

“Applying Biomechanics to Achieve Peak Performance!”

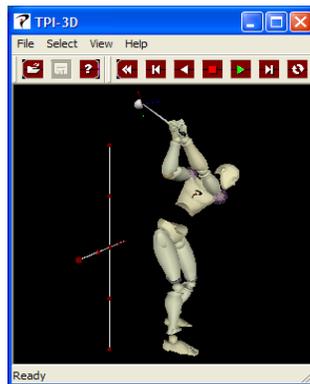
AMM 3D-GOLF™ systems are used at leading golf institutions and sports-related medical facilities around the world.

- TPI - Titleist Performance Institute
- Mayo Clinic
- Golf Performance Center
- Butch Harmon School of Golf
Dubai City, UAE
- Squire Creek Country Club
- Golf Medical Clinics, MD
- Southern Golf Fitness Academy
- Golf Health & Performance Center
- DSG Golf Pty. Ltd. Australia
- Golf Biodynamics, Australia
- Quintic Consultancy, UK
- Golf Academies of America
- The Madison Club
- The Vintage club
- Baylor Univ. Golf Team
- Zurich Golf & Country Club

“The knowledge of motion analysis and biomechanics by AMM makes their solution the best ... by far.”

Dr. Greg Rose,
Titleist Performance Institute.

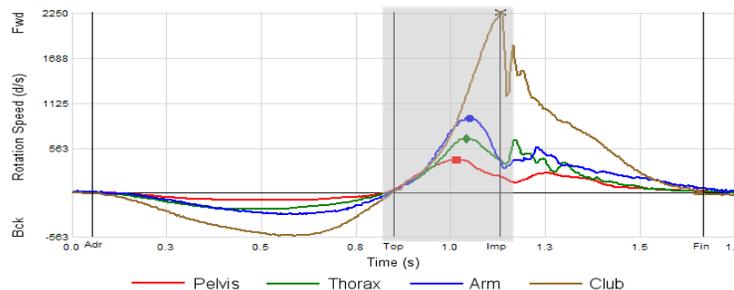
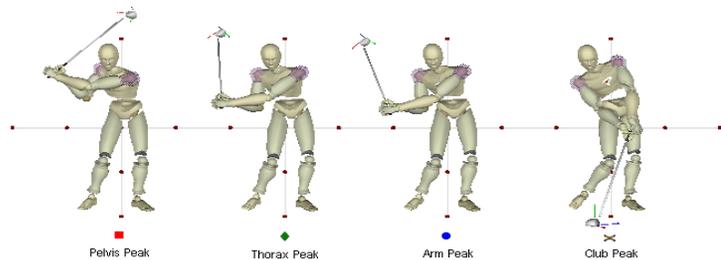
The AMM 3D-Golf™ system measures, analyzes and provides data that sports professionals at the Titleist Performance Institute, and other facilities around the world, use to study, understand and improve human motion.



A complete 3D graphic model using a 12-sensor system

AMM 3D-Golf™ uses sensors placed on the body to capture, measure and display the 3D motion of the golf swing. TPI 3D software calculates the biomechanical parameters from the captured motion data and presents you with tables, graphs and animated 3D motion sequences. Using the TPI Tour Pro database swings can be compared and differences highlighted in the comprehensive biomechanics report. You can compile a database for any group or create a baseline database for an individual's own selection of best swings.

AMM 3D-Golf™ systems are easy-to-use, flexible and mobile! They can be used inside a training facility or out on the driving range. A system can be configured with 4, 8 or 12-sensors. A twelve-sensor system is required for a full body model display.



The Kinematic Sequence

By analyzing the **Kinematic Sequence**, in 3D, we can measure the ‘efficiency’ of the swing! This provides essential information such as, sequencing, coordination and energy transfer up through the major segments of the body. Identify physical limitations and instabilities so you know where to concentrate your efforts! This knowledge will help elevate biomechanical performance, improve accuracy, increase club head speed, and assist in preventing future injuries.

