

3D Golf BioDynamics Putting Analysis

First Name:	Joe	Last Name:	Golfer	Test type:	Initial Test
Date:	3-Sep-2011	Email:	jg@gmail.com	Data Date:	24-Jan-2011
Mass:	212 lbs	Height:	6,3"	Handicap:	0

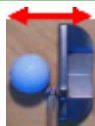
Key Findings:

Joe, the key points to improve your putting are listed below:

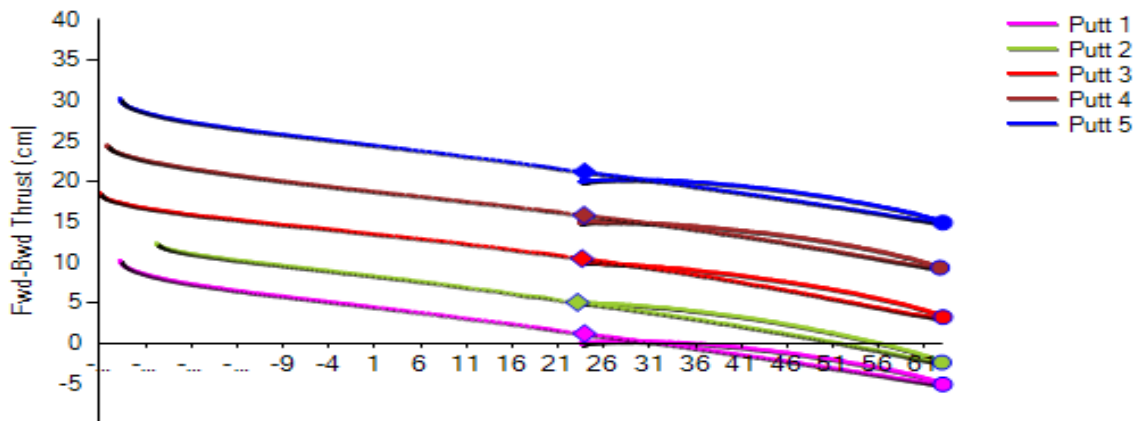
1. Your aim (putter face alignment at address) is very poor but at least you return the putter to where you started! You must work hard on improving your ability to aim the putter
2. Your path is too much from in-to-out. The putter should move (as viewed from above) in a small arc, tangent to the putt line, where the ball and putter head collide.
3. Your body motion is VERY sound with only small movements of the head, upper torso and virtually no movement of the hips. Well done!

Putter Motion

Face Rotation

	Address	Top	Impact	Finish	Putter Direction	
You	-3.3	-12.3	-3.5	7.0	In-to-out	

Putter Path - Top View



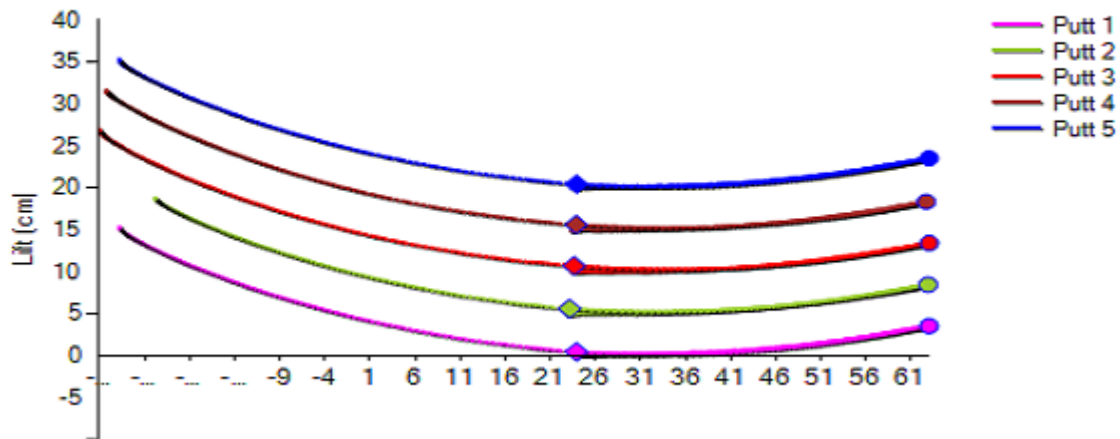


Face Loft & Shaft Lean

	Address	Top	Impact	Finish
Putter Rise			4.1	
Face Loft	4.8	-10.4	4.0	24.6
Shaft Lean	-0.3	17.9	0.7	-24.7

