

Unleash the
POWER
of your videos

DARTFISH 
CAPTURE. ANALYZE. SHARE

DARTFISH VIDEO TECHNOLOGY FOR KINESIOLOGY

FOR THE CLASSROOM, LAB, AND RESEARCH

Abstract

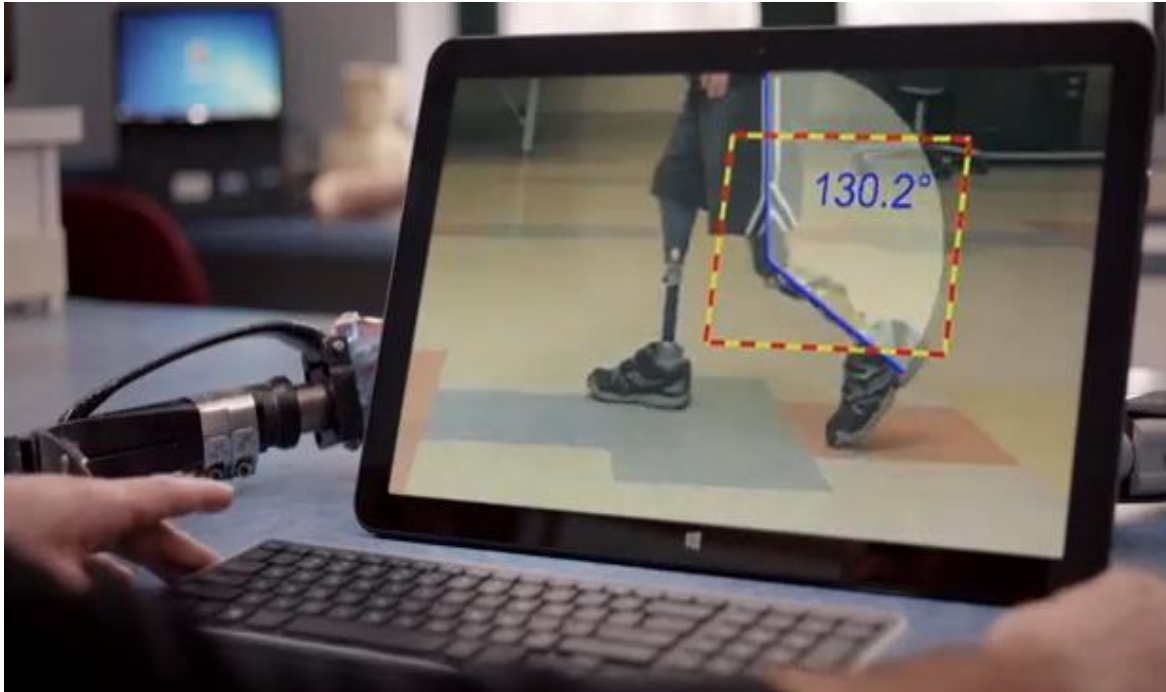
Universities today face a growing challenge - to develop relevant cost-effective learning environments that transition into actualized career opportunities for their graduates. You can provide a unique educational experience at your university, by bringing the basic scientific principles of human movement to life using **Dartfish Video Analysis Technology**. This white paper will illustrate how to use Dartfish to tackle real-world scenarios, blend face-to-face instruction with practical experience, promote a dynamic learning experience, and provide individual and collaborative video research opportunities to augment learning in Kinesiology.

DARTFISH
www.dartfish.com



Dartfish Video Technology for Kinesiology at your University

In Motor Behavior and Development, Biomechanics, Sports Medicine, Sport and Exercise Science. In Education for Physical Therapy, Athletic Training, Personal Training. In Sport Pedagogy for Physical Education, Adapted PE, Coaching. In Research.



[The Microsoft Super Bowl ad airing Sunday, February 1, 2015, features Dartfish Technology.](#)

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OVERVIEW

Dartfish enhances learning in Kinesiology, an interdisciplinary field focusing on the science of human movement, with incorporation of our affordable cutting edge 2-D video analysis technology. In the field of human movement, you not only augment student learning, but also meet the needs of the 65 percent who are visual learners, according to the Social Science Research Network. (Forbes 01.08.2013) In creating a dynamic visual learning experience, you provide your students with the opportunity to:

- Study human movement in depth and visually from different perspectives
- Apply biomechanical concepts that study how movement is quantified, learning how to sequence to modify movement behaviors
- Learn the adaptation of motor behavior across the lifespan, enhanced with visual input/data
- Give students the opportunity to gain valuable and relevant opportunities to research and apply movement-based principles for improved performance and for protocols in rehabilitation
- Apply both scholarship and practice of different movement forms to enhance performance in hands on environments using Dartfish in practicums, clinics, and internships.

