athletes can train on their own using technique guidelines prepared by a coach.</li> <li>• Allows athletes to study their own technique in a self-learning environment.</li> <li>• Easy to use, just set the required time delay.</li> <li>• Tag and loop video, watch in slow motion or pause for a closer look - all whilst Timewarp continues to record 'live'.</li> <li>• Simple to use drawing tools provide an onscreen reference for assessment.</li> <li>• Capture and review using voice commands or remote control.</li> </ul>
How	<ul style="list-style-type: none"> <li>• Set the Timewarp delay ('Warp') to an appropriate period, usually about 5 – 15 seconds. The great feature here is you do not need to touch the computer at all from now on, ideal for someone wearing gloves, inside a cage, in a pool, on an apparatus, lifting a heavy weight, etc.</li> <li>• Just let them see what they did and perhaps offer some simple feedback and suggestions. Keep it simple.</li> <li>• They will probably want to look at every attempt, let them.</li> <li>• You could use the Exemplar feature in Timewarp to show clips of experts doing the skill. You might get them to watch the expert and then watch themselves.</li> </ul>

Examples	<ul style="list-style-type: none"> <li>• <b>Batting:</b> Your athlete can bowl or bat then look at the screen and wait for their performance to be replayed on screen. You then can repeat this over and over for an hour or so. You do not need to touch the computer at all, ideal for someone wearing batting gloves!!</li> <li>• <b>Kicking:</b> Your athlete can perform the kick and then watch themselves, as they get better they will tend to only watch the ones that miss the target.</li> <li>• <b>Swimming:</b> Set up with a computer data projector and an underwater camera the swimmer can watch their last few strokes without being near any electronics.</li> <li>• <b>Weight training:</b> Your lifter can watch their form from angles they can't see in the mirror without having to put the weight down or press anything on the computer.</li> </ul>
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### Option 2

<b>What</b>	<b>Pro</b> (More information at <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Products</b> from the top menu)
<b>Why</b>	<ul style="list-style-type: none"> <li>• Fun and engaging for athletes because skills are being acquired faster.</li> <li>• Allows athletes to see their own technique, this accelerates learning from basic movements through to more complex skills.</li> <li>• Spend time to save time. Providing feedback to your athletes results in a faster uptake.</li> <li>• Less repetition of the instructions because they can see what you mean and they 'get it' faster.</li> <li>• Athletes can see feedback visually, eliminating verbal misunderstandings.</li> <li>• Highlight key points in a video by drawing directly on-screen.</li> <li>• Accurate analysis leads to higher quality training and performance.</li> <li>• Capture video 'live' from your camera and provide feedback on-the-spot. For more information go to <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Support</b> then the <b>Pro</b> Support Centre then the <b>Hardware</b> resource link.</li> <li>• 'One click' from video capture to analysis.</li> <li>• 50/60 images per second of video footage (standard video is 25/30 images per second) allows you to pick up subtleties the naked eye can miss.</li> <li>• Synchronise multiple video clips for side-by-side or overlaid comparison.</li> <li>• Measure key events using the time, angle, distance and speed tools.</li> <li>• Build a presentation with simple-to-use templates.</li> </ul>
<b>How</b>	<ul style="list-style-type: none"> <li>• You need to capture video clips to use in your analysis.</li> <li>• Generally you should only capture 5 to 8 second clips as you are capturing one skill not a whole section of play. For example you would capture one movie clip for each kick, pass, jump, stroke, throw, etc. This gives you much more flexibility for future analysis.</li> </ul>

	<ul style="list-style-type: none"> <li>You might capture a video clip of your athlete and compare them with the expert on perhaps every attempt.</li> <li>You could use the Dual Screen feature in Pro to show clips of experts doing the skill right next to your athlete.</li> <li>You might draw a few lines to highlight body position differences between your athlete and the expert.</li> <li>Generally at this level you are looking at their general form, not specifics.</li> <li>Only present one or two differences at a time.</li> <li>Keep it simple, they have a lot going on in their mind as they attempt to learn a new skill and you can easily overload them.</li> </ul>
<b>Examples</b>	<ul style="list-style-type: none"> <li><b>Football:</b> Set up a camera looking at a zone marked out with cones. Have the athletes performing drills within those zones. Either during or after training capture the action into Pro. You might compare the athletes against experts for general principles.</li> <li><b>Swimming:</b> Use an underwater camera and record the footage to tape. After training, capture the clips of interest into Pro and create Presentations. Show and discuss these with the athlete either on poolside or at a meeting after training (the more practical option).</li> <li><b>Batting/Hitting:</b> Set up a camera looking at the hitting area. Because of the rotational nature of batting and hitting there are not many measurements you can take other than the setup stance. An overhead camera is a great option if you have the facilities as the swing plane is now very close to the camera plane. Even without the measuring tools you can still look at the factors such as timing, stability, body position, limb position, success, etc.</li> <li><b>Jumping:</b> Set up a camera looking at the jump area. Have the athletes performing jumps and either during or after training capture the action into Pro. You might compare the athletes against experts for general principles. Once the clip(s) are in Pro you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the timing of each body segment in the jump and make sure they are appropriate.</li> <li><b>Strength Training:</b> As this is a fairly controlled environment you could capture directly to the computer or just record to tape if that is easier. You would probably record from the side or behind as the lifter can use the mirror for front on feedback. Once the clip(s) are in Pro you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the general principles of the movement.</li> </ul>

### ***After Training or Distance Coaching***

#### **Option 1**

<b>What</b>	<b>SC Live</b> (More information at <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Products</b> from the top menu)
<b>Why</b>	<ul style="list-style-type: none"> <li>Because there is easy access for the coach and athlete, communication</li> </ul>

	<p>is easier no matter what the distance.</p> <ul style="list-style-type: none"> <li>• Allows athletes to see their own technique, this accelerates learning from basic movements through to more complex skills.</li> <li>• Spend time to save time. Providing feedback to your athletes results in a faster uptake.</li> <li>• Less repetition of the instructions because they can see what you mean and they 'get it' faster.</li> <li>• Athletes can see feedback visually, eliminating verbal misunderstandings.</li> <li>• Highlight key points in a video by drawing directly on-screen.</li> <li>• Accurate analysis leads to higher quality training and performance.</li> <li>• Capture video from virtually any consumer camera or smart phone and then transfer it to your computer and then uploaded it.</li> <li>• 'One click' from video capture to analysis.</li> <li>• 50/60 images per second of video footage (standard video is 25/30 images per second) allows you to pick up subtleties the naked eye can miss.</li> <li>• Synchronise multiple video clips for side-by-side or overlaid comparison.</li> <li>• Measure key events using the time, angle, distance and speed tools.</li> </ul>
<b>How</b>	<ul style="list-style-type: none"> <li>• Capture video from virtually any consumer camera or smart phone and then transfer it to your computer and then uploaded it.</li> <li>• Generally you should only capture 5 to 8 second clips as you are capturing one skill not a whole section of play. For example you would capture one movie clip for each kick, pass, jump, stroke, throw, etc. This gives you much more flexibility for future analysis.</li> <li>• You might capture a video clip of your athlete and compare them with the expert on perhaps every attempt.</li> <li>• You could use the Dual Screen feature to show clips of experts doing the skill right next to your athlete.</li> <li>• You might draw a few lines to highlight body position differences between your athlete and the expert.</li> <li>• Generally at this level you are looking at their general form, not specifics.</li> <li>• Start an online discussion with your athletes right within SC Live. Only present one or two differences at a time.</li> <li>• Keep it simple, they have a lot going on in their mind as they attempt to learn a new skill and you can easily overload them.</li> </ul>
<b>Examples</b>	<ul style="list-style-type: none"> <li>• <b>Football:</b> If your athletes live in a distant location have them set up a camera looking at a zone marked out with cones. Have the athletes performing drills within those zones and make sure they capture the action to their camera. After training have them transfer the files to their computer (Windows or Mac) and then use the SC Live Uploader to trim, compress and send the video clips to their/your SC Live online space. Now start an online discussion with your athlete right within SC Live. You might compare the athletes against experts for general</li> </ul>

