



Dr. Rob Neal, PhD

3D Golf BioDynamics Putting Analysis


First Name: Michael **Last Name:** . **Email:** .
Date: 30-Jan-08 **Test type:** Initial test
Mass: 98 kg **Height:** 1.80 m **Handicap:** 12

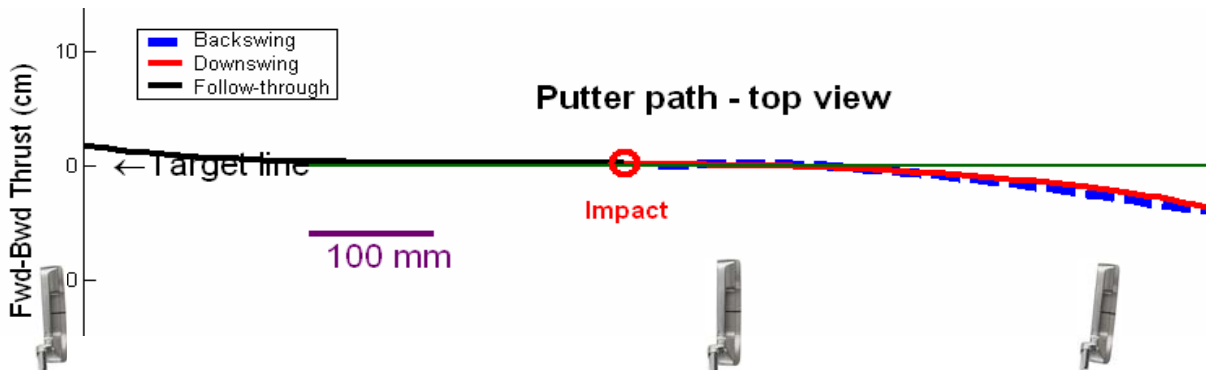
Key Findings:

- 1.
- 2.
- 3.

Putter Motion

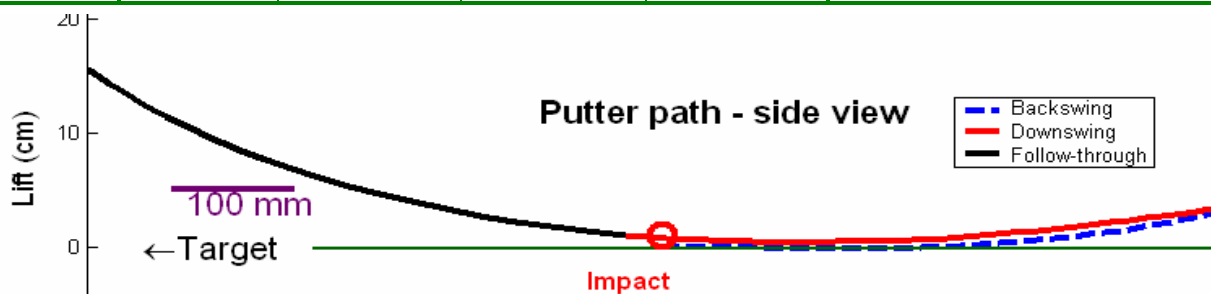
Face Rotation

	Address	Top	Impact	Finish	
You	-0.4	-8.8	-1.5	2.9	



Face Loft & Shaft Lean

	Address	Top	Impact	Finish	
Face Loft	5.5	-12.6	4.8	24.5	
Shaft Lean	3.4	-14.8	2.6	22.4	

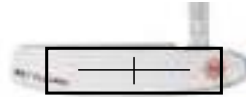
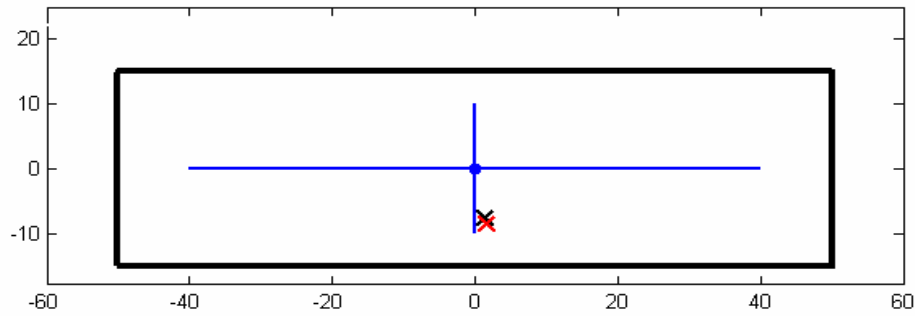




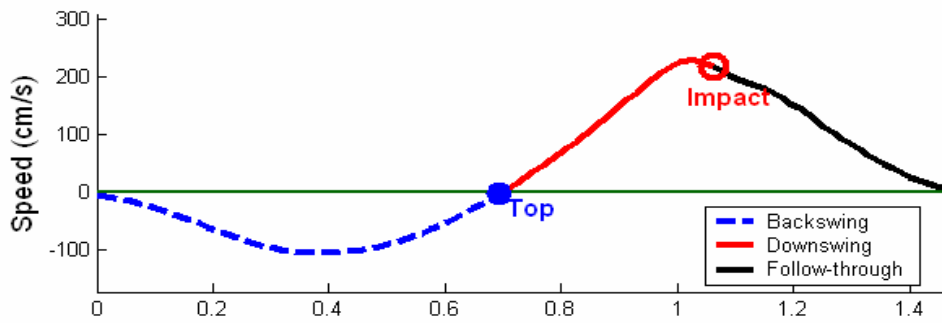
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Impact Location