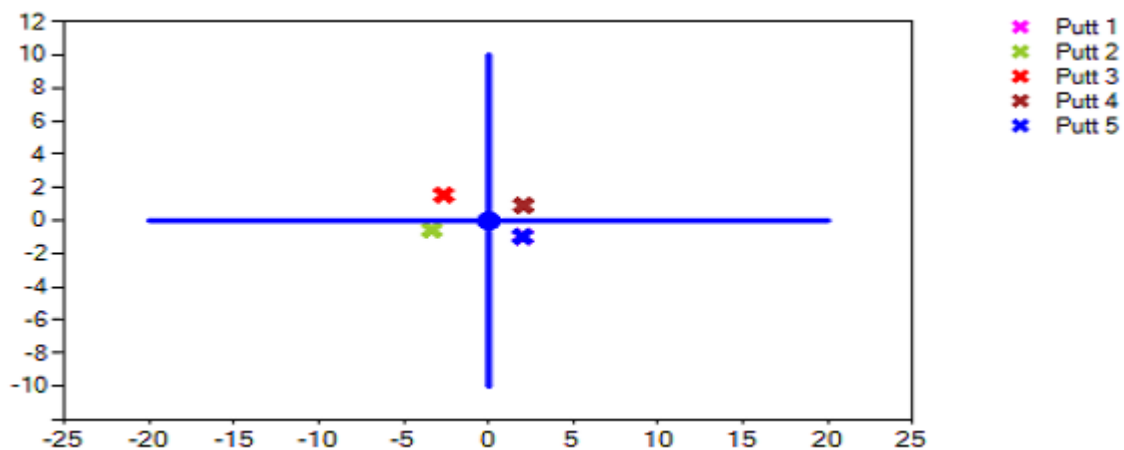


Putter Path - Side View



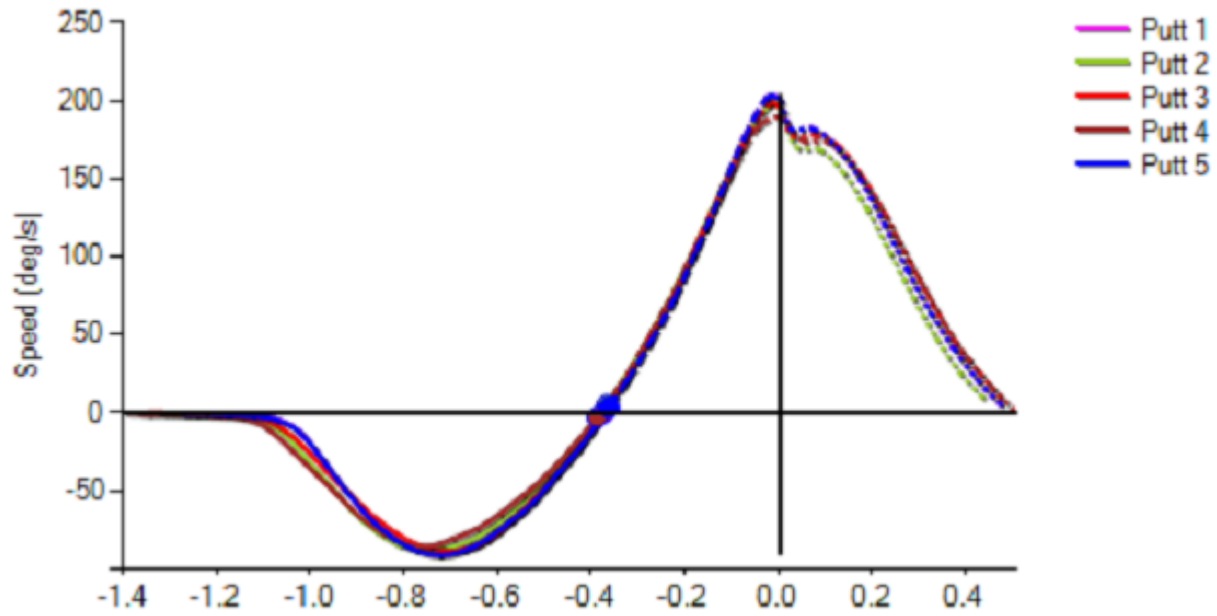
Impact Location

	Minimum (mm)	Maximum (mm)	Range (mm)
Heel/Toe	-3.4	2.1	5.4
Up/Down	-1.0	1.6	2.5

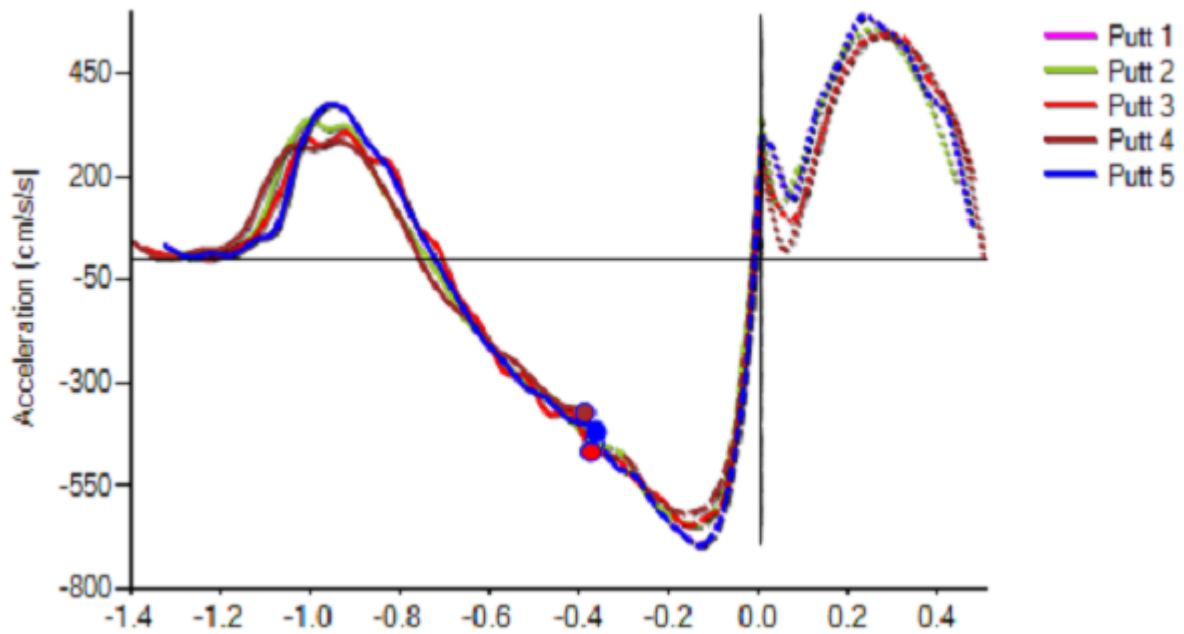


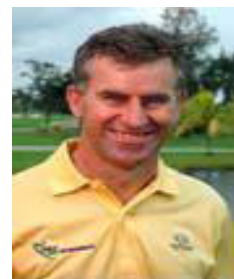


Putter velocity



Putter acceleration



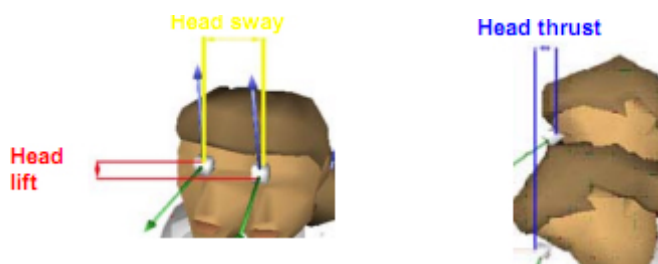