	<p>principles.</p> <ul style="list-style-type: none"> <li>• <b>Swimming:</b> Use an underwater camera and record the footage to the camera. After training transfer the files to your computer (Windows or Mac) and then use the SC Live Uploader to trim, compress and send the video clips to your SC Live online space. Now start an online discussion with your athlete right within SC Live. You might compare the athlete against their previous videos to show improvements or areas that still need work.</li> <li>• <b>Batting/Hitting:</b> Set up a camera looking at the hitting area. Because of the rotational nature of batting and hitting there are not many measurements you can take other than the setup stance. An overhead camera is a great option if you have the facilities as the swing plane is now very close to the camera plane. Even without the measuring tools you can still look at the factors such as timing, stability, body position, limb position, success, etc.</li> <li>• <b>Jumping:</b> Set up a camera looking at the jump area. Have the athletes performing jumps and either during or after training capture the action into a camera. You might compare the athletes against experts for general principles. Once the clip(s) are in SC Live you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the timing of each body segment in the jump and make sure they are appropriate.</li> <li>• <b>Strength Training:</b> As this is a fairly controlled environment so you can usually get the camera in a good position. You would probably record from the side or behind as the lifter can use the mirror for front on feedback. Once the clip(s) are in SC Live you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the general principles of the movement.</li> </ul>
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### Option 2

<b>What</b>	<b>Pro</b> (More information at <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Products</b> from the top menu)
<b>Why</b>	<ul style="list-style-type: none"> <li>• The ability to record your entire analysis including drawings and voice over and export it as a new video clip. Now you can send this clip to the athlete for them to review over and over again when you are not there. This concept also works very well for distance coaching when you are not with your athletes all the time.</li> <li>• Fun and engaging for athletes because skills are being acquired faster.</li> <li>• Allows athletes to see their own technique, this accelerates learning from basic movements through to more complex skills.</li> <li>• Spend time to save time. Providing feedback to your athletes results in a faster uptake.</li> <li>• Less repetition of the instructions because they can see what you mean and they 'get it' faster.</li> <li>• Athletes can see feedback visually, eliminating verbal misunderstandings.</li> </ul>

	<ul style="list-style-type: none"> <li>• Highlight key points in a video by drawing directly on-screen.</li> <li>• Accurate analysis leads to higher quality training and performance.</li> <li>• Capture video 'live' from your camera and provide feedback on-the-spot. For more information go to <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Support</b> then the <b>Pro</b> Support Centre then the <b>Hardware</b> resource link.</li> <li>• 'One click' from video capture to analysis.</li> <li>• 50/60 images per second of video footage (standard video is 25/30 images per second) allows you to pick up subtleties the naked eye can miss.</li> <li>• Synchronise multiple video clips for side-by-side or overlaid comparison.</li> <li>• Measure key events using the time, angle, distance and speed tools.</li> <li>• Build a presentation with simple-to-use templates..</li> </ul>
<b>How</b>	<ul style="list-style-type: none"> <li>• You need to capture video clips to use in your analysis, these can be live or import. For more information see Preparation on page 3.</li> <li>• Generally you should only capture 5 to 8 second clips as you are capturing one skill not a whole section of play. For example you would capture one movie clip for each kick, pass, jump, stroke, throw, etc. This gives you much more flexibility for future analysis.</li> <li>• You might capture a video clip of your athlete and compare them with the expert on perhaps every attempt.</li> <li>• You could use the Dual Screen feature in Pro to show clips of experts doing the skill right next to your athlete.</li> <li>• You might draw a few lines to highlight body position differences between your athlete and the expert.</li> <li>• Generally at this level you are looking at their general form, not specifics.</li> <li>• Only present one or two differences at a time.</li> <li>• Keep it simple, they have a lot going on in their mind as they attempt to learn a new skill and you can easily overload them..</li> </ul>
<b>Examples</b>	<ul style="list-style-type: none"> <li>• <b>Football:</b> Set up a camera looking at a zone marked out with cones. Have the athletes performing drills within those zones. Either during or after training capture the action into Pro. You might compare the athletes against experts for general principles.</li> <li>• <b>Swimming:</b> Use an underwater camera and record the footage to tape. After training, capture the clips of interest into Pro and create Presentations. Show and discuss these with the athlete either on poolside or at a meeting after training (the more practical option).</li> <li>• <b>Batting/Hitting:</b> Set up a camera looking at the hitting area. Because of the rotational nature of batting and hitting there are not many measurements you can take other than the setup stance. An overhead camera is a great option if you have the facilities as the swing plane is now very close to the camera plane. Even without the measuring tools you can still look at the factors such as timing, stability, body position, limb position, success, etc.</li> <li>• <b>Jumping:</b> Set up a camera looking at the jump area. Have the athletes</li> </ul>

performing jumps and either during or after training capture the action into Pro. You might compare the athletes against experts for general principles. Once the clip(s) are in Pro you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the timing of each body segment in the jump and make sure they are appropriate.

- **Strength Training:** As this is a fairly controlled environment you could capture directly to the computer or just record to tape if that is easier. You would probably record from the side or behind as the lifter can use the mirror for front on feedback. Once the clip(s) are in Pro you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the general principles of the movement.

## ***Mid-Level Athletes***

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When someone first starts learning a technique they normally display novice movement patterns. As they approach national or international status we could call them experts at that technique. Most people will never get to the top of the expert range however many people you work with may get into the lower expert range. Everyone else lies between the two extremes somewhere. This key point here is that these are just labels on a continuum and there is no robust definition for any point along that continuum. To identify where your athlete lies is a combination of experience and common sense. Fortunately you don't need to be extremely precise with your definition as the analysis and feedback strategies are also on a continuum.

### **Summary of this Section**

- Training sessions with larger groups (e.g. 5 – 25) use Timewarp.
- Training sessions with smaller groups (e.g. 1- 5) use Timewarp or Pro.
- After training or distance coaching use SC Live or Pro.
- An athlete doing some individual training and analysis use SC Live or Timewarp.

### ***Training Sessions with Larger Groups (e.g. 5 – 25)***

<b>What</b>	<b>Timewarp</b> (More information at <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Products</b> from the top menu)
<b>Why</b>	<ul style="list-style-type: none"> <li>• Fun and engaging for athletes because skills are being acquired faster.</li> <li>• Spend time to save time. Providing feedback to your athletes results in a faster uptake.</li> <li>• Less repetition of the instructions because they can see what you mean and they 'get it' faster.</li> <li>• Athletes can train on their own using technique guidelines prepared by a coach.</li> <li>• Allows athletes to study their own technique in a self-learning environment.</li> <li>• Easy to use, just set the required time delay.</li> <li>• Tag and loop video, watch in slow motion or pause for a closer look - all whilst Timewarp continues to record 'live'.</li> <li>• Simple to use drawing tools provide an onscreen reference for assessment.</li> <li>• Capture and review using remote control.</li> </ul>
<b>How</b>	<ul style="list-style-type: none"> <li>• Set the Timewarp delay ('Warp') to an appropriate period, usually about 5 – 15 seconds. The great feature here is you do not need to touch the computer at all from now on, ideal for someone wearing gloves, inside a cage, in a pool, on an apparatus, lifting a heavy weight, etc.</li> <li>• Don't get them to look at each and every attempt, reduce the frequency to perhaps one in every 2-3 attempts and focus on athletes 'feeling' the movement internally and self-critiquing their technique</li> </ul>