“Besides being the best tool to measure, understand and improve the golf swing, AMM 3D-Golf™ has supplied our golf professionals with an additional revenue stream that is becoming increasingly important”

Marc Wahl,
PT, MS, OCS. Physical Therapist. Board Certified Orthopedic Clinical Specialist, Titleist Performance Institute.

AMM 3D-GOLF



Transport Cases for Portability

Phillip Cheetham

President and Chief Technology Officer
Olympian and "The 3D Guy"

Phil is a pioneer in the motion analysis industry. He is the principal author and developer of AMM 3D-Golf and TPI 3D software. His vision, knowledge of biomechanics and skills in software development have resulted in the creation of the most advanced motion capture, measurement and analysis system in the industry. Phil is an Olympian and former Australian national gymnastics champion.

"Phil Cheetham of AMM and I co-developed TPI 3D with input from our biomechanics advisory board. It's the easiest way to get true six-degrees-of-freedom for every body segment."

Dr. Greg Rose
Titleist Performance Institute



Comparison Table - Examples of Rotation Angles and Body Positions

Parameter	Units	Adr	HB	Top	HD	Imp	HF	Fin
Pelvis Rotation	deg	8.2 O	36.3 C	40.0 C	28.6 O	67.3 O	69.6 O	111.6 O
Pelvis Bend	deg	15.5 F	15.3 F	15.0 F	9.3 F	6.0 B	6.8 B	0.7 B
Pelvis Side Bend	deg	1.0 T	5.6 L	8.1 L	7.0 T	8.1 T	6.4 T	3.8 L
Thorax Rotation	deg	17.1 O	79.5 C	98.8 C	30.1 C	36.4 O	42.8 O	157.1 O
Thorax Bend	deg	33.9 F	7.7 F	4.4 B	31.8 F	19.9 F	16.9 F	31.3 B
Thorax Side Bend	deg	8.9 T	30.8 L	34.8 L	13.7 L	23.1 T	26.0 T	0.1 L
Pelvis Sway	in	0.0	0.7 T	1.9 T	5.5 T	6.5 T	6.6 T	7.0 T
Pelvis Thrust	in	0.0	1.4 F	1.2 F	0.4 F	1.2 F	1.4 F	2.7 F
Pelvis Lift	in	0.0	0.4 D	0.5 D	0.1 D	0.5 U	0.5 U	0.6 U
Thorax Sway	in	0.0	0.2 T	1.0 T	4.1 T	0.6 T	0.1 T	0.6 T
Thorax Thrust	in	0.0	2.3 F	3.2 F	1.0 F	1.2 B	1.3 B	2.1 F
Thorax Lift	in	0.0	1.0 D	1.8 D	1.1 D	0.7 U	0.7 U	1.0 U
Spine Rotation	deg	9.8 O	45.4 C	61.1 C	57.6 C	32.4 C	28.8 C	35.8 O
Spine FE	deg	19.6 F	12.0 F	12.7 F	19.7 F	10.5 F	9.4 F	24.4 E
Spine Side Bnd	deg	2.8 T	10.9 L	13.7 L	13.3 T	23.0 T	25.3 T	23.7 T
Head Rotation	deg	0.8 C	16.5 C	25.9 C	15.3 C	8.4 C	5.4 C	88.6 O
Head Bend	deg	40.5 F	39.0 F	36.7 F	43.6 F	52.3 F	52.8 F	0.2 F
Head Side Bend	deg	5.6 L	16.9 L	22.8 L	11.6 L	8.4 L	6.5 L	26.2 T
Head Sway	in	0.0	2.9 A	2.7 A	0.1 T	0.7 A	0.7 A	5.0 T
Head Thrust	in	0.0	1.1 F	1.6 F	0.9 F	0.4 B	0.4 B	5.1 B
Head Lift	in	0.0	0.7 D	1.2 D	1.6 D	1.8 D	1.8 D	6.0 U

C = Closed O = Open F = Forward B = Backward T = Trailing L = Leading U = Up D = Down

TPI 3D - Edition 2009

TPI 3D calculates all motion parameters of the swing: kinematic sequence parameters, head movement, hip/shoulder (pelvis/thorax), rotations, sway, lift and thrust, motion of the club, spine angle, forward bend, and more! Compare them to a selected database. Red and green high-lights show which parameter is in or out of range.