Bottom-line, it is about preparing students as leaders and innovators in the workforce, and it is about giving your students a distinct advantage as professionals in a laboratory, school, medical or business setting.

Why Dartfish?

to capture, analyze, and share video content

Dartfish delivers a highly effective cutting edge total solution: 2-D video technology for your classroom, lab, research, and on/off campus practicums. Ensuring integration with the very latest in technology, a company with a proven track record, nationally and internationally recognized, and here for the long haul, Dartfish is the partner to empower your dynamic visual learning experience.

Note the article published in the International Journal of Scientific & Engineering Research Volume 3, Issue 3, March 2012: [*Evaluation of the Performance of Digital Video Analysis of Human Motion: Dartfish Tracking System*](#)

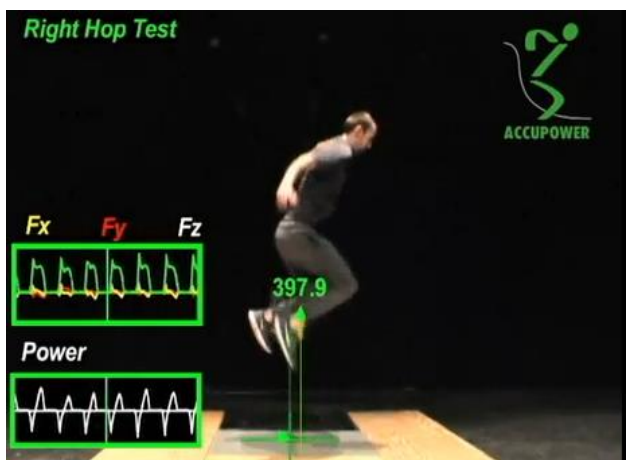


DARTFISH THE COMPANY - unleashing the power of video

For over fifteen years, Dartfish has set the standard, developing video technology solutions across the spectrum of sports medicine, education, healthcare, and athletics. Trusted globally by thousands of elite sport organizations, universities, federations, and corporations, we lead the world with technology to create, analyze and distribute video content. Our engineers, sales and marketing teams have spent thousands of hours interfacing with biomechanics and sports medicine experts, coaching professionals and educators worldwide. Their feedback has provided an evolving ability to produce the latest video technology with state of the art products – apps, software, video platform, training, and USA based tech support.

Dartfish empowers you and your students to capture, analyze, code, enrich, publish, and share video content.

DARTFISH TECHNOLOGY in a university setting



Dartfish qualitative and quantitative movement analysis technology saves time and money while providing a micro-level view of motion technology: In human movement analysis labs with [force plate integration](#), in clinics for screening to evaluate mechanical deviations to prevent injury, during rehabilitation, for diagnosis and to treat movement dysfunction, to recommend proper exercises with evidenced progression and for a return to activity that is age/developmentally appropriate. In training and coaching Dartfish technology is used to fine tune motion, optimizing athletic performance, to teach corrective exercises/drills to improve joint and muscular motion, for analysis of sprinting/running/walking gait

mechanics to detect miniscule deficits and to zero in on biomechanical abnormalities. For bike fitting it is used to fine-tune and optimize biomechanics, position, and power output. Dartfish offers solutions for the classroom, lab, research, internships, practicums and clinics - opportunities to analyze all types of movement - sport skills performance, training procedures, gait analysis and rehab protocols, as well as projectile motion, and vector resolution. [SUNY Cortland has adopted Dartfish in multiple departments including Kinesiology, Athletic Training, Sports Management, Physical Education, Athletics, and Research.](#)

Dartfish – a 2D motion analysis system, with video and data integration. AMTI Force Plates (pictured above) are fully compatible with our Dartfish Video Analysis Software. Data stream from these types of devices can be displayed in Dartfish and integrated with video in real time, providing instant feedback for athletes and researchers, while offering a seamless, visual solution for teaching in multiple areas of Kinesiology.