	<p>before they check it on the screen.</p> <ul style="list-style-type: none"> <li>• Use the exemplar feature less often and start to have the athletes evolve their own style based on their own attributes rather than mimic an expert.</li> </ul>
<b>Examples</b>	<ul style="list-style-type: none"> <li>• <b>Batting:</b> Your athlete can bowl or bat then look at the screen and wait for their performance to be replayed on screen. You then can repeat this over and over for an hour or so. You do not need to touch the computer at all, ideal for someone wearing batting gloves!!</li> <li>• <b>Kicking:</b> Your athlete can perform the kick and then watch themselves, as they get better they will tend to only watch the ones that miss the target.</li> <li>• <b>Swimming:</b> Set up with a computer data projector and an underwater camera the swimmer can watch their last few strokes without being near any electronics.</li> <li>• <b>Weight training:</b> Your lifter can watch their form from angles they can't see in the mirror without having to put the weight down or press anything on the computer.</li> </ul>

### **Training Sessions with Smaller Groups (e.g. 1- 5)**

#### **Option 1**

<b>What</b>	<b>Timewarp</b> (More information at <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Products</b> from the top menu)
<b>Why</b>	<ul style="list-style-type: none"> <li>• Fun and engaging for athletes because skills are being acquired faster.</li> <li>• Spend time to save time. Providing feedback to your athletes results in a faster uptake.</li> <li>• Less repetition of the instructions because they can see what you mean and they 'get it' faster.</li> <li>• Athletes can train on their own using technique guidelines prepared by a coach.</li> <li>• Allows athletes to study their own technique in a self-learning environment.</li> <li>• Easy to use, just set the required time delay.</li> <li>• Tag and loop video, watch in slow motion or pause for a closer look - all whilst Timewarp continues to record 'live'.</li> <li>• Simple to use drawing tools provide an onscreen reference for assessment.</li> <li>• Capture and review using remote control.</li> </ul>
<b>How</b>	<ul style="list-style-type: none"> <li>• Set the Timewarp delay ('Warp') to an appropriate period, usually about 5 – 15 seconds. The great feature here is you do not need to touch the computer at all from now on, ideal for someone wearing gloves, inside a cage, in a pool, on an apparatus, lifting a heavy weight, etc.</li> <li>• Don't get them to look at each and every attempt, reduce the frequency to perhaps one in every 2-3 attempts and focus on athletes</li> </ul>

	<p>‘feeling’ the movement internally and self-critiquing their technique before they check it on the screen.</p> <ul style="list-style-type: none"> <li>• Use the exemplar feature less often and start to have the athletes evolve their own style based on their own attributes rather than mimic an expert.</li> </ul>
<b>Examples</b>	<ul style="list-style-type: none"> <li>• <b>Batting:</b> Your athlete can bowl or bat then look at the screen and wait for their performance to be replayed on screen. You then can repeat this over and over for an hour or so. You do not need to touch the computer at all, ideal for someone wearing batting gloves!!</li> <li>• <b>Kicking:</b> Your athlete can perform the kick and then watch themselves, as they get better they will tend to only watch the ones that miss the target.</li> <li>• <b>Swimming:</b> Set up with a computer data projector and an underwater camera the swimmer can watch their last few strokes without being near any electronics.</li> <li>• <b>Weight training:</b> Your lifter can watch their form from angles they can’t see in the mirror without having to put the weight down or press anything on the computer.</li> </ul>

### Option 2

<b>What</b>	<b>Pro</b> (More information at <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Products</b> from the top menu)
<b>Why</b>	<ul style="list-style-type: none"> <li>• Fun and engaging for athletes because skills are being acquired faster.</li> <li>• Allows athletes to see their own technique, this accelerates learning from basic movements through to more complex skills.</li> <li>• Spend time to save time. Providing feedback to your athletes results in a faster uptake.</li> <li>• Less repetition of the instructions because they can see what you mean and they ‘get it’ faster.</li> <li>• Athletes can see feedback visually, eliminating verbal misunderstandings.</li> <li>• Highlight key points in a video by drawing directly on-screen.</li> <li>• Accurate analysis leads to higher quality training and performance.</li> <li>• Capture video ‘live’ from your camera and provide feedback on-the-spot. For more information go to <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Support</b> then the <b>Pro</b> Support Centre then the <b>Hardware</b> resource link.</li> <li>• ‘One click’ from video capture to analysis.</li> <li>• 50/60 images per second of video footage (standard video is 25/30 images per second) allows you to pick up subtleties the naked eye can miss.</li> <li>• Synchronise multiple video clips for side-by-side or overlaid comparison.</li> <li>• Measure key events using the time, angle, distance and speed tools.</li> <li>• Build a presentation with simple-to-use templates.</li> </ul>

<b>How</b>	<ul style="list-style-type: none"> <li>• You need to capture video clips to use in your analysis.</li> <li>• Generally you should only capture 5 to 8 second clips as you are capturing one skill not a whole section of play. For example you would capture one movie clip for each kick, pass, jump, stroke, throw, etc. This gives you much more flexibility for future analysis.</li> <li>• You might capture a video clip of your athlete and compare them with the expert on perhaps every attempt.</li> <li>• You could use the Dual Screen feature in Pro to show clips of experts doing the skill right next to your athlete.</li> <li>• You might draw a few lines to highlight body position differences between your athlete and the expert.</li> <li>• Generally at this level you are looking at their general form, not specifics.</li> <li>• Only present one or two differences at a time.</li> <li>• Keep it simple, they have a lot going on in their mind as they attempt to learn a new skill and you can easily overload them.</li> </ul>
<b>Examples</b>	<ul style="list-style-type: none"> <li>• <b>Football:</b> Set up a camera looking at a zone marked out with cones. Have the athletes performing drills within those zones. Either during or after training capture the action into Pro. You might compare the athletes against experts for general principles.</li> <li>• <b>Swimming:</b> Use an underwater camera and record the footage to tape. After training, capture the clips of interest into Pro and create Presentations. Show and discuss these with the athlete either on poolside or at a meeting after training (the more practical option).</li> <li>• <b>Batting/Hitting:</b> Set up a camera looking at the hitting area. Because of the rotational nature of batting and hitting there are not many measurements you can take other than the setup stance. An overhead camera is a great option if you have the facilities as the swing plane is now very close to the camera plane. Even without the measuring tools you can still look at the factors such as timing, stability, body position, limb position, success, etc.</li> <li>• <b>Jumping:</b> Set up a camera looking at the jump area. Have the athletes performing jumps and either during or after training capture the action into Pro. You might compare the athletes against experts for general principles. Once the clip(s) are in Pro you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the timing of each body segment in the jump and make sure they are appropriate.</li> <li>• <b>Strength Training:</b> As this is a fairly controlled environment you could capture directly to the computer or just record to tape if that is easier. You would probably record from the side or behind as the lifter can use the mirror for front on feedback. Once the clip(s) are in Pro you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the general principles of the movement.</li> </ul>

## After Training or Distance Coaching

### Option 1

<b>What</b>	<b>SC Live</b> (More information at <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Products</b> from the top menu)
<b>Why</b>	<ul style="list-style-type: none"> <li>• Because there is easy access for the coach and athlete, communication is easier no matter what the distance.</li> <li>• Allows athletes to see their own technique, this accelerates learning from basic movements through to more complex skills.</li> <li>• Spend time to save time. Providing feedback to your athletes results in a faster uptake.</li> <li>• Less repetition of the instructions because they can see what you mean and they 'get it' faster.</li> <li>• Athletes can see feedback visually, eliminating verbal misunderstandings.</li> <li>• Highlight key points in a video by drawing directly on-screen.</li> <li>• Accurate analysis leads to higher quality training and performance.</li> <li>• Capture video from virtually any consumer camera or smart phone and then transfer it to your computer and then uploaded it.</li> <li>• 'One click' from video capture to analysis.</li> <li>• 50/60 images per second of video footage (standard video is 25/30 images per second) allows you to pick up subtleties the naked eye can miss.</li> <li>• Synchronise multiple video clips for side-by-side or overlaid comparison.</li> <li>• Measure key events using the time, angle, distance and speed tools.</li> </ul>
<b>How</b>	<ul style="list-style-type: none"> <li>• Capture video from virtually any consumer camera or smart phone and then transfer it to your computer and then uploaded it.</li> <li>• Generally you should only capture 5 to 8 second clips as you are capturing one skill not a whole section of play. For example you would capture one movie clip for each kick, pass, jump, stroke, throw, etc. This gives you much more flexibility for future analysis.</li> <li>• You might capture a video clip of your athlete and compare them with the expert on perhaps every attempt.</li> <li>• You could use the Dual Screen feature to show clips of experts doing the skill right next to your athlete.</li> <li>• You might draw a few lines to highlight body position differences between your athlete and the expert.</li> <li>• Generally at this level you are looking at their general form, not specifics.</li> <li>• Start an online discussion with your athletes right within SC Live. Only present one or two differences at a time.</li> <li>• Keep it simple, they have a lot going on in their mind as they attempt to learn a new skill and you can easily overload them.</li> </ul>

