Intervention the Completion and Key Phase of the Analysis Process

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In analysing technique it is often stated that *"The coach who tries to see everything often ends up perceiving nothing".* This is particularly the case for advanced player development, as changes in technique to improve performance may only be very subtle. For this reason publications such as Elliott and Alderson, (2003), Knudson and Morrison, (1997), Knudson and Elliott, (2003) have all advocated a planned approach to technique evaluation. This approach generally is characterised by four stages:

1. **Preparation**
2. **Observation**
3. **Evaluation**
4. **Intervention (followed by re-observation)**

These separate parts of the analysis process were discussed at the ITF Worldwide Workshop in Portugal. Having created the ideal model of performance for your player (in your mind – **preparation phase**), you go about analysing his/her technique under various conditions (practice, pressure practice and match play).

In the **observation/evaluation phase** of stroke analysis the observed outcomes are then compared with the previously determined desired responses. This is followed by the determination of primary flaws, from which correction strategies are communicated to the player (**Intervention**).

Certainly players learn in different ways. Simple verbal instruction will be sufficient to elicit technical change in some players, while others will respond more favourably to visual feedback that highlights the need for movement modification. In determining which intervention strategy is most suitable for each player, several factors must be considered. First and foremost is the skill; then come variables such as a player's personality, game style, playing level and experience, gender and physical capacities.

The philosophy behind integrated