Body Motion & Dynamics

Back Stroke

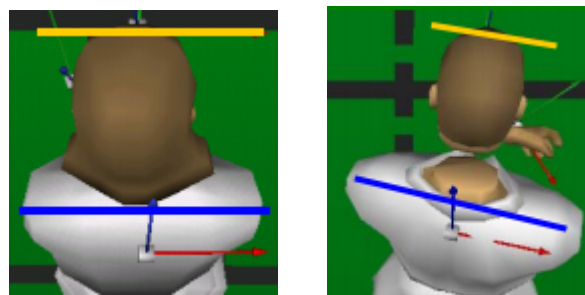
Stability

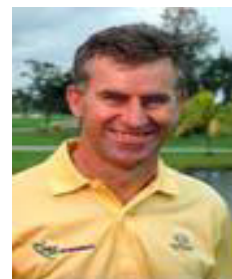
	You
Head sway (Address to top)	-0.6
Head lift (Address to top)	-0.2
Head thrust (Address to top)	0.2
Hip sway (Address to top)	-0.2
Hip lift (Address to top)	0.0
Hip thrust (Address to top)	0.0



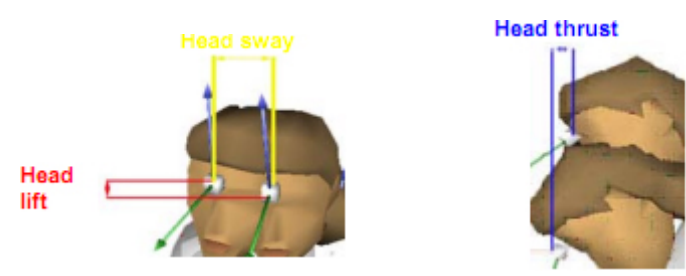
Rotations


	Address	End of Backstroke