<b>Examples</b>	<ul style="list-style-type: none"> <li>• <b>Football:</b> If your athletes live in a distant location have them set up a camera looking at a zone marked out with cones. Have the athletes performing drills within those zones and make sure they capture the action to their camera. After training have them transfer the files to their computer (Windows or Mac) and then use the SC Live Uploader to trim, compress and send the video clips to their/your SC Live online space. Now start an online discussion with your athlete right within SC Live. You might compare the athletes against experts for general principles.</li> <li>• <b>Swimming:</b> Use an underwater camera and record the footage to the camera. After training transfer the files to your computer (Windows or Mac) and then use the SC Live Uploader to trim, compress and send the video clips to your SC Live online space. Now start an online discussion with your athlete right within SC Live. You might compare the athlete against their previous videos to show improvements or areas that still need work.</li> <li>• <b>Batting/Hitting:</b> Set up a camera looking at the hitting area. Because of the rotational nature of batting and hitting there are not many measurements you can take other than the setup stance. An overhead camera is a great option if you have the facilities as the swing plane is now very close to the camera plane. Even without the measuring tools you can still look at the factors such as timing, stability, body position, limb position, success, etc.</li> <li>• <b>Jumping:</b> Set up a camera looking at the jump area. Have the athletes performing jumps and either during or after training capture the action into a camera. You might compare the athletes against experts for general principles. Once the clip(s) are in SC Live you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the timing of each body segment in the jump and make sure they are appropriate.</li> <li>• <b>Strength Training:</b> As this is a fairly controlled environment so you can usually get the camera in a good position. You would probably record from the side or behind as the lifter can use the mirror for front on feedback. Once the clip(s) are in SC Live you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the general principles of the movement.</li> </ul>
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### Option 2

<b>What</b>	<b>Pro</b> (More information at <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Products</b> from the top menu)
<b>Why</b>	<ul style="list-style-type: none"> <li>• The ability to record your entire analysis including drawings and voice over and export it as a new video clip. Now you can send this clip to the athlete for them to review over and over again when you are not there. This concept also works very well for distance coaching when you are not with your athletes all the time.</li> </ul>

	<ul style="list-style-type: none"> <li>• Fun and engaging for athletes because skills are being acquired faster.</li> <li>• Allows athletes to see their own technique, this accelerates learning from basic movements through to more complex skills.</li> <li>• Spend time to save time. Providing feedback to your athletes results in a faster uptake.</li> <li>• Less repetition of the instructions because they can see what you mean and they 'get it' faster.</li> <li>• Athletes can see feedback visually, eliminating verbal misunderstandings.</li> <li>• Highlight key points in a video by drawing directly on-screen.</li> <li>• Accurate analysis leads to higher quality training and performance.</li> <li>• Capture video 'live' from your camera and provide feedback on-the-spot. For more information go to <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Support</b> then the <b>Pro Support Centre</b> then the <b>Hardware</b> resource link.</li> <li>• 'One click' from video capture to analysis.</li> <li>• 50/60 images per second of video footage (standard video is 25/30 images per second) allows you to pick up subtleties the naked eye can miss.</li> <li>• Synchronise multiple video clips for side-by-side or overlaid comparison.</li> <li>• Measure key events using the time, angle, distance and speed tools.</li> <li>• Build a presentation with simple-to-use templates..</li> </ul>
<b>How</b>	<ul style="list-style-type: none"> <li>• You need to capture video clips to use in your analysis, these can be live or import. For more information see Preparation on page 3.</li> <li>• Generally you should only capture 5 to 8 second clips as you are capturing one skill not a whole section of play. For example you would capture one movie clip for each kick, pass, jump, stroke, throw, etc. This gives you much more flexibility for future analysis.</li> <li>• You might capture a video clip of your athlete and compare them with the expert on perhaps every attempt.</li> <li>• You could use the Dual Screen feature in Pro to show clips of experts doing the skill right next to your athlete.</li> <li>• You might draw a few lines to highlight body position differences between your athlete and the expert.</li> <li>• Generally at this level you are looking at their general form, not specifics.</li> <li>• Only present one or two differences at a time.</li> <li>• Keep it simple, they have a lot going on in their mind as they attempt to learn a new skill and you can easily overload them..</li> </ul>
<b>Examples</b>	<ul style="list-style-type: none"> <li>• <b>Football:</b> Set up a camera looking at a zone marked out with cones. Have the athletes performing drills within those zones. Either during or after training capture the action into Pro. You might compare the athletes against experts for general principles.</li> <li>• <b>Swimming:</b> Use an underwater camera and record the footage to tape. After training, capture the clips of interest into Pro and create Presentations. Show and discuss these with the athlete either on</li> </ul>

	<p>poolside or at a meeting after training (the more practical option).</p> <ul style="list-style-type: none"> <li>• <b>Batting/Hitting:</b> Set up a camera looking at the hitting area. Because of the rotational nature of batting and hitting there are not many measurements you can take other than the setup stance. An overhead camera is a great option if you have the facilities as the swing plane is now very close to the camera plane. Even without the measuring tools you can still look at the factors such as timing, stability, body position, limb position, success, etc.</li> <li>• <b>Jumping:</b> Set up a camera looking at the jump area. Have the athletes performing jumps and either during or after training capture the action into Pro. You might compare the athletes against experts for general principles. Once the clip(s) are in Pro you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the timing of each body segment in the jump and make sure they are appropriate.</li> <li>• <b>Strength Training:</b> As this is a fairly controlled environment you could capture directly to the computer or just record to tape if that is easier. You would probably record from the side or behind as the lifter can use the mirror for front on feedback. Once the clip(s) are in Pro you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the general principles of the movement.</li> </ul>
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### ***Athlete Doing Some Individual Training and Analysis***

#### **Option 1**

<b>What</b>	<b>SC Live</b> (More information at <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Products</b> from the top menu)
<b>Why</b>	<ul style="list-style-type: none"> <li>• Because there is easy access for the coach and athlete, communication is easier no matter what the distance.</li> <li>• Allows athletes to see their own technique, this accelerates learning from basic movements through to more complex skills.</li> <li>• Less repetition of the instructions because they can see what you mean and they 'get it' faster.</li> <li>• Athletes can see feedback visually, eliminating verbal misunderstandings.</li> <li>• Highlight key points in a video by drawing directly on-screen.</li> <li>• Accurate analysis leads to higher quality training and performance.</li> <li>• Capture video from virtually any consumer camera or smart phone and then transfer it to your computer and then uploaded it.</li> <li>• 'One click' from video capture to analysis.</li> <li>• 50/60 images per second of video footage (standard video is 25/30 images per second) allows you to pick up subtleties the naked eye can miss.</li> <li>• Synchronise multiple video clips for side-by-side or overlaid comparison.</li> </ul>

