

Teaching component skills to improve golf swing

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The golf swing is a complex movement that requires many body parts to operate in a sequential manner. This article presents correct and incorrect celeration courses of two component skills of the golf swing, namely grip and posture. Using stills from an instructional video, both these skills were analyzed for components. The two skills were taught to fluency aims over 3 weeks. Scores from the learner's golf games also improved during this study.

DESCRIPTORS: Golf, component skills, fluency

The old adage that golf "is a good walk spoiled" may be much closer to the truth than many people imagine. While golf is one of the worlds most popular games it appears to be one of the most frustrating in that few people ever attain the level of skill or the consistency they desire. A direct consequence of this has been a deluge of instructional aids such as personal lessons with golf professionals, books, and videos, all with the purpose to teach the correct way to play golf.

It would seem that one of the problems in mastering the game of golf is in the golf swing itself. The golf swing is a complex movement that requires many body parts to operate in a sequential manner. If this sequence is disrupted then the desired swing may not be obtained and the golf ball may be sent in an undesired direction. Another factor, which may be linked to the frustration felt by many golfers, is inconsistency. The golfer who makes one correct swing may find it difficult to repeat it on other occasions.

In an effort to teach a sequential and consistent golf swing several methods have been tried. One attempt to teach golf skills came from Simek and O'Brien (1981). They task-analyzed the golf game into 22 behavioral components. For instructional purposes they arranged these components into progression from the least difficult to the most difficult. That is, a short putt being the least difficult, and a 200-yard drive being the most difficult. Each component was assigned a mastery criterion. For example, the easiest component was a 10-inch putt and the mastery criterion was 4, 10-inch putts consecutively holed. When the participant attained this mastery criterion a 16-inch putt was introduced. The participant progressed to each new component only if the mastery criterion was attained in the previous component.

Simek and O'Brien compared six novice golfers who had completed the "behavioral progression and mastery" criteria in eight lessons against six other novice golfers who undertook eight lessons of traditional instruction from a golfer

who had taught golf for several years. The results show that when the twelve golfers played eighteen holes the behavioral progression and mastery group beat the traditional group by an average of seventeen strokes (Martin & Pear, 1996).

While the "behavioral progression and mastery" approach have proved useful in the development of complex skills such as golf, more recent developments in the study of learning may be even more potent. Precision teaching emphasizes two areas of learning that the behavioral progression and mastery method does not. Namely, the development of tool skills and the measurement of fluency (accuracy + speed). Many fluency-based programs are designed to increase the frequency of component skills rather than composite performances. Composite performances are analyzed for their key component elements and the frequencies of these elements are then increased to pre-determined frequency aims. Increased frequency of the composite performance happens as a result of increasing frequency of each component skill. This focus on building tool skills to fluency is what is known as a generative model of instruction (Johnson & Layng, 1992). When presented with new environmental requirements fluent component skills can recombine in new ways that meet the more complex requirements of a novel task.

The purpose of this study was to examine how teaching component skills to fluency would affect a compound skill. Using stills from an instructional video, two components of the golf swing, grip and posture were further analyzed for components. The correct grip of a golf club comprises of four components, including position of the fingers and thumbs on the club shaft. Correct posture comprises of five components including the position of feet and legs, position of club in front of legs and angles of arms and shoulders.

METHOD

Participant and Setting

The third author of this paper, a doctoral

candidate and right-handed amateur golfer was the participant in this study. Analysis, assessment and teaching were carried out in a teaching lab at the University of Ulster, Coleraine.

Materials

Sections on grip and posture from the instructional video "Ernie Els – How to Build a Classic Swing" were analyzed using a Panasonic videocassette recorder, NV-FS88 with jog-shuttle facility to freeze frame on specific stills. Stills of correct posture were traced from the screen on to transparent film. We used a two iron clamped at an angle into a retort stand to measure grip and posture.

Pinpoints

We counted the number of times the golf club was gripped correctly in a minute and also the number of times the learner could assume the correct posture from standing in a minute. For the grip to be counted as correct, four criteria had to be met. These were; 1) that when gripping the shaft of the club the forefinger and thumb of the left hand form an inverted V, which points towards the right shoulder. 2) That only the first and second knuckles of the left hand are visible once the right hand is placed on the shaft of the club. 3) That the inverted V formed by the right forefinger and thumb points toward the right shoulder. 4) That the shaft of the club rests on the second joint of the right forefinger (see diagram 1 and 2). If one of the criteria were not met that grip was scored as incorrect.