"I truly believe that AMM 3D-Golf is the most influential purchase one can make when getting into the business of training and coaching golfers."

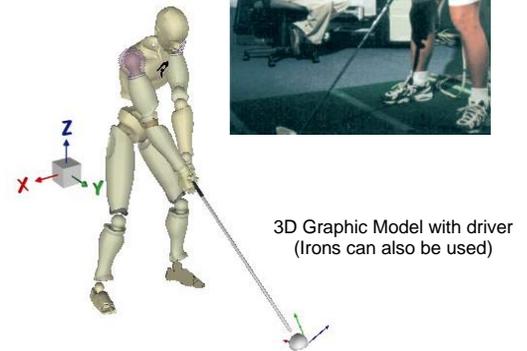
Lance Gill
Head Trainer - Titleist Performance Institute

AMM 3D-Golf provides real-time motion biofeedback, both audio and visual. You can attach audible tones to any motion parameter, and your student will hear (and feel) when he/she performs the correct (or incorrect) swing technique. Swing technique changes can be achieved quickly using these biofeedback methods.

In addition:

- Quantify swing efficiency using the 'Kinematic Sequence'
- Create reports for tracking student swing development
- Review dynamic graphs, tables and real-time numbers alongside synchronized animations to detect technique faults
- View the swing in 3D, from any position in space
- Customize your screen layouts to your personal preferences
- Use the AMM 3D-Golf system to better position your business
- Create additional revenue streams that support your growth

Golfer with sensors attached



3D Graphic Model with driver (Irons can also be used)

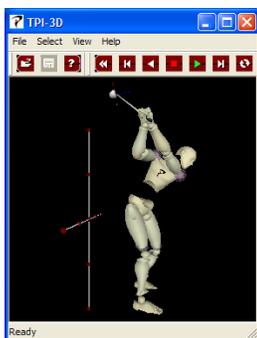
AMM 3D-GOLF **Swing Analysis Services**

Using  TPI 3D Swing Analysis Software

Serious golfers endeavor to attain a higher level of skill in their golf game and they know that advanced technology exists that can help **improve their technique and physical performance!** AMM exists to help you reach your performance goals! We now have AMM-Certified swing analysis centers across the United States and around the world!



AMM 3D-GOLF Swing
Analysis and Training System



TPI 3D Full-Body Robot Model

"If you really want the answer... then you need
to look at the AMM 3D technology."

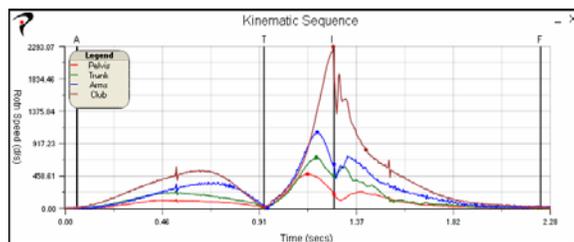
Dave Phillips, Co-founder of TPI

The AMM 3D-GOLF System, using TPI 3D software is, by far,
the best tool for golf swing analysis. It yields a level of
information and insight not available anywhere else!"

**Robert Mottram, President
Golf Health and Performance Center**

AMM, Inc. has teamed with the Titleist Performance Institute (TPI) to develop products and services utilizing the **AMM 3D-Golf** motion capture system together with the  **TPI 3D** golf swing analysis software. A 3D capture and analysis presents a clear science-based picture of your swing limitations and capabilities, and provides specific information to improve your performance! It helps indicate potential for injury and the results can be used in biofeedback training. A final  **TPI 3D** report documents your swing and compares your biomechanical parameters to the TPI Touring Pro database!

The AMM 3D-GOLF system is a high-speed full-body motion tracking system that uses small sensors, placed at strategic points on the body, to capture and record every minute movement made during a swing. Once a swing is recorded the  **TPI 3D** software instantly calculates all biomechanical motion parameters. From the data we derive the 'Kinematic Sequence', a measure of swing 'efficiency', and your biomechanical 'signature' patterns of motion are documented.