	<ul style="list-style-type: none"> <li>• Measure key events using the time, angle, distance and speed tools.</li> </ul>
<b>How</b>	<ul style="list-style-type: none"> <li>• Capture video from virtually any consumer camera or smart phone and then transfer it to your computer and then uploaded it.</li> <li>• Generally you should only capture 5 to 8 second clips as you are capturing one skill not a whole section of play. For example you would capture one movie clip for each kick, pass, jump, stroke, throw, etc. This gives you much more flexibility for future analysis.</li> <li>• You might capture a video clip of yourself and compare it with an expert.</li> <li>• You could use the Dual Screen feature to show clips of experts doing the skill right next to your video.</li> <li>• You might draw a few lines to highlight body position differences between yourself and the expert.</li> <li>• Generally at this level you are looking at their general form, not specifics.</li> <li>• Start an online discussion with your coach right within SC Live. Only discuss one or two differences at a time.</li> <li>• Keep it simple.</li> </ul>
<b>Examples</b>	<ul style="list-style-type: none"> <li>• <b>Football:</b> Set up a camera looking at a zone marked out with cones and perform those drills within those zones and make sure you capture the action to the camera. After training transfer the files to your computer (Windows or Mac) and then use the SC Live Uploader to trim, compress and send the video clips to your SC Live online space. Now start an online discussion with your coach right within SC Live. You might compare yourself against experts for general principles.</li> <li>• <b>Swimming:</b> Use an underwater camera and record the footage to the camera. After training transfer the files to your computer (Windows or Mac) and then use the SC Live Uploader to trim, compress and send the video clips to your SC Live online space. Now start an online discussion with your coach right within SC Live. You might compare yourself against their previous videos to show improvements or areas that still need work.</li> <li>• <b>Batting/Hitting:</b> Set up a camera looking at the hitting area. Because of the rotational nature of batting and hitting there are not many measurements you can take other than the setup stance. An overhead camera is a great option if you have the facilities as the swing plane is now very close to the camera plane. Even without the measuring tools you can still look at the factors such as timing, stability, body position, limb position, success, etc.</li> <li>• <b>Jumping:</b> Set up a camera looking at the jump area. Perform the jumps and either during or after training capture the action into a camera. You might compare yourself against experts for general principles. Once the clip(s) are in SC Live you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the timing of each body segment in the jump and make sure they are appropriate.</li> <li>• <b>Strength Training:</b> As this is a fairly controlled environment so you can</li> </ul>

usually get the camera in a good position. You would probably record from the side or behind as the lifter can use the mirror for front on feedback. Once the clip(s) are in SC Live you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the general principles of the movement.

## Option 2

<b>What</b>	<b>Timewarp</b> (More information at <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Products</b> from the top menu)
<b>Why</b>	<ul style="list-style-type: none"> <li>• Fun and engaging for athletes because skills are being acquired faster.</li> <li>• Spend time to save time. Providing feedback to your athletes results in a faster uptake.</li> <li>• Less repetition of the instructions because they can see what you mean and they 'get it' faster.</li> <li>• Athletes can train on their own using technique guidelines prepared by a coach.</li> <li>• Allows athletes to study their own technique in a self-learning environment.</li> <li>• Easy to use, just set the required time delay.</li> <li>• Tag and loop video, watch in slow motion or pause for a closer look - all whilst Timewarp continues to record 'live'.</li> <li>• Simple to use drawing tools provide an onscreen reference for assessment.</li> <li>• Capture and review using voice commands or remote control.</li> <li>• Save and export clips to Siliconcoach Pro for detailed analysis.</li> </ul>
<b>How</b>	<ul style="list-style-type: none"> <li>• Set the Timewarp delay ('Warp') to an appropriate period, usually about 5 – 15 seconds. The great feature here is you do not need to touch the computer at all from now on, ideal for someone wearing gloves, inside a cage, in a pool, on an apparatus, lifting a heavy weight, etc.</li> <li>• Don't look at each and every attempt; reduce the frequency to perhaps one in every 2-3 attempts and focus on 'feeling' the movement internally and self-critiquing you technique before you check it on the screen.</li> <li>• Use the exemplar feature less often and start to evolve your own style based on your own attributes rather than mimic an expert.</li> </ul>
<b>Examples</b>	<ul style="list-style-type: none"> <li>• <b>Batting:</b> Bowl or bat then look at the screen and wait for their performance to be replayed on screen. You then can repeat this over and over for an hour or so. You do not need to touch the computer at all, ideal for someone wearing batting gloves!!</li> <li>• <b>Kicking:</b> Perform a kick and then watch yourself, as you get better you will tend to only watch the ones that miss the target.</li> <li>• <b>Swimming:</b> Set up with a computer data projector and an underwater camera so you can watch their last few strokes without being near any</li> </ul>

electronics.

- **Weight training:** You can watch your form from the angles you can't see in the mirror without having to put the weight down or press anything on the computer.

## *Elite Athletes*

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When someone first starts learning a technique they normally display novice movement patterns. As they approach national or international status we could call them experts at that technique. Most people will never get to the top of the expert range however many people you work with may get into the lower expert range. Everyone else lies between the two extremes somewhere. This key point here is that these are just labels on a continuum and there is no robust definition for any point along that continuum. To identify where your athlete lies is a combination of experience and common sense. Fortunately you don't need to be extremely precise with your definition as the analysis and feedback strategies are also on a continuum.

### **Summary of this Section**

- Training sessions with larger groups (e.g. 5 – 25) use Timewarp.
- Training sessions with smaller groups (e.g. 1- 5) use Timewarp or Pro.
- After training or distance coaching use SC Live or Pro.
- An athlete doing some individual training and analysis use SC Live or Timewarp.

### ***Training Sessions with Larger Groups (e.g. 5 – 25)***

<b>What</b>	<b>Timewarp</b> (More information at <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Products</b> from the top menu)
<b>Why</b>	<ul style="list-style-type: none"> <li>• Fun and engaging for athletes because skills are being acquired faster.</li> <li>• Spend time to save time. Providing feedback to your athletes results in a faster uptake.</li> <li>• Less repetition of the instructions because they can see what you mean and they 'get it' faster.</li> <li>• Athletes can train on their own using technique guidelines prepared by a coach.</li> <li>• Allows athletes to study their own technique in a self-learning environment.</li> <li>• Easy to use, just set the required time delay.</li> <li>• Tag and loop video, watch in slow motion or pause for a closer look - all whilst Timewarp continues to record 'live'.</li> <li>• Simple to use drawing tools provide an onscreen reference.</li> <li>• Capture and review using voice commands or remote control.</li> <li>• Save and export clips to Siliconcoach Pro for detailed analysis.</li> </ul>
<b>How</b>	<ul style="list-style-type: none"> <li>• Set the Timewarp delay ('Warp') to an appropriate period, usually about 5 – 15 seconds. The great feature here is you do not need to touch the computer at all from now on, ideal for someone wearing gloves, inside a cage, in a pool, on an apparatus, lifting a heavy weight, etc.</li> <li>• At this level experts should be making judgements on their technique based on internal feedback and the result.</li> <li>• They should only check themselves on the computer screen when</li> </ul>

	<p>they have a specific question/issue they want to check.</p> <ul style="list-style-type: none"> <li>• The exemplar feature is hardly ever used at this level.</li> </ul>
<b>Examples</b>	<ul style="list-style-type: none"> <li>• <b>Batting:</b> Your athlete can bowl or bat then look at the screen and wait for their performance to be replayed on screen. You then can repeat this over and over for an hour or so. You do not need to touch the computer at all, ideal for someone wearing batting gloves!!</li> <li>• <b>Kicking:</b> Your athlete can perform the kick and then watch themselves, as they get better they will tend to only watch the ones that miss the target.</li> <li>• <b>Swimming:</b> Set up with a computer data projector and an underwater camera the swimmer can watch their last few strokes without being near any electronics.</li> <li>• <b>Weight training:</b> Your lifter can watch their form from angles they can't see in the mirror without having to put the weight down or press anything on the computer.</li> </ul>