For posture to be counted as correct, five criteria had to be in the correct position when viewed through the traced outline on the transparency (see Figure 1). These were; 1) that the feet and legs were the correct width apart. 2) That the club was in the correct position close to the right leg. 3) That the right arm was straight and the left bent at the elbow. 4) The angle of the right shoulder. 5) The position of the head. If any of the criteria were not met, the posture was counted as incorrect. Throughout this study the learner continued to play his daily game of golf and recorded scores achieved during games.

Aims

Aims for both skills were set by timing the length of time the expert from the video took to grip the club correctly (3 sec) and the length of time it took him to assume the correct posture from standing (3.5 sec). We divided sixty seconds by each total number of seconds to give an aim and set an aim range for each skill with the first aim as the mid point. The aim range for grip was 15-30

corrects per min. The aim range for posture was 15-30 per min.

PROCEDURE

Analysis

We began by analyzing the sections of the instructional video on grip and posture for components of these two skills. Through listening to the narrative and watching slowed segments and stills of film the first and second authors devised four criteria that determined the correct grip, and five criteria that determined correct posture. The participant was not informed of the criteria of the two component skills until the intervention. A still frame showing correct posture was traced from the screen onto transparent film.

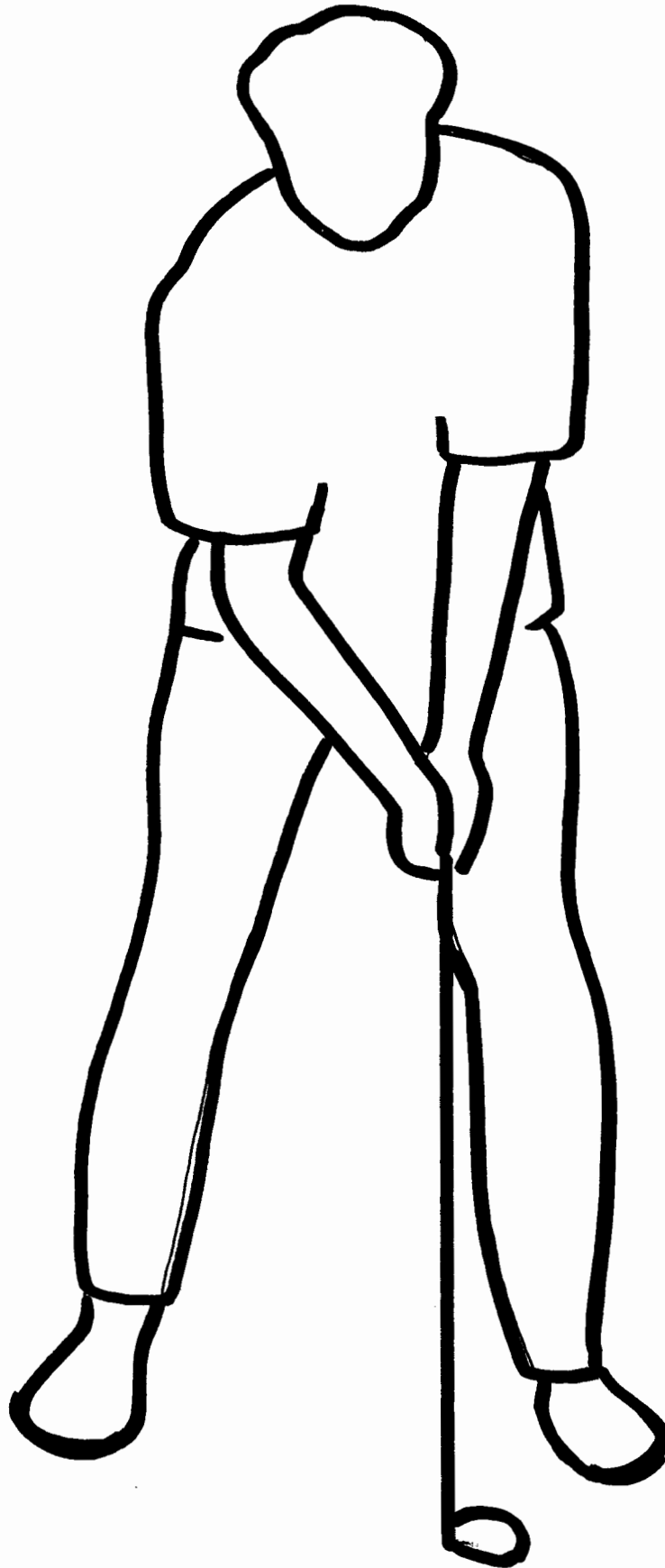
Baseline

A two iron was clamped into position using a retort stand. The learner was asked to assume correct grip on the handle of the club from a standing position (with hands by his sides) marked on the floor with tape. Timing began once the learner stepped from the mark, the timer was paused when the learner said, "OK", indicating he had assumed the correct grip. The grip was then examined by the first and second authors and marked as either correct or incorrect if the three criteria were present. The learner stepped back onto the mark and timing resumed again when he stepped off it. This procedure continued until 1 minute elapsed. Baseline measures for posture followed a similar procedure. Again timing began once the learner stepped off the mark up to the club. He indicated that the correct posture had been assumed by saying "OK" and the timer was paused. This time the authors viewed the learner through the traced outline of the correct posture on transparent film. The posture was scored as correct or incorrect dependant on whether all five criteria were present. The learner stepped back onto the mark and timing resumed again when he stepped off it. This procedure continued until 1 minute elapsed. No instruction, prompts or feedback were given at any time during baseline.