The Kinematic Sequence -- Rotational speed (in degrees per second)
Pelvis (red), upper body (green), arms (blue) and club (brown)
A signature motion pattern that is a measure of your golf swing efficiency!

Your swing 'signature' is tabulated, synchronously graphed and dynamically displayed using the TPI 3D robot model (shown above). A comprehensive report compares your 'signature' to  TPI's Tour Pro statistical database. A personal baseline database can be created for you and is used as an ongoing record to monitor performance progress throughout your golfing career.

AMM 3D-Golf measures, displays and reports:

- Your Kinematic Sequence (efficiency)
- Pelvis sway, slide, lift, thrust; pelvis and upper body rotations, Spine angles, X-Factor, X-Factor Stretch
- Upper body: forward and side bends
- Wrist motion: cupping, bowing, radial and ulna deviations, wrist rotations
- Leading and trailing arm rotations, at any point in the swing
- Head movement
- Club dynamics
- Swing faults, such as early extension, coming over-the-top, reverse spine angle, reverse pivot, flat shoulders and scooping
- Sequencing order and transitional timing
- Timing and tempo
- Landmark posture positions: address, top-of-backswing, impact and finish, and positions halfway in between
- Maximum speeds, speed gains between components of your body
- Acceleration and deceleration values
- Minimum and maximum values for all parameters all can be quickly detected and studied with this dynamic motion microscope!

Parameter	Units	Pelvis	Trunk	Arms	Club
Acceleration	kd/s/s	2.4	3.0	4.6	6.9
Deceleration	kd/s/s	-2.3	-3.1	-5.7	-9.5
Max Speed	d/s	487	721	1,077	2,293
Speed Gain	d/s	0	235	356	1,216
Transition Order	ordinal	3	2	4	1
Transition Timing	msecs	-13	-8	-21	0
Peak Order	ordinal	1	2	3	4
Peak Timing	msecs	125	83	79	4

Sequencing Data

The  TPI 3D analysis report identifies elements of technique that need to be addressed to hone your skills and maximize your performance. Via this report attention is drawn precisely to where changes may be needed! Don't waste time on the driving range trying to fix something you're not sure is broken! Biofeedback drills modifies technique very quickly and effectively! Accelerate your journey to peak performance! "Perfect practice ... makes perfect"!

Our qualified personnel can assist you in attaining your goals!

The Director of AMM is Phil Cheetham, an Olympian, a world-class golf biomechanist, a member of the TPI Biomechanics Board of Advisors and author of  TPI 3D Golf Swing Analysis software.

"Using the AMM 3D-GOLF Analysis System to measure and quantify movement is an invaluable tool! By using the kinematic sequence graphs, comparison tables and the audible real-time biofeedback I can easily modify a golfer's swing technique. Without a doubt this system and methodology speeds up the learning process for golfers at all levels!"

Jon Tattersall, GOLF Magazine Top 100 Teacher 2007-2008.

Free 'TPI 3D Viewer' demonstration software!