### Training Sessions with Smaller Groups (e.g. 1- 5)

#### Option 1

<b>What</b>	<b>Timewarp</b> (More information at <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Products</b> from the top menu)
<b>Why</b>	<ul style="list-style-type: none"> <li>• Fun and engaging for athletes because skills are being acquired faster.</li> <li>• Spend time to save time. Providing feedback to your athletes results in a faster uptake.</li> <li>• Less repetition of the instructions because they can see what you mean and they 'get it' faster.</li> <li>• Athletes can train on their own using technique guidelines prepared by a coach.</li> <li>• Allows athletes to study their own technique in a self-learning environment.</li> <li>• Easy to use, just set the required time delay.</li> <li>• Tag and loop video, watch in slow motion or pause for a closer look - all whilst Timewarp continues to record 'live'.</li> <li>• Simple to use drawing tools provide an onscreen reference for assessment.</li> <li>• Capture and review using remote control.</li> </ul>
<b>How</b>	<ul style="list-style-type: none"> <li>• Set the Timewarp delay ('Warp') to an appropriate period, usually about 5 – 15 seconds. The great feature here is you do not need to touch the computer at all from now on, ideal for someone wearing gloves, inside a cage, in a pool, on an apparatus, lifting a heavy weight, etc.</li> <li>• At this level experts should be making judgements on their technique based on internal feedback and the result.</li> <li>• They should only check themselves on the computer screen when they have a specific question/issue they want to check.</li> </ul>

	<ul style="list-style-type: none"> <li>The exemplar feature is hardly ever used at this level.</li> </ul>
<b>Examples</b>	<ul style="list-style-type: none"> <li><b>Batting:</b> Your athlete can bowl or bat then look at the screen and wait for their performance to be replayed on screen. You then can repeat this over and over for an hour or so. You do not need to touch the computer at all, ideal for someone wearing batting gloves!!</li> <li><b>Kicking:</b> Your athlete can perform the kick and then watch themselves, as they get better they will tend to only watch the ones that miss the target.</li> <li><b>Swimming:</b> Set up with a computer data projector and an underwater camera the swimmer can watch their last few strokes without being near any electronics.</li> <li><b>Weight training:</b> Your lifter can watch their form from angles they can't see in the mirror without having to put the weight down or press anything on the computer.</li> </ul>

### Option 2

<b>What</b>	<b>Pro</b> (More information at <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Products</b> from the top menu)
<b>Why</b>	<ul style="list-style-type: none"> <li>Fun and engaging for athletes because skills are being acquired faster.</li> <li>Allows athletes to see their own technique, this accelerates learning from basic movements through to more complex skills.</li> <li>Spend time to save time. Providing feedback to your athletes results in a faster uptake.</li> <li>Less repetition of the instructions because they can see what you mean and they 'get it' faster.</li> <li>Athletes can see feedback visually, eliminating verbal misunderstandings.</li> <li>Highlight key points in a video by drawing directly on-screen.</li> <li>Accurate analysis leads to higher quality training and performance.</li> <li>Capture video 'live' from your camera and provide feedback on-the-spot. For more information go to <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Support</b> then the <b>Pro</b> Support Centre then the <b>Hardware</b> resource link.</li> <li>'One click' from video capture to analysis.</li> <li>50/60 images per second of video footage (standard video is 25/30 images per second) allows you to pick up subtleties the naked eye can miss.</li> <li>Synchronise multiple video clips for side-by-side or overlaid comparison.</li> <li>Measure key events using the time, angle, distance and speed tools.</li> <li>Build a presentation with simple-to-use templates.</li> </ul>
<b>How</b>	<ul style="list-style-type: none"> <li>You need to capture video clips to use in your analysis.</li> <li>Generally you should only capture 5 to 8 second clips as you are capturing one skill not a whole section of play. For example you would capture one movie clip for each kick, pass, jump, stroke, throw, etc.</li> </ul>

	<p>This gives you much more flexibility for future analysis.</p> <ul style="list-style-type: none"> <li>• At this level experts should be making judgements on their technique based on internal feedback ('feelings') and the result. They should only check themselves on the computer screen when they have a specific question/issue they want to check.</li> <li>• You could use the Presentation feature of Pro to line up 10 to 15 video clips of the athlete doing the same skill. Set them all to the same point in the technique and then flick through them all looking for differences between the successful ones and the failures. This is called Summary Data and here you are refining this athlete's individual skills based on the result and their own attributes.</li> <li>• Comparing to other 'experts' is practically never used at this level.</li> <li>• You could use the Dual Screen feature in Pro to show clips of your athlete when they first started compared to now to show improvements, this works well for motivation.</li> <li>• If the athlete is in a 'technique slump' you could use the Dual Screen feature in Pro to show clips of them when they performed well compared to now to highlight differences, this works well for getting them out of their 'technique slump'.</li> <li>• Move from just looking at their general form to include specifics, for example the relative position of each limb, the centre of mass relative to the base of support, the timing of segments, etc.</li> <li>• You might draw lines to highlight body position differences.</li> <li>• You might measure a few basic angles. Make sure the angles you measure are in the plane of the camera. When comparing good verses bad performances by the athlete (not between athletes), you can be a bit more precise in your angle measurements. However, you need to remember there is more than one way to perform the same skill and there are also errors in the measuring process so don't get too focused on numbers. Use them as part of the feedback, not all of the feedback.</li> <li>• Only present one or two differences at a time.</li> <li>• Still keep the feedback simple and clear, only present one or two key points at a time.</li> </ul>
<b>Examples</b>	<ul style="list-style-type: none"> <li>• <b>Football:</b> Set up a camera looking at a zone marked out with cones. Have the athletes performing drills within those zones. Either during or after training capture the action into Pro. You might compare the athletes against experts for general principles.</li> <li>• <b>Swimming:</b> Use an underwater camera and record the footage to tape. After training, capture the clips of interest into Pro and create Presentations. Show and discuss these with the athlete either on poolside or at a meeting after training (the more practical option).</li> <li>• <b>Batting/Hitting:</b> Set up a camera looking at the hitting area. Because of the rotational nature of batting and hitting there are not many measurements you can take other than the setup stance. An overhead camera is a great option if you have the facilities as the swing plane is now very close to the camera plane. Even without the measuring tools you can still look at the factors such as timing, stability, body position,</li> </ul>

	<p>limb position, success, etc.</p> <ul style="list-style-type: none"> <li>• <b>Jumping:</b> Set up a camera looking at the jump area. Have the athletes performing jumps and either during or after training capture the action into Pro. You might compare the athletes against experts for general principles. Once the clip(s) are in Pro you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the timing of each body segment in the jump and make sure they are appropriate.</li> <li>• <b>Strength Training:</b> As this is a fairly controlled environment you could capture directly to the computer or just record to tape if that is easier. You would probably record from the side or behind as the lifter can use the mirror for front on feedback. Once the clip(s) are in Pro you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the general principles of the movement.</li> </ul>
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## After Training or Distance Coaching