Repeated Practice, Instruction, and Feedback

After one baseline measure for each skill, intervention consisted of teaching sessions where, under instruction from the first and second authors, the learner would repeatedly practice gripping the club. He was given feedback as to what criteria were correct or incorrect. The same technique was used to teach posture with the addition of a floor mat placed in front of the club, showing the correct position for both feet.

Figure 1



Timings

After teaching sessions on both skills, 1-min or 30-sec timings as described for the baseline condition were used. The learner could complete as many timings for each skill as he wanted. Initial timings were 1 min for posture and 30-sec for grip. However, timings for posture were decreased to 30 sec after the first session when the learner complained of fatigue trying to maintain posture for that length of time.

RESULTS and DISCUSSION

Charts 1 and 2 (Figure 2 and 3 respectively) present the charted data of the learner's progress for baseline and intervention on both skills. Chart 1 shows correct and incorrect scores for grip. Baseline assessment showed that the learner gripped the club correctly 6 times and 2 times incorrectly in 1-min. In the first timing after intervention he scored 10 corrects and zero incorrects. His corrects accelerated across subsequent sessions, reaching aim on the 4th session (18). A maintenance check 4-weeks after teaching finished resulted in a further acceleration to 30 corrects and 2 incorrects.

Chart 2 shows the learners correct and incorrect scores for posture. Baseline assessment shows the learner assumed the correct posture 7 times and the incorrect posture 3 times in 1-min. The first timing after intervention resulted in 8 corrects and 4 incorrects and corrects continued to accelerate until aim was reached on the third session. A maintenance check after 4 weeks resulted in a further acceleration to 34 corrects and 2 incorrects. During the course of this program the learner's official handicap dropped from 9 to 7.

These results would suggest that the intervention was successful in improving fluency in achieving correct grip and posture for this learner. The increase in actual game scores further suggests that the improvement in these two components of the golf swing may have had a direct effect on the learner's swing during games. Once dysfluent components have been identified, repeated practice, instruction, and feedback are low cost, efficient strategies that can improve overall performance.