Shoulder Turn	4.1	-11.9
Head Turn	-2.3	-11.0
Wrist flex	102.1	101.6
Hip Turn		-1.9
Hip Bend		22.7
Hip Tilt		-2.5





Forward Stroke

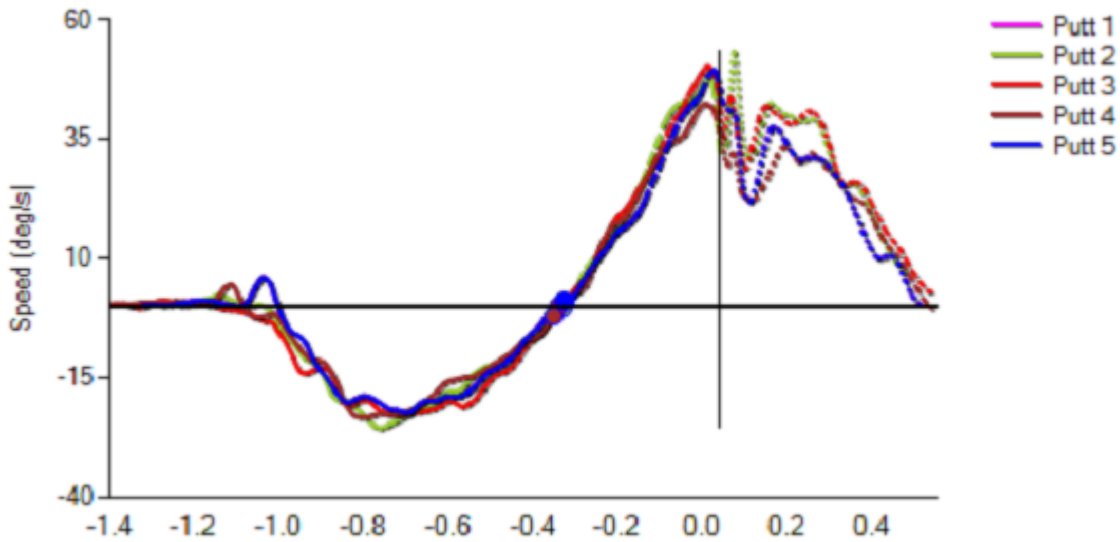
Stability		
	You	
Head sway (Top to impact)	0.0	
Head lift (Top to impact)	-0.1	
Head thrust (Top to impact)	0.0	
Hip sway (Top to impact)	-0.4	
Hip lift (Top to impact)	0.0	
Hip thrust (Top to impact)	0.1	