### Option 1

<b>What</b>	<b>SC Live</b> (More information at <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Products</b> from the top menu)
<b>Why</b>	<ul style="list-style-type: none"> <li>• Because there is easy access for the coach and athlete, communication is easier no matter what the distance.</li> <li>• Allows athletes to see their own technique, this accelerates learning from basic movements through to more complex skills.</li> <li>• Spend time to save time. Providing feedback to your athletes results in a faster uptake.</li> <li>• Less repetition of the instructions because they can see what you mean and they 'get it' faster.</li> <li>• Athletes can see feedback visually, eliminating verbal misunderstandings.</li> <li>• Highlight key points in a video by drawing directly on-screen.</li> <li>• Accurate analysis leads to higher quality training and performance.</li> <li>• Capture video from virtually any consumer camera or smart phone and then transfer it to your computer and then uploaded it.</li> <li>• 'One click' from video capture to analysis.</li> <li>• 50/60 images per second of video footage (standard video is 25/30 images per second) allows you to pick up subtleties the naked eye can miss.</li> <li>• Synchronise multiple video clips for side-by-side or overlaid comparison.</li> <li>• Measure key events using the time, angle, distance and speed tools.</li> </ul>
<b>How</b>	<ul style="list-style-type: none"> <li>• Capture video from virtually any consumer camera or smart phone and then transfer it to your computer and then uploaded it.</li> <li>• Generally you should only capture 5 to 8 second clips as you are</li> </ul>

	<p>capturing one skill not a whole section of play. For example you would capture one movie clip for each kick, pass, jump, stroke, throw, etc. This gives you much more flexibility for future analysis.</p> <ul style="list-style-type: none"> <li>• At this level experts should be making judgements on their technique based on internal feedback ('feelings') and the result. They should only check themselves on the computer screen when they have a specific question/issue they want to check.</li> <li>• Comparing to other 'experts' is practically never used at this level.</li> <li>• You could use the Dual Screen to show clips of your athlete when they first started compared to now to show improvements, this works well for motivation.</li> <li>• If the athlete is in a 'technique slump' you could use the Dual Screen feature in Pro to show clips of them when they performed well compared to now to highlight differences, this works well for getting them out of their 'technique slump'.</li> <li>• Move from just looking at their general form to include specifics, for example the relative position of each limb, the centre of mass relative to the base of support, the timing of segments, etc.</li> <li>• You might draw lines to highlight body position differences.</li> <li>• You might measure a few basic angles. Make sure the angles you measure are in the plane of the camera. When comparing good verses bad performances by the athlete (not between athletes), you can be a bit more precise in your angle measurements. However, you need to remember there is more than one way to perform the same skill and there are also errors in the measuring process so don't get too focused on numbers. Use them as part of the feedback, not all of the feedback.</li> <li>• Only present one or two differences at a time.</li> <li>• Still keep the feedback simple and clear, only present one or two key points at a time.</li> </ul>
<b>Examples</b>	<ul style="list-style-type: none"> <li>• <b>Football:</b> If your athletes live in a distant location have them set up a camera looking at a zone marked out with cones. Have the athletes performing drills within those zones and make sure they capture the action to their camera. After training have them transfer the files to their computer (Windows or Mac) and then use the SC Live Uploader to trim, compress and send the video clips to their/your SC Live online space. Now start an online discussion with your athlete right within SC Live. You might compare the athletes against experts for general principles.</li> <li>• <b>Swimming:</b> Use an underwater camera and record the footage to the camera. After training transfer the files to your computer (Windows or Mac) and then use the SC Live Uploader to trim, compress and send the video clips to your SC Live online space. Now start an online discussion with your athlete right within SC Live. You might compare the athlete against their previous videos to show improvements or areas that still need work.</li> <li>• <b>Batting/Hitting:</b> Set up a camera looking at the hitting area. Because of the rotational nature of batting and hitting there are not many</li> </ul>

measurements you can take other than the setup stance. An overhead camera is a great option if you have the facilities as the swing plane is now very close to the camera plane. Even without the measuring tools you can still look at the factors such as timing, stability, body position, limb position, success, etc.

- **Jumping:** Set up a camera looking at the jump area. Have the athletes performing jumps and either during or after training capture the action into a camera. You might compare the athletes against experts for general principles. Once the clip(s) are in SC Live you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the timing of each body segment in the jump and make sure they are appropriate.
- **Strength Training:** As this is a fairly controlled environment so you can usually get the camera in a good position. You would probably record from the side or behind as the lifter can use the mirror for front on feedback. Once the clip(s) are in SC Live you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the general principles of the movement.

## Option 2

<b>What</b>	<b>Pro</b> (More information at <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Products</b> from the top menu)
<b>Why</b>	<ul style="list-style-type: none"> <li>• The ability to record your entire analysis including drawings and voice over and export it as a new video clip. Now you can send this clip to the athlete for them to review over and over again when you are not there. This concept also works very well for distance coaching when you are not with your athletes all the time.</li> <li>• Fun and engaging for athletes because skills are being acquired faster.</li> <li>• Allows athletes to see their own technique, this accelerates learning from basic movements through to more complex skills.</li> <li>• Spend time to save time. Providing feedback to your athletes results in a faster uptake.</li> <li>• Less repetition of the instructions because they can see what you mean and they 'get it' faster.</li> <li>• Athletes can see feedback visually, eliminating verbal misunderstandings.</li> <li>• Highlight key points in a video by drawing directly on-screen.</li> <li>• Accurate analysis leads to higher quality training and performance.</li> <li>• Capture video 'live' from your camera and provide feedback on-the-spot. For more information go to <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Support</b> then the <b>Pro</b> Support Centre then the <b>Hardware</b> resource link.</li> <li>• 'One click' from video capture to analysis.</li> <li>• 50/60 images per second of video footage (standard video is 25/30 images per second) allows you to pick up subtleties the naked eye can miss.</li> </ul>

	<ul style="list-style-type: none"> <li>• Synchronise multiple video clips for side-by-side or overlaid comparison.</li> <li>• Measure key events using the time, angle, distance and speed tools.</li> <li>• Build a presentation with simple-to-use templates..</li> </ul>
<b>How</b>	<ul style="list-style-type: none"> <li>• You need to capture video clips to use in your analysis.</li> <li>• Generally you should only capture 5 to 8 second clips as you are capturing one skill not a whole section of play. For example you would capture one movie clip for each kick, pass, jump, stroke, throw, etc. This gives you much more flexibility for future analysis.</li> <li>• At this level experts should be making judgements on their technique based on internal feedback ('feelings') and the result. They should only check themselves on the computer screen when they have a specific question/issue they want to check.</li> <li>• You could use the Presentation feature of Pro to line up 10 to 15 video clips of the athlete doing the same skill. Set them all to the same point in the technique and then flick through them all looking for differences between the successful ones and the failures. This is called Summary Data and here you are refining this athlete's individual skills based on the result and their own attributes.</li> <li>• Comparing to other 'experts' is practically never used at this level.</li> <li>• You could use the Dual Screen feature in Pro to show clips of your athlete when they first started compared to now to show improvements, this works well for motivation.</li> <li>• If the athlete is in a 'technique slump' you could use the Dual Screen feature in Pro to show clips of them when they performed well compared to now to highlight differences, this works well for getting them out of their 'technique slump'.</li> <li>• Move from just looking at their general form to include specifics, for example the relative position of each limb, the centre of mass relative to the base of support, the timing of segments, etc.</li> <li>• You might draw lines to highlight body position differences.</li> <li>• You might measure a few basic angles. Make sure the angles you measure are in the plane of the camera. When comparing good verses bad performances by the athlete (not between athletes), you can be a bit more precise in your angle measurements. However, you need to remember there is more than one way to perform the same skill and there are also errors in the measuring process so don't get too focused on numbers. Use them as part of the feedback, not all of the feedback.</li> <li>• Only present one or two differences at a time.</li> <li>• Still keep the feedback simple and clear, only present one or two key points at a time.</li> </ul>
<b>Examples</b>	<ul style="list-style-type: none"> <li>• <b>Football:</b> Set up a camera looking at a zone marked out with cones. Have the athletes performing drills within those zones. Either during or after training capture the action into Pro. You might compare the athletes against experts for general principles.</li> <li>• <b>Swimming:</b> Use an underwater camera and record the footage to tape. After training, capture the clips of interest into Pro and create</li> </ul>