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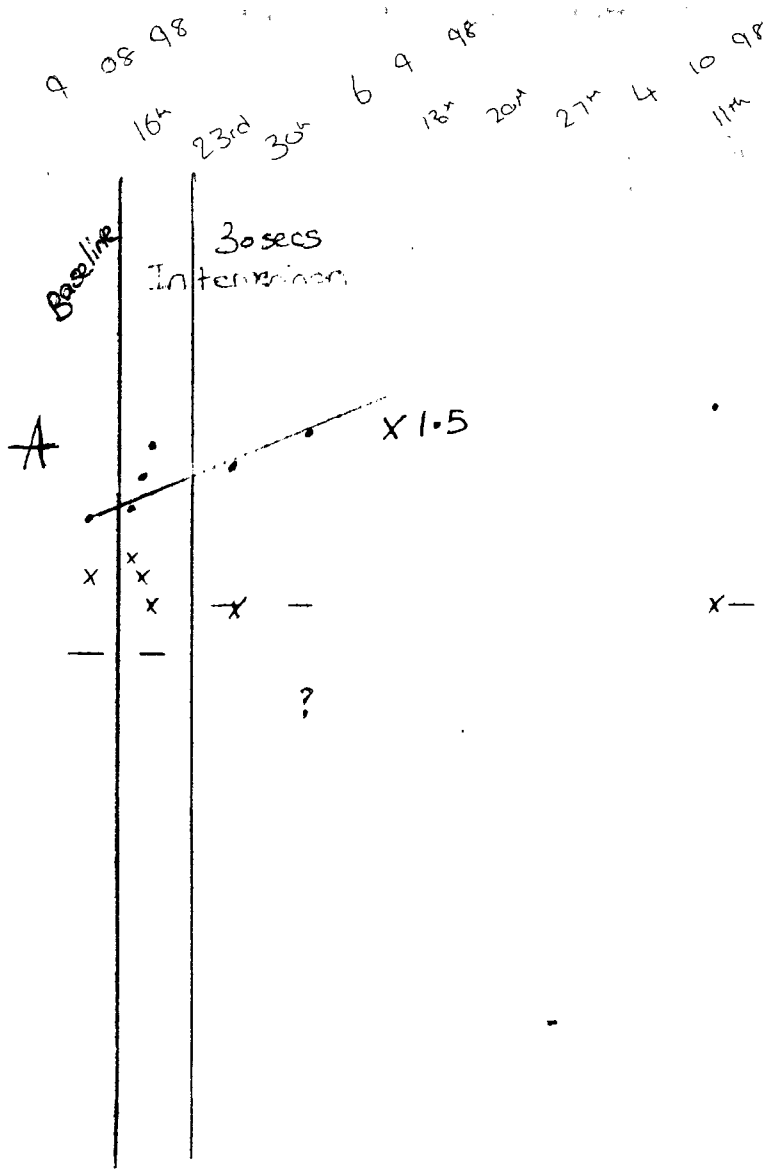
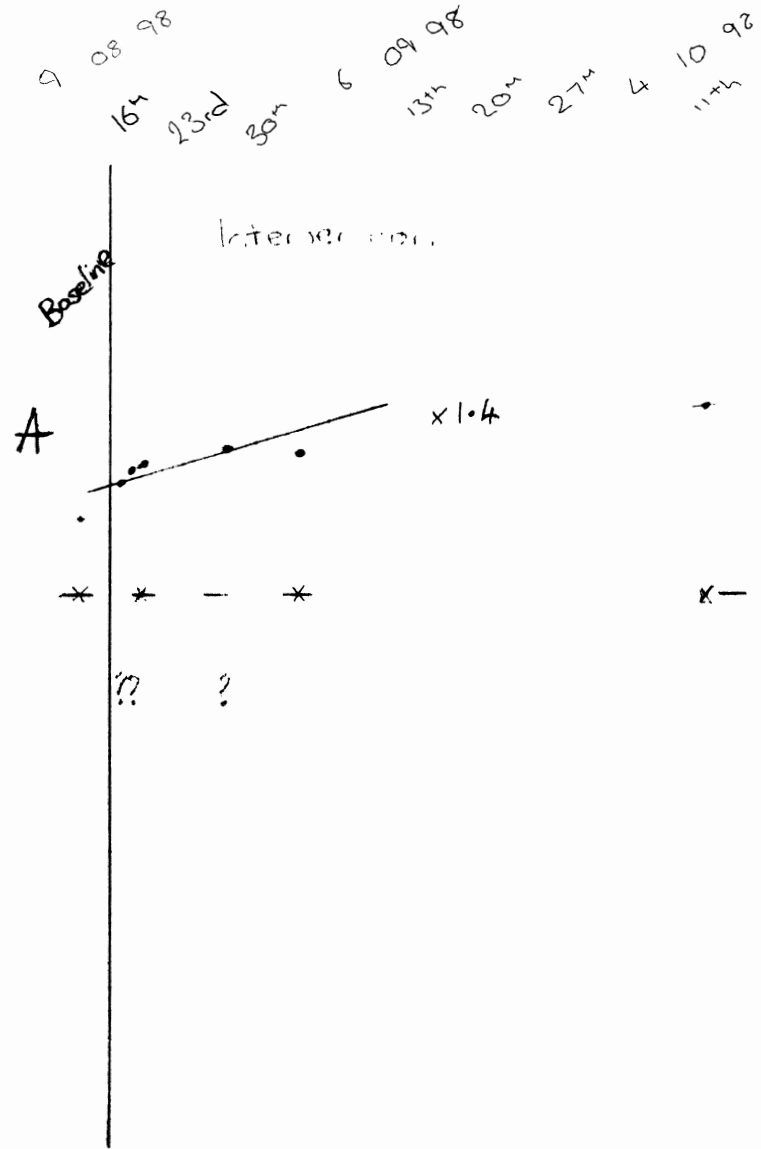


Figure 2

| | | | | |
|-------|------------|------|----------------|---------|
| MK | CM'D | CM'F | Robert | Posture |
| U.V.C | Psychology | CM'D | CM'D/CM'F CM'D | Chart 2 |



MK
U.V.C

CM^cD
Psychology

CM^cI

CM^cD

CM^cD/CM^cI

Robert
CM^cD

Grip
Chart 1

Figure 3