

Every subject was asked to make no intentional/extraneous movements of shoulders, hips, knees or ankles, during takeaway. The right shoulder was not to tense-up in trying to widen the arc. After takeaway, the rest of the backswing to the top could continue as usual.

During the second and third sessions, the subject tried to implement the above instructions, for 30 - 45 minutes, under supervision. At the end of each session he/she was asked to hit one or two rounds of 10 shots, which were recorded. The best of the recorded sets requiring at least 6/10 good shots was selected and comprised the 'after' results. Exclusion criteria for individual shots of a set were the same as before.



Fig.1 Starting the recommended move

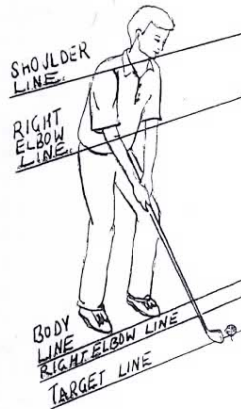


Fig.2 Body-, right elbow-, target-lines

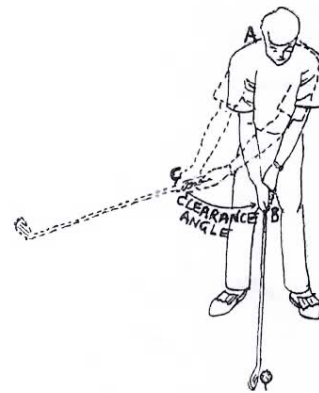


Fig.3 Clearance angle

#### 2.4 Measurement of 'Clearance Angle'

The clearance angle measures the first wide position of the right-arm as it clears the right side of the body. 'Wide' means (a) before right elbow and/or wrist fold take place, or (b) before abrupt withdrawal away from the target line of the right arm and shoulder. This latter move manifests itself as the beginning of a 'reverse-pivot' with the chest not moving towards its desired position over the right leg. It is accompanied by an early disappearance of the right shoulder, when seen from the face-on angle.

To calculate clearance angle each recorded swing was replayed. The swing action was paused when the clubhead was grounded at address. A line (AB) was drawn on the video screen, through the right arm in its address position (Fig.3). The swing was then advanced frame by frame, to catch the player's first wide move away from the right side of the body. This position was used in all cases, although many swings continued to be wide well past this point. A second line (AC) was drawn through the right arm at the above point. (Fig.3). The angle between AB and AC was measured using a protractor. This angle was termed the 'clearance angle'.