We have the ability to integrate any time-stamped data from almost any device that outputs a .csv file so that you have a view of the motion (video) and its associated data. This allows your students to grasp both the qualitative and the quantitative when analyzing motion. It provides the ability to synchronize data and video with data display on the video using graphs, texts, or symbols, so your students can interpret and validate data by creating a motion and data interface. [Note some Dartfish TeamPro Data video examples.](#)



SPORTS MEDICINE



The Journal of Human Kinetics vol. 40/2014, 29-35 Sect. I – Kinesiology, published an article entitled, "[Biomechanical Evaluation of the Phases of the Triple Jump Take-Off in a Top Female Athlete.](#)" Photo left illustrates Dartfish Stimulation of an athlete performing the long jump.



Dartfish's comparative and quantitative analysis tools allow you to achieve what would be otherwise impossible - to make detailed observations and measurements of the moving athlete, client, or patient. Video compliments your expertise and Dartfish provides that video instantly and simultaneously from multiple camera angles. Part of analyzing is about the hard numbers, but measurements can be meaningless without seeing them within the context of the entire motion. Dartfish gives you that and in doing so offers a new way to communicate with your students in a visual way they can understand. Enrich the video by recording your observations, get it online and the understanding and communication continues, even after leaving the classroom.

Use feedback and in-depth movement analysis to remediate, restore, and maximize performance. Using analysis tools to measure angles, speed, and trajectory with auto tracking of movement function or dysfunction means your students experience better and faster results. Train, teach and remediate using dynamically measured data analysis of velocity, distance, angles, and range of motion - tools to help you

articulate and customize your client's performance goals. In PT, OT, AT practicums and clinics, your students work in conjunction with experts to develop protocols and proper exercises for clients and patients, enhanced with Dartfish technology. During the session, they get instant visual feedback showing exactly what their body is doing, so movement is properly executed. Store their data in a secure and private digital collection on [dartfish.tv](#) to show side-by-side comparison with before and after video shots tracking progress throughout their treatment process, showing improvement in every aspect of their rehab and performance.

The Mayo Clinic Sports Medicine Center has incorporated Dartfish Technology at their Rochester, Minnesota Campus. In the photo above, Mayo's highly trained staff uses Dartfish Video Solutions: Dartfish ProSuite Software, a customized camera solution and Dartfish TV to provide video feedback for athletes training in various disciplines, including running, baseball, golf, hockey, tennis, basketball and lacrosse.

- [Note the Sports Medicine Mayo Clinic Dartfish TV Channel – public access videos.](#)
- [Note use of Dartfish in a clinical laboratory at the Mount Sinai School of Medicine's Rehabilitation Department](#)



VIDEO GAIT ANALYSIS

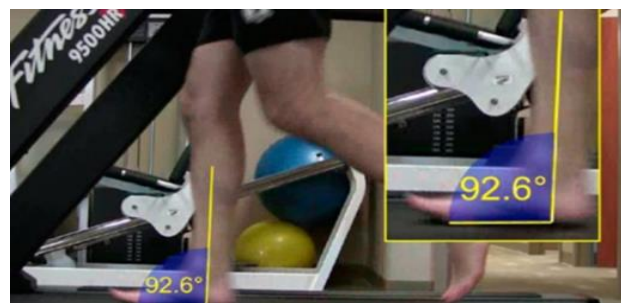


Video gait analysis has been increasingly used to evaluate a subject's movement patterns in order to assist in diagnosing pathologies, improving sports performance and/or monitoring therapeutic interventions such as gait retraining or footwear changes. The tools incorporated into Dartfish high speed video analysis software, allow observers to slow down, magnify, and manipulate the video image in order to do such things as calculate joint angles and obtain other measurements. A recent study showed that the reliability of gait parameter data was higher with Dartfish® software than with standard video software that lacked these tools. (Borel S., et al, Video Analysis Software Increases Interrater Reliability of Video Gait Assessments in Children with Cerebral Palsy, Gait & Posture, March 18, 2011; online abstract prior to publication).

A professional level gait analysis involves more than watching a video of gait. A detailed clinical exam would also include muscle strength and balance testing, static and dynamic range of motion measurements, footwear evaluation, detailed injury and medical history and a review of the athlete's training program. This would usually be done prior to the video gait analysis.