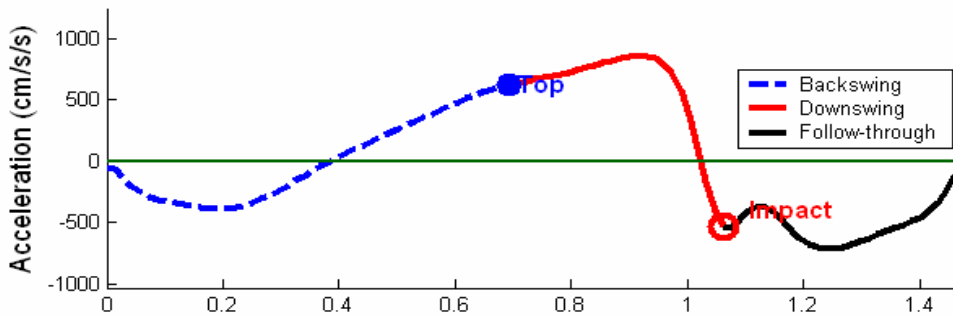
Average Impact Point		Direction
Heel/Toe	1.6 mm	Heel
Up/Down	8.0 mm	Down

Putter velocity



Putter acceleration



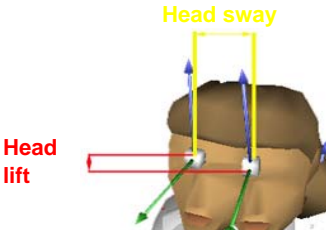


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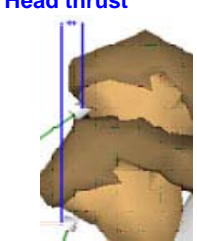
Body Motion & Dynamics

Backswing

Stability		
		You
Head sway (Address to top)		0.3
Head lift (Address to top)		0.0
Head thrust (Address to top)		-0.8

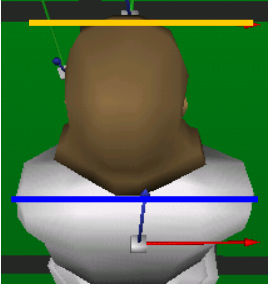


Head sway
Head lift

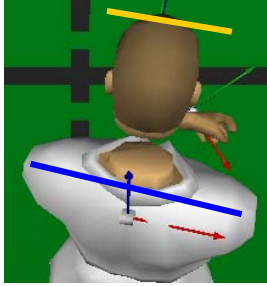


Head thrust

Rotations		
	Address	End of backstroke
Shoulder Turn	20	-9
Head Turn	20	32
Wrist flex	-26.2	-18.9



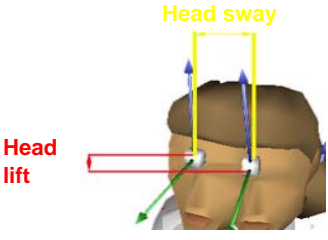
Address



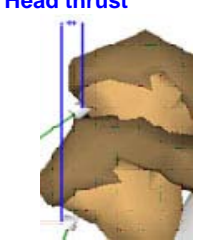
End back stroke

Downswing

Stability		
		You
Head sway (Top to impact)		-1.6
Head lift (Top to impact)		0.9
Head thrust (Top to impact)		-0.7

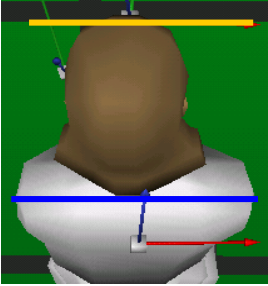


Head sway
Head lift

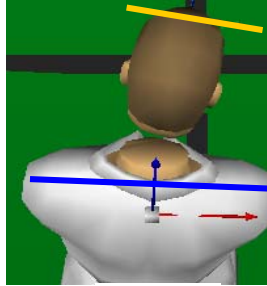


Head thrust

Rotations		
	Address	Impact
Shoulder Turn	20	22
Head Turn	20	66
Wrist flex (at impact)	-26.2	-23.4



Address



Impact



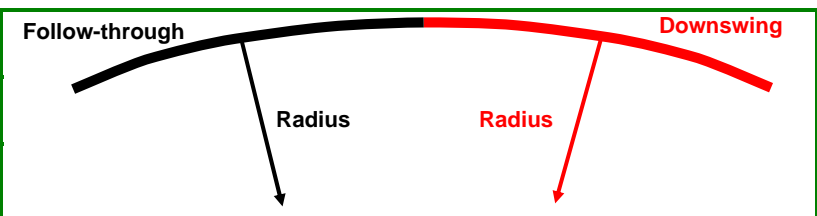
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Speeds		
	Speed (deg/s)	Consistency (%)
Shoulders	81	99.5
Forearm	92	99.1
Putter face rotation	125	99.7

Tempo		
	Time (ms)	Consistency (%)
Backswing time	700	97.5
Downswing time	354	93.3

Stroke Lengths			
	Backswing (cm)	Follow-through (cm)	Ratio
Forearm	11.0	10.3	0.9
Putter	44.6	46.2	1.0

Putter Arc Radius		
	Downswing (cm)	Follow-through (cm)
Radius (cm)		



The diagram illustrates the putter's path during the follow-through and downswing. A black arc represents the follow-through phase, and a red arc represents the downswing phase. Two radius lines are shown: a black one for the follow-through and a red one for the downswing, both originating from the center of the arc.



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