Go to the Titleist Performance Institute website – www.mytpi.com

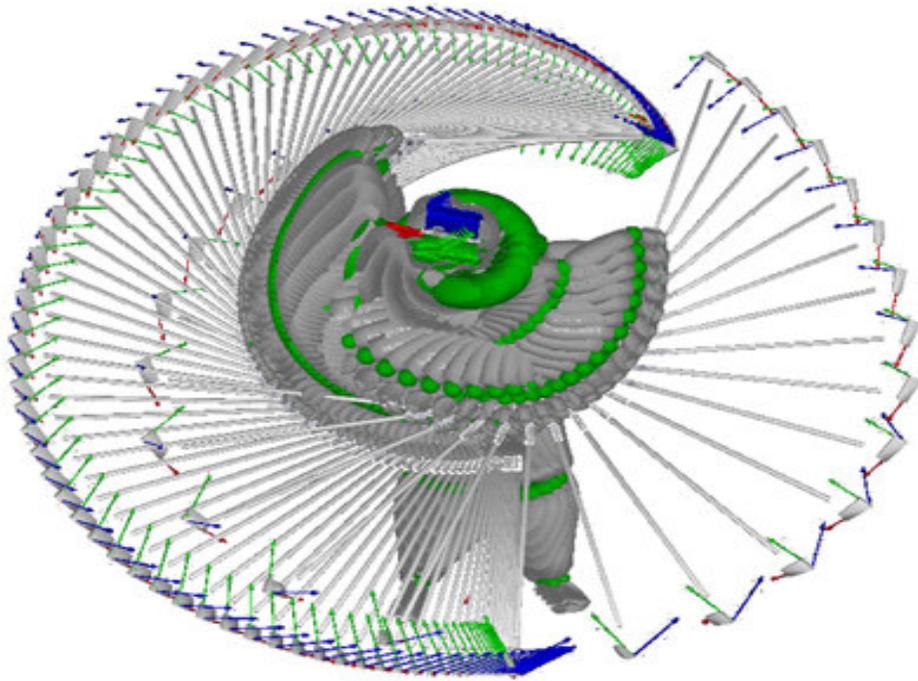
Go to: 'Article Library'> (from the drop-down list choose ...)> TPI 3D ... then scroll down to TPI 3D Software box and click on the > 'TPI 3D - Viewer' link to download the software. 'TPI 3D – Free Viewer', a 'lite' version of the full package has 3 'Pro' motion files and user manual provided (See Help when inside software).

Please call **Stephen Cheetham** at **602-263-8657** for more information.
Visit our website at amm3d.com



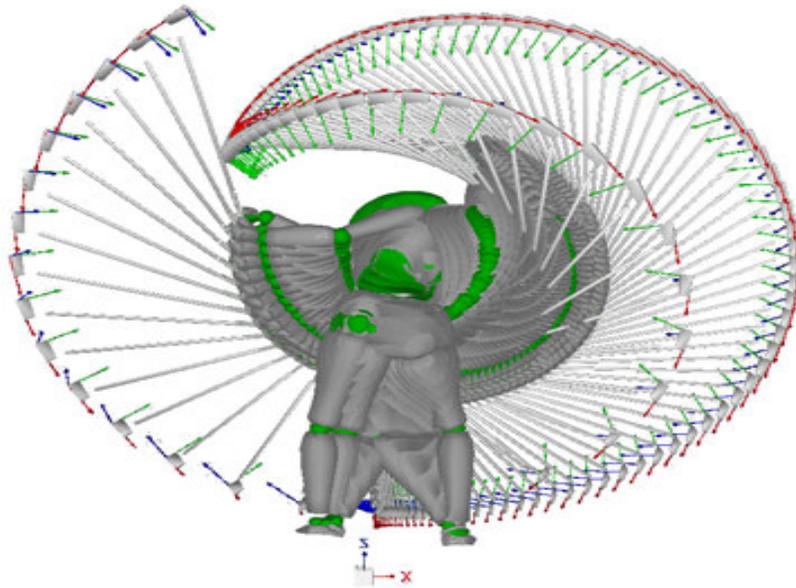
1202 E. Maryland Avenue, Ste 1J Phoenix, Arizona USA 85014
Tel: (602) 263-8657 Fax: (602) 277-2326 Web: www.amm3d.com