- [Further documentation on Dartfish use for video gait analysis can be accessed here.](#)
- [Note lateral knee and ankle tracking with Dartfish used by Dr. Paul Langer, DPM, author of Great Feet for Life.](#) Dr. Langer was appointed as the new President of the American Academy of Podiatric Sports Medicine, July 2013.
- Note [2D Gait Analysis Validity](#) by Justin Pretzel DPT, CSCS, CDT, published June 8, 2012

[The Wall Street Journal's Matthew Futterman participates in a Dartfish gait analysis at Manhattan's Hospital for Surgery with Physical Therapist Michael Silverman to learn how he may be able to prevent some running injuries.](#)





BIOMECHANICS



Dartfish video technology brings to life biomechanical movement concepts for improved comprehension and career application. *“I use Dartfish in a variety of ways for my classroom and research responsibilities,”* states Dr. Jeff Bauer, a professor in the Kinesiology Department at SUNY Cortland, teaching undergraduate biomechanics. Dr. Bauer is also the Co-Director of the Biomechanics Laboratory and the Associate Director of the Center for Obesity Research and Education. Under Dr. Bauer’s direction, Dartfish is used in classroom lecture, student laboratories; for research, and by the SUNY Cortland [Dartfish Club](#). *“In the classroom I use it to present real-life movement concepts to my students. It is my primary tool for demonstrating*

digital video capture and analysis concepts. It provides a way for me to show my students actual examples of sport skill analysis, projectile motion, vector resolution, and to highlight subtle differences in movement performance. Dartfish has provided me with a tool that brings alive many key biomechanical principles of movement that are so hard to fully understand and appreciate, when presented in standard classroom settings.”

[Dartfish Used for Instruction and in the Sports Biomechanics Lab at Auburn University](#)

Professor Dr. Wendi Weimar, is the Director of the Sport Biomechanics Laboratory in the School of Kinesiology at Auburn University, where she earned her doctorate in Biomechanics. Dr. Weimar's research is focused on the function of the lower extremity with specific interest in gait dynamics. According to Dr. Weimar, *“[The Sports Biomechanics Laboratory at Auburn](#) is an applied lab that consults with athletes at the university, as well as from the general community. We analyze movement and help people improve their performance.*

“We also work sport camps in the summer, using Dartfish to help campers get more out of their camp experience.” Dr. Weimar teaches two graduate level courses, KINE 7420 Dartfish I and KINE 7430, Dartfish II. These courses are a part of an online program teaching movement analysis.

“I use Dartfish to supplement my teaching in KINE 7400/7410 Advanced Anatomical Principles and the associated lab. And I use it in KINE 7620, Principles of Biomechanics. We cover the gamut with use of Dartfish. In my Dartfish classes we use Team Pro software. I also encourage my students to use the Dartfish Express App. And for all of these courses, we use Dartfish TV,” explained Weimar.

“Adding to this, Auburn has been named the training site of the men's and women's USA Team Handball and we use Dartfish with them A LOT.”



Exercise Science at the University of Jamestown, ND Works with Latest Technology

The University of Jamestown's Bachelor of Science degree in Exercise Science, equips graduates for a variety of careers in exercise physiology, sport science, physical therapy and more. "[Working with the latest technology, Dartfish Motion Analysis Software, students analyze technical performances before and after training, and improve their understanding of motor skill acquisition, technique analysis and feedback, with application into sport science and physical education.](#)"

Stephen F. Austin State University, TX - Student Project Using Dartfish Motion Analysis

SFASU student, Wesley Kephart, did his term project for KINS 417, Analysis of Movement, a project requiring "*the comprehension and utilization of various biomechanical principles.*" This course is taught in the Kinesiology and Health Science Department of the College of Education at SFASU and is one of the "*core courses making up the scientific foundations area for kinesiology and all movement related fields.*" Note Mr. Kephart's term project, "[A Biomechanical Analysis of the Weight Training Squat Using Dartfish Motion Analysis Software](#)".

DYNAMIC BIOMECHANICS – video embedded e-text bundled with Dartfish



[Dynamic Biomechanics](#) is the first of its kind e-text embedded with video and teamed with Dartfish technology. It provides hands on learning to help students understand and apply biomechanical movement principles, often difficult to grasp in traditional formats. Using Dartfish cutting edge technology, students view, manipulate, and analyze movement and performance, creating an authentic learning experience to best prepare for success in the classroom and beyond.