Rotations			
	Address	Impact	
Shoulder Turn	4.1	5.0	
Head Turn	-2.3	1.5	
Wrist flex	102.1	101.4	
Hip Turn		1.7	
Hip Bend		21.7	
Hip Tilt		-2.8	



Speeds			Tempo		
	Speed (deg/s)	Consistency (SD-deg/s)		Time (ms)	Consistency (SD-ms)
Shoulders	64.1	1.3	Backswing Time	822.5	18.9
Forearm	62.9	4.0			
Putter face rotation	49.1	3.6	Downswing Time	370.8	9.5

Face Rotation Velocity



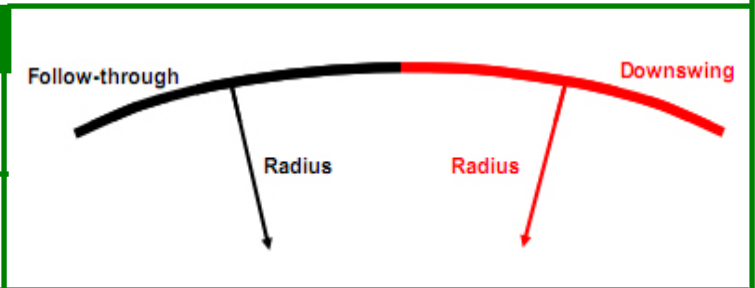


Stroke Lengths

	Back Stroke (cm)	Follow-through (cm)	Ratio
Forearm	2.4	2.5	1.0
Putter	15.5	19.8	1.3

Putter Arc Radius

	Downswing (cm)	Follow-through (cm)
Radius (cm)	394.9	176.0





	Putt #											Mean	Std
	1	2	3	4	5	6	7	8	9	10			
	Address												
Face rotation (deg)	-3.0	-4.6	-2.9	-2.8	-3.0	0.0	0.0	0.0	0.0	0.0	-3.3	0.8	
Face loft (deg)	4.7	5.2	4.9	4.7	4.7	0.0	0.0	0.0	0.0	0.0	4.8	0.2	
Shaft lean (deg)	-0.3	-0.2	-0.5	-0.3	-0.3	0.0	0.0	0.0	0.0	0.0	-0.3	0.1	
	Backstroke												
Backstroke length (cm)	15	16	16	15	15	0	0	0	0	0	15.5	0.1	
Backstroke time (ms)	800	833	833	846	800	0	0	0	0	0	822.5	21.2	
	Impact Data												
Face rotation (deg)	-2.9	-4.5	-3.8	-3.2	-2.9	0.0	0.0	0.0	0.0	0.0	-3.5	0.7	
Face loft (deg)	3.7	4.4	4.2	3.8	3.7	0.0	0.0	0.0	0.0	0.0	4.0	0.3	
Shaft lean (deg)	0.8	0.5	0.5	0.7	0.8	0.0	0.0	0.0	0.0	0.0	0.7	0.1	
Putter rise (deg)	3.9	4.3	4.2	4.1	3.9	0.0	0.0	0.0	0.0	0.0	4.1	0.2	
Putter path (deg)	-7.7	-8.0	-8.8	-7.4	-7.7	0.0	0.0	0.0	0.0	0.0	-7.9	0.5	
Impact location (Heel/Toe)	2	-3	-3	2	2	0	0	0	0	0	0.0	0.0	
Impact location (Up/Down)	-1	-1	2	1	-1	0	0	0	0	0	0.0	0.0	
Putter speed (cm/s)	218	210	211	202	218	0	0	0	0	0	211.9	7.0	
Face rotation speed (deg/s)	57	54	58	42	57	0	0	0	0	0	53.7	6.5	
	Downstroke / Follow-through												
Downstroke time (ms)	363	367	375	388	363	0	0	0	0	0	370.8	10.6	
Follow-through length (cm)	20	18	21	20	20	0	0	0	0	0	19.8	1.0	
Ratio (Back-to-follow through)	1.3	1.2	1.3	1.3	1.3	0.0	0.0	0.0	0.0	0.0	1.3	0.1	