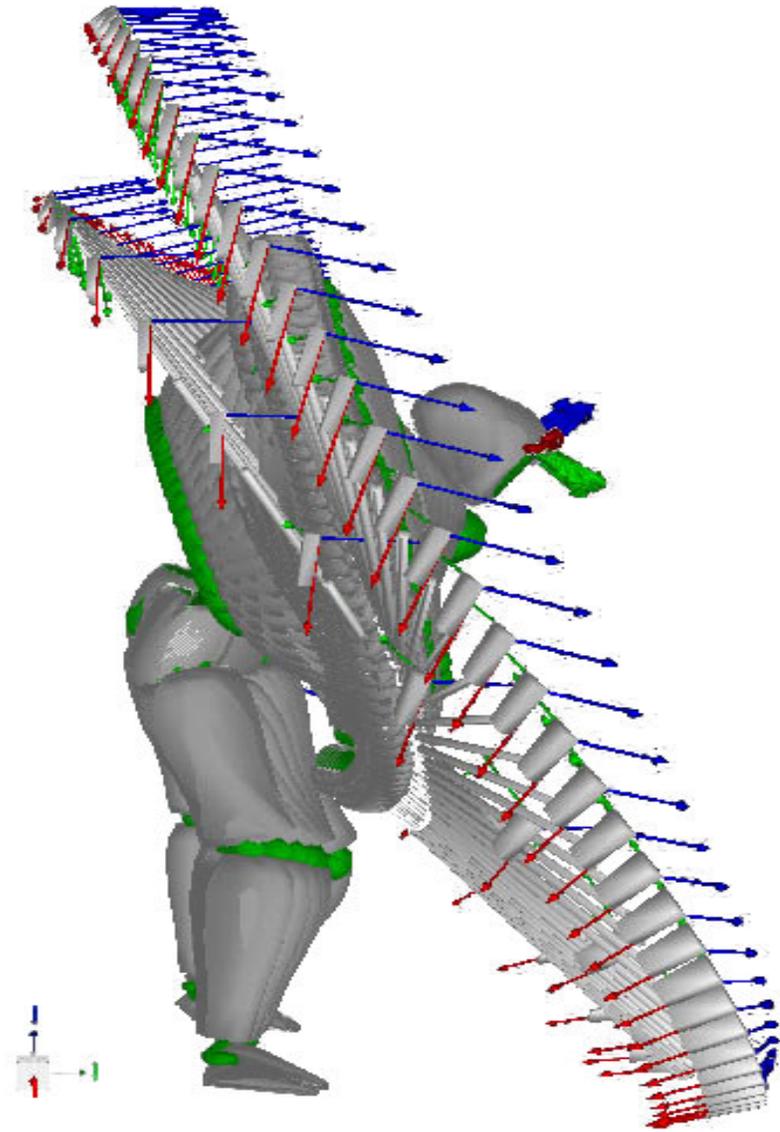
FRONT view

(screen shot from the full *real-time animation* with trail of an *actual skilled pro golfer*)