A video-infused e-text bundled with Dartfish changes, enhances, and refines learning, giving students marketable skills for future careers as PE teachers, trainers, physical and occupational

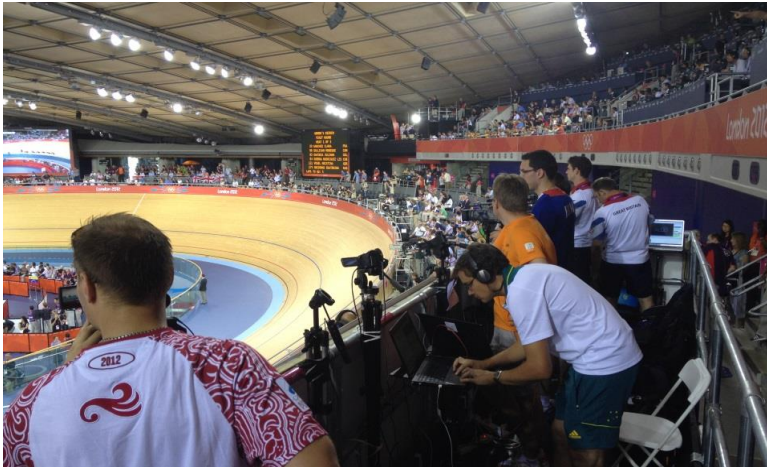
therapists and in sports medicine. [Across America, biomechanics professors choose *Dynamic Biomechanics*, an e-text embedded with video and teamed with Dartfish Technology.](#)

For more information please contact db@dartfish.com

- Note the article, [Kinematic Changes During a Marathon for Fast and Slow Runners](#), published in the Journal of Sports Science and Medicine (2012) 11, 77-82 by professors in the Department of Exercise Sciences and the Department of Statistics at Brigham Young University, UT
- Note the article published in the International Journal of Scientific & Engineering Research March 2012 : [Evaluation of the Performance of Digital Video Analysis of Human Motion: Dartfish Tracking System](#)
- [Note the SUNY Cortland Dartfish Use Case Study](#)



STUDENT CERTIFICATION & INTERNSHIP OPPORTUNITIES



When students become expert Dartfish users, they have outstanding opportunities for internships. Some Dartfish Certified Technologists have interned at Olympic Training Centers, others in the private center.

Note the article: [Video Connects Exercise Scientists to Olympics](#) as well as the internship of a SUNY Cortland student in Atlanta, GA at [Diamond Directors, with former MLB Cub's player, CJ Stewart](#).

Students can learn valuable skills online at any time with the Dartfish learning management system, earning certification in key aspects of technical and tactical video analysis. This interactive, online Dartfish certification course gives practical knowledge and practice for students. Video projects are critiqued and promoted at www.dartfish.tv/DCT.

CLINICAL SETTINGS: Bike Fitting and Physical Therapy



Real world clinical settings become opportunities for your students to gain 'in the field' application of principles learned in the classroom. Note two examples of entities using Dartfish motion analysis in their assessment. Road and triathlon cycling specialists, **Fit Werx**, uses Dartfish motion analysis technology in their dynamic fittings and agrees that it is the most promising technology for the future of bike fitting.

[Note: Motion Capture & Analysis in Cycling Fit with Dartfish.](#)

Bike fitting with Dartfish, allows you to make detailed observations and measurements of the moving athlete. Video compliments your expertise. Dartfish provides video instantly and simultaneously and with use of multiple camera angles, offers evidenced visual communication with clients. Enrich the video by recording your observations, get it online and the understanding continues after leaving the clinic.

[Rebound Physical Therapy](#) (photo above) remains at the forefront of physical therapy and sports performance in Oregon. Its mission is to create meaningful change in people's lives through continuing education, integrity and exceptional outcomes. One of the ways this is accomplished is with use of Dartfish software. At Rebound, *"clients receive a detailed physical therapy exam to understand the source and cause of a painful condition, including a TPI screen with exercise prescription. In addition, a client's examination may also include Dartfish video analysis to identify movement patterns that aggravate your condition."*