	<p>Presentations. Show and discuss these with the athlete either on poolside or at a meeting after training (the more practical option).</p> <ul style="list-style-type: none"> <li>• <b>Batting/Hitting:</b> Set up a camera looking at the hitting area. Because of the rotational nature of batting and hitting there are not many measurements you can take other than the setup stance. An overhead camera is a great option if you have the facilities as the swing plane is now very close to the camera plane. Even without the measuring tools you can still look at the factors such as timing, stability, body position, limb position, success, etc.</li> <li>• <b>Jumping:</b> Set up a camera looking at the jump area. Have the athletes performing jumps and either during or after training capture the action into Pro. You might compare the athletes against experts for general principles. Once the clip(s) are in Pro you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the timing of each body segment in the jump and make sure they are appropriate.</li> <li>• <b>Strength Training:</b> As this is a fairly controlled environment you could capture directly to the computer or just record to tape if that is easier. You would probably record from the side or behind as the lifter can use the mirror for front on feedback. Once the clip(s) are in Pro you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the general principles of the movement.</li> </ul>
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### ***Athlete Doing Some Individual Training and Analysis***

#### **Option 1**

<b>What</b>	<b>SC Live</b> (More information at <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Products</b> from the top menu)
<b>Why</b>	<ul style="list-style-type: none"> <li>• Because there is easy access for the coach and athlete, communication is easier no matter what the distance.</li> <li>• Allows athletes to see their own technique, this accelerates learning from basic movements through to more complex skills.</li> <li>• Less repetition of the instructions because they can see what you mean and they 'get it' faster.</li> <li>• Athletes can see feedback visually, eliminating verbal misunderstandings.</li> <li>• Highlight key points in a video by drawing directly on-screen.</li> <li>• Accurate analysis leads to higher quality training and performance.</li> <li>• Capture video from virtually any consumer camera or smart phone and then transfer it to your computer and then uploaded it.</li> <li>• 'One click' from video capture to analysis.</li> <li>• 50/60 images per second of video footage (standard video is 25/60 images per second) allows you to pick up subtleties the naked eye can miss.</li> <li>• Synchronise multiple video clips for side-by-side or overlaid</li> </ul>

	<p>comparison.</p> <ul style="list-style-type: none"> <li>• Measure key events using the time, angle, distance and speed tools.</li> </ul>
<b>How</b>	<ul style="list-style-type: none"> <li>• Capture video from virtually any consumer camera or smart phone and then transfer it to your computer and then uploaded it.</li> <li>• Generally you should only capture 5 to 8 second clips as you are capturing one skill not a whole section of play. For example you would capture one movie clip for each kick, pass, jump, stroke, throw, etc. This gives you much more flexibility for future analysis.</li> <li>• At this level experts should be making judgements on their technique based on internal feedback ('feelings') and the result. They should only check themselves on the computer screen when they have a specific question/issue they want to check.</li> <li>• Comparing to other 'experts' is practically never used at this level.</li> <li>• You could use the Dual Screen to show clips of your athlete when they first started compared to now to show improvements, this works well for motivation.</li> <li>• If the athlete is in a 'technique slump' you could use the Dual Screen feature in Pro to show clips of them when they performed well compared to now to highlight differences, this works well for getting them out of their 'technique slump'.</li> <li>• Move from just looking at their general form to include specifics, for example the relative position of each limb, the centre of mass relative to the base of support, the timing of segments, etc.</li> <li>• You might draw lines to highlight body position differences.</li> <li>• You might measure a few basic angles. Make sure the angles you measure are in the plane of the camera. When comparing good verses bad performances by the athlete (not between athletes), you can be a bit more precise in your angle measurements. However, you need to remember there is more than one way to perform the same skill and there are also errors in the measuring process so don't get too focused on numbers. Use them as part of the feedback, not all of the feedback.</li> <li>• Only present one or two differences at a time.</li> <li>• Still keep the feedback simple and clear, only present one or two key points at a time.</li> </ul>
<b>Examples</b>	<ul style="list-style-type: none"> <li>• <b>Football:</b> Set up a camera looking at a zone marked out with cones and perform those drills within those zones and make sure you capture the action to the camera. After training transfer the files to your computer (Windows or Mac) and then use the SC Live Uploader to trim, compress and send the video clips to your SC Live online space. Now start an online discussion with your coach right within SC Live. You might compare yourself against their previous videos to show improvements or areas that still need work.</li> <li>• <b>Swimming:</b> Use an underwater camera and record the footage to the camera. After training transfer the files to your computer (Windows or Mac) and then use the SC Live Uploader to trim, compress and send the video clips to your SC Live online space. Now start an online discussion</li> </ul>

	<p>with your coach right within SC Live. You might compare yourself against their previous videos to show improvements or areas that still need work.</p> <ul style="list-style-type: none"> <li>• <b>Batting/Hitting:</b> Set up a camera looking at the hitting area. Because of the rotational nature of batting and hitting there are not many measurements you can take other than the setup stance. An overhead camera is a great option if you have the facilities as the swing plane is now very close to the camera plane. Even without the measuring tools you can still look at the factors such as timing, stability, body position, limb position, success, etc.</li> <li>• <b>Jumping:</b> Set up a camera looking at the jump area. Perform the jumps and either during or after training capture the action into a camera. Once the clip(s) are in SC Live you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the timing of each body segment in the jump and make sure they are appropriate.</li> <li>• <b>Strength Training:</b> As this is a fairly controlled environment so you can usually get the camera in a good position. You would probably record from the side or behind as the lifter can use the mirror for front on feedback. Once the clip(s) are in SC Live you might use the drawing and angle tools to look at body position at each of the important phases of the action. Using the frame by frame playback you can look at the general principles of the movement.</li> </ul>
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### Option 2

<b>What</b>	<b>Timewarp</b> (More information at <a href="http://www.siliconcoach.com">www.siliconcoach.com</a> and click on <b>Products</b> from the top menu)
<b>Why</b>	<ul style="list-style-type: none"> <li>• Fun and engaging for athletes because skills are being acquired faster.</li> <li>• Spend time to save time. Providing feedback to your athletes results in a faster uptake.</li> <li>• Less repetition of the instructions because they can see what you mean and they 'get it' faster.</li> <li>• Athletes can train on their own using technique guidelines prepared by a coach.</li> <li>• Allows athletes to study their own technique in a self-learning environment.</li> <li>• Easy to use, just set the required time delay.</li> <li>• Tag and loop video, watch in slow motion or pause for a closer look - all whilst Timewarp continues to record 'live'.</li> <li>• Simple to use drawing tools provide an onscreen reference for assessment.</li> <li>• Capture and review using voice commands or remote control.</li> <li>• Save and export clips to Siliconcoach Pro for detailed analysis.</li> </ul>

<b>How</b>	<ul style="list-style-type: none"> <li>• Set the Timewarp delay ('Warp') to an appropriate period, usually about 5 – 15 seconds. The great feature here is you do not need to touch the computer at all from now on, ideal for someone wearing gloves, inside a cage, in a pool, on an apparatus, lifting a heavy weight, etc.</li> <li>• At this level experts should be making judgements on their technique based on internal feedback and the result.</li> <li>• They should only check themselves on the computer screen when they have a specific question/issue they want to check.</li> <li>• The exemplar feature is hardly ever used at this level.</li> </ul>
<b>Examples</b>	<ul style="list-style-type: none"> <li>• <b>Batting:</b> Bowl or bat then look at the screen and wait for their performance to be replayed on screen. You then can repeat this over and over for an hour or so. You do not need to touch the computer at all, ideal for someone wearing batting gloves!!</li> <li>• <b>Kicking:</b> Perform a kick and then watch yourself, as you get better you will tend to only watch the ones that miss the target.</li> <li>• <b>Swimming:</b> Set up with a computer data projector and an underwater camera so you can watch their last few strokes without being near any electronics.</li> <li>• <b>Weight training:</b> You can watch your form from the angles you can't see in the mirror without having to put the weight down or press anything on the computer.</li> </ul>