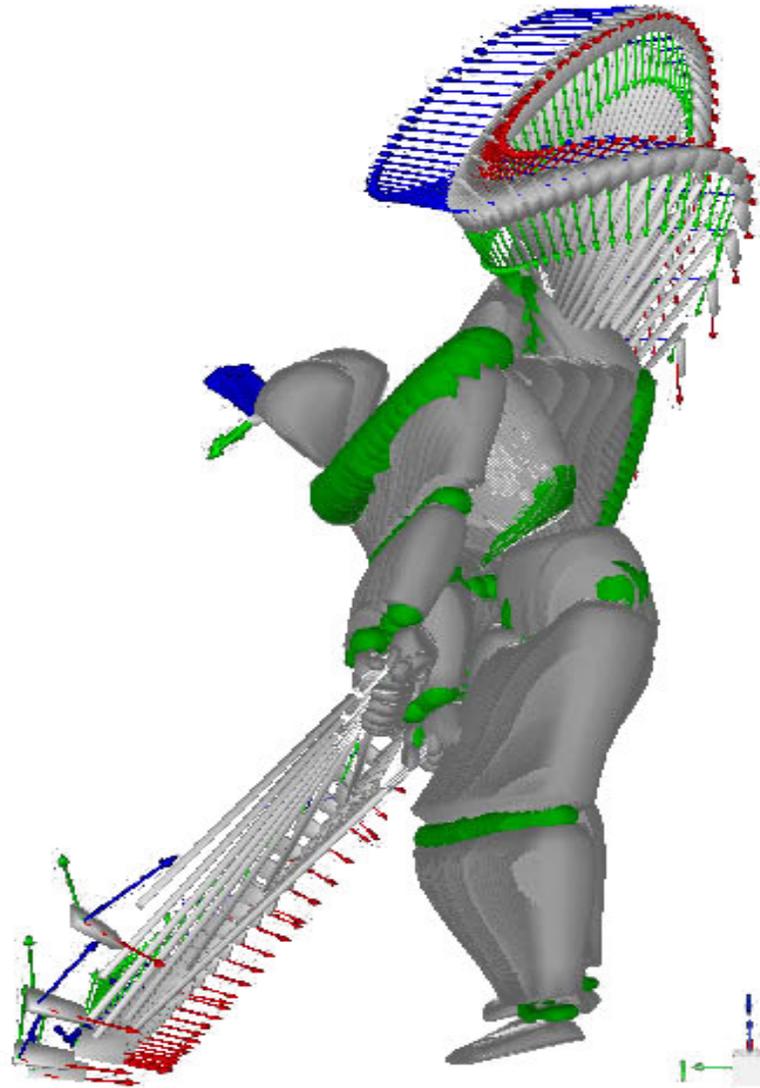


BACK view

(screen shot from the full *real-time animation* with trail of an *actual skilled pro golfer*)



RIGHT view
(screen shot from the full real-time animation with trail)



LEFT view
(screen shot from the full real-time animation with trail)



AMM 3D-Golf - USER'S REFERENCE LIST

INSTITUTE / COMPANY

- TPI - Titleist Performance Institute - Dave Phillips/Greg Rose
- Mayo Clinic; Sports Medicine & Golf Rehab - Joe Eischen / Rochester, MN
- DSG Golf P/L - Denis McDade / E. Bentleigh, Victoria, Australia
- Sinclair's Golf Training Center – Jon Sinclair / Fort Worth, TX
- Butch Harmon School of Golf, - Claude Harmon / Sports City Dubai, UAE.
- David Glenz Golf Academy - Wendy Ferrara / N. Franklin, NJ
- Zurich Golf Country Club / Bruno Griss Zurich, Switzerland
- James Leitz / Pinewood Country Club / Slidell, LA
- The Vintage Club - Dan Anderson / Indian Wells, CA
- The Hideaway Club - Matt MacConnell / La Quinta
- The Madison Club - Dr. Bobby Duvall / La Quinta, CA
- Daisuki Mori /Japan
- Quintic Consultancy, Ltd - Dr. Paul Hurrion / Coventry, UK
- Univ. of Laval - Kinesiology. - Dr. Simoneau / Quebec, Canada
- Executive Golf Links - John Tattersall / Alpharetta, GA
- Get Fit Pro - Bill Glegoroff / Chicago, IL
- Drive 495 - Don and Joe Saladino / Manhattan, NY
- Golf Fitness Institute - Dr. Peter Mackay / San Diego, CA
- Fluid Motion Golf - Chris Ross / Bozeman, MT
- FNS, Inc. – Gord Workum / South Korea
- The Biltmore Hotel & Golf Mng. - Justin Bruton / Coral Gables FL
- GAA – Golf Academy of America - Dr. Coy Roskosky / CA
- Squire Creek Country Club - Jeff Parks / Choudrant, LA
- University of Cincinnati - Dr. Larry Zeff / Cincinnati, OH
- North Fork Physical Therapy - Marc Wahl / Riverhead, NY
- Golf Medical Clinics, MD - Dr. John Lindberg / W. Covina, CA
- Scandinavian Univ. of Sport - James Parker / Stockholm Sweden
- John Hellström Golf / Stockholm, Sweden
- Southern Golf Fitness Academy – Dr. Voight / Brentwood, TN

APPLICATION of the AMM/TPI 3D-GOLFSYSTEM

- Sports Biomechanics Research
- Sports Biomechanics Rehabilitation
- Golf Swing Analysis & Instruction
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- Sports Biomechanics Research
- Golf Swing Analysis & Instruction
- Golf swing analysis, PT, rehabilitation
- Golf Swing Analysis & Instruction
- Sports Biomechanics Rehabilitation
- Sports Biomechanics Research
- Golf Swing Analysis & Instruction
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- Sports Biomechanics Research and Instruction