PHYSICAL THERAPY

As a university professor, you are preparing some of your students for careers as physical therapists - licensed healthcare professionals, who help patients reduce pain, improve or restore mobility, and maximize human performance. Dartfish leverages video technology to provide immediate visual feedback and in-depth movement analysis to remediate, restore, and maximize performance. Using analysis tools to measure angles, speed, and trajectory with auto tracking of movement function or dysfunction means experiencing results better and faster. With Dartfish you teach, train, and remediate using dynamically measured data analysis of velocity, distance, angles, and range of motion - tools to help you articulate and customize performance goals. In physical therapy education, when using Dartfish, your students/patients work on the appropriate exercises during their session, getting instant visual feedback showing exactly what their body is doing, so movement is properly executed. You are then able to store the patient's data in their secure and private digital collection on dartfish.tv to show side-by-side comparison with before and after video shots throughout their treatment process. Dartfish helps your students take their learned expertise to the next level using video to analyze every aspect of performance, now and later when practicing in the field. With so many practices using Dartfish, having Dartfish video analysis expertise listed on your student's resume will help in this competitive job market.



Bradley University Professor and PT, Joseph Kelly, Teaching in the Physical Therapy and Health Sciences Program, Sees Dartfish as “Fresh Approach”

Bradley University in Peoria, Illinois offers a multidisciplinary degree in Health Science providing a comprehensive academic background in preparation for graduate study in Physical Therapy. Dartfish is infused in the Bradley Physical Therapy and Health Science Program, with use by Joseph Kelly, an Assistant Professor at Bradley, who teaches Musculoskeletal Physical Therapy at the graduate level and Motion Analysis in the undergraduate program. Joseph Kelly is a licensed physical therapist in the state of Illinois and a member of APTA. He teaches HS 480 Motion Analysis, *“the final course for health science majors,”* states Kelly, who uses *Dynamic Biomechanics*, a video embedded e-text bundled with Dartfish Technology. This 3 credit course covers the *“analysis of the kinetic and kinematic principles influencing human motion with emphasis on sport and fitness activity from a health science perspective.”*



Bradley University.....

"How well we move reflects how well we manage our day-to-day activities or how we can perform from an athletic perspective. In health science, we look at human movement as being a biological marker to health," Kelly explains. "Using their cell phone cameras, students can take videos of people engaging in large, dynamic movements such as swinging a baseball bat or a tennis racquet, or punting a football. Students can compare a novice and an expert," added Kelly. "They can look at differences in technique by comparing angles and postures. Students analyze the videos, watching for indicators such as a weakness in a muscle group. We can see impairments in technique and connect that to exercise to help correct the faulty movement. On a larger scale, it's what we would instruct for physical therapy students." Kelly uses Dartfish in both undergraduate and graduate classes with positive response. "This is a fresh approach," Kelly noted. "students can have access on their personal laptops, which takes the learning opportunity out of the classroom. I am pleased by our students' acceptance of it. We are using equipment at the undergraduate level that is usually utilized only at the graduate level."

Note article ["Athletes Flip for Motion Analysis"](#) published in Bradley Works, 2014

ATHLETIC TRAINING

TRANSITION (POWER POSITION) 3 / 7

Shoulders remain over barbell.
Feet flat, elbows straight.
Knees drive under barbell.
Hips close to bar, bar contacts near top of thighs.

1 scene, 00:07
7 / 7 events

Auto-Pause

Search markers

00:01 START
00:02 FIRST PULL
00:02 TRANSITION (POWER PO...
00:02 END OF 2ND PULL
00:02 PULL-UNDER
00:03 CATCH
00:04 RECOVERY

00:02:36

Favorite Download Share Delete

Julie M. Cavallario, MS Ed., ATC, former Clinical Coordinator, clinical instructor, and Certified Athletic Trainer at SUNY Cortland, now with CAATE, the Commission on Accreditation of Athletic Training Education, implemented the use of dartfish.tv in an orthopedic examination class, within the Athletic Training Education Program. *"One of the inherent problems with teaching hands-on skills in the classroom is that it requires the student to practice technique on their own without the guidance and correction of an instructor, in order to become proficient at it,"* states Cavallario. Athletic Training majors now have a site on the SUNY Cortland Dartfish.tv

channel where they can view over 120 videos with comprehension-enhancing comments. This allows students to watch their orthopedic examination skills being correctly performed by their faculty instead of just reviewing class notes and textbook illustrations. *"I have been an instructor in athletic training education for seven years, and my greatest frustration is when a student practices a skill wrongly, because they can't remember exactly what they were told. I have created videos demonstrating the correct orthopedic testing technique for each test they are taught during the course of this class. The students have access to this outside of the classroom, and it has already greatly improved retention and skill performance for the students using it. I have actually had students from previous years contact me to complain that this resource wasn't made available to them when they took the class. This is definitely a tool that I will continue to use in the future. I think it will have a great impact, not only on my instructional technique, but on student performance and skill retention as well."*

Note the [Athletic Training SUNY Cortland Channel on Dartfish TV](#)



PHYSICAL EDUCATION

See. Learn. Succeed.

Integrating Dartfish technology into the instruction of Physical Education Teacher Education, PETE, enhances learning with students engaged as empowered self-evaluators. Research shows that learning and retention of motor skills is reinforced by the quantity/quality of visual feedback, during and after motor skill execution, helping students develop and refine motor skills. Students improved in concrete ways when their performance was broken down into key positions, enhanced with drawing tools, text, and audio comments, illustrating how to properly execute a skill or movement. Students learn best when they see themselves in action, confirmed by PE teachers in the field, using Dartfish instant feedback tools, which allow immediate adjustment to skill execution. PE teachers can save video clips for future analysis or as video learning tools, illustrating key skill positions for PE instruction. Integrating Dartfish video analysis into the daily routine of teaching PE and used in PETE, provides an interactive learning experience with tangible results.

Communicate. Improve. Empower.

PE Departments and PE Teacher Education Programs use Dartfish technologies for PE certification and to qualify teacher candidates for the teaching profession. Physical Education majors learn how to use Dartfish to maximize student performance, for corrective feedback in skill development, and for learning the fundamental principles of teaching/coaching. Research shows that self-analysis of teaching improves performance and confidence. Using Dartfish brings PETE students face-to-face with their performance. In the words of a PETE student, *"I feel there is no better way to improve your teaching methods than to watch yourself. Dartfish really enhanced and benefited my learning of how to teach PE, much more than typical pen and paper feedback."*

Dr. Cheryl A. Howe Finds Dartfish Ideal for Coding in Research Project, PASE, Physical Activity Schoolyard Evaluation Study at Ohio University



In the Classroom at Ohio University

"Dartfish is used to teach measurement of physical activity to advanced undergraduates in the exercise physiology program," states Dr. Cheryl A Howe, a professor at Ohio University in the College of Health Science and Professions in the Department of Exercise Physiology. *"Dartfish is used as a tool for tagging real-time physical activity behavior via direct observation as the criterion measure for assessing the accuracy of objective activity monitors (heart rate, accelerometers, pedometers). Students learn to use the software, set up their own tagging panels and then follow a fellow student (subject) for 20-30 minutes, tagging their behavior. The subjects are given different routines to complete during this time, while wearing an activity*

monitor to measure their physical activity level. The groups then compare their results from the monitor to the data capture via Dartfish and present the results to their classmates." In the photo above, Dr. Howe, assists one of her students with the set up of direct observation, using Dartfish tagging panels for pediatric physical activity research.



For Research at Ohio University

“Dartfish Team Pro software is used to tag pre-recorded video footage of school-aged children’s physical activity on the playground,” explains Dr. Howe. “Free-play physical activity duration (minutes) and intensity (sedentary, light, moderate and vigorous) relative to playground location (grassy field, sport-specific courts, adventure and traditional play sets) and social engagement (solitary vs. group play) was measured in 3rd – 5th grade children to characterize their free-play behavior overall and by sex and weight status. Multiple camera views are combined into one video to view the entire playground from multiple angles in Dartfish. Footage for each child was analyzed separately to code their free-play physical activity intensity, duration, location and social engagement during the entire recess period. Tagged video data will be used as the criterion measure to validate the use of objective monitors (GPS + accelerometer) for measuring the same outcomes (PA intensity and duration) relative to playground location and social engagement overall and by sex and weight status.”

State of the Art Human Performance Lab at Southern Utah University Uses Dartfish

Dr. Camille Thomas, Assistant Professor of Physical Education & Human Performance, shares how their state of the art lab has *“opened countless doors for students to complete research, which in turn enhances their educational experience.”* She went on to explain that she and her colleague Dr. Julie Taylor have *“implemented a new and innovative technique in their classes with Dartfish software. From the iPad, students and professors can then analyze the exact movement in slow motion to see what’s the most effective angle for a free throw or the right velocity for a golf swing, all projected on a special wall in the biomechanics lab.”* A technology, according to Thomas, that changed the entire curriculum of her courses.

In the article, [State of the Art Lab Finds Home in P.E. Building](#) professors like Thomas and Taylor, find that *“this lab has given them the ability to step away from lecture heavy curricula and instead, gives them the ability for their students to spend more time in the lab, running tests on athletes and community members.”*

“We are using Dartfish as a mainstay for the lab as well as for instruction,” stated Dr. Thomas. *“We have just finished using Dartfish to create a series of pickle ball videos for instruction in our classes, as well as for a pickle ball website. Furthermore, the swim coach has been using our Dartfish software on a regular basis. More recently, students have used Dartfish to analyze running kinematics, linear kinematics of a standing long jump, and the trajectory of a soccer kick. Finally, the gymnastics coach is sending me film from a recent meet for my students to analyze as part of the lab.”*

Both Graduate and Undergraduate Physical Education Programs at SUNY Cortland Incorporate Dartfish

At SUNY Cortland in both the graduate and undergraduate physical education programs, Dartfish technologies are infused into the curriculum. A special emphasis is placed on the analysis of video within the context of curricular performance. *“Physical Education majors in selected courses learn to use certain modules of the Dartfish TeamPro software. Specifically, In the Action, Player, and Analyzer modules are utilized to maximize student performance, teaching cues, and corrective feedback,”* explains Dr. Gary Babjack, who instructs in these programs.

“Undergraduate students in bowling, archery, gymnastics activities, self-defense and dance have been exposed to the use of Dartfish. In the Graduate Program, extensive training is employed during a summer residency program which highlights the fundamental principles of coaching and the integration of Dartfish.”



Teaching, Coaching, Training, Certifying



There is no smarter way to teach, coach, train or certify than with video analysis, using our full suite of Dartfish technology, because when you see it, you get it. Students capture, import into Dartfish, analyze, and provide feedback. They can then share/exchange their performance analysis with you, their professor, on your own private dartfish.tv channel. Dartfish software provides in depth video analysis. In addition, students can use their iOS mobile devices to capture performance with our Dartfish Express App for in-the-moment capture and for later, detailed examination of performance. When you break down every movement, extract data, and give accurate feedback, you maximize learning.

PE and Dartfish TV

Remote collaboration

collaborate remotely with two-way communication through video



Remote online instruction in PE becomes a reality when dartfish.tv teams with our software and apps. Students can access their private video collections 24/7 to exchange comments with you, their PE instructor. With development of motor skill instructional video libraries, students and PE instructors at a university, or

later when in the field teaching PE, can share within a building or across a district, accessing collections for standardization of best practices, assessment, and continuity of curricula. PETE students located at different schools in outlying areas can be monitored remotely by university evaluators, reducing travel time and school site visits, which means that more gets done with less cost using Dartfish.tv.





OUR GLOBAL SOLUTIONS

Dartfish offers a vast range of global solutions - customized to meet your exact needs.

CAPTURE and organize your videos. Then **ANALYZE** video images with our powerful data-driven enrichment tools. **SHARE**, notate, and evaluate videos for evidenced, collaborated, remote communication for increased student understanding. And build your customized video library for ongoing instruction and research.



Conclusion

This white paper summarized the important aspects of capturing, analyzing, and sharing with use of 2D video analysis to create a dynamic learning experience in kinesiology at your university. The information provided should serve as a foundation for applied best practices to maximize visual learning.

In review, by incorporating Dartfish Technology to augment learning, you provide your students with the opportunity to:

- study human movement in depth and visually from different perspectives
- apply biomechanical concepts that study how movement is quantified, learning how to sequence to modify movement behaviors
- learn the adaptation of motor behavior across the lifespan, enhanced with visual input/data
- give students the opportunity to gain valuable and relevant opportunities to research and apply movement-based principles for improved performance and for rehabilitation protocols
- apply scholarship and practice of different movement forms to enhance performance in hands on environments using Dartfish in practicums, clinics, and internships.

For more information to optimize university student learning
using Dartfish Technology in Kinesiology,
please contact us at 1.888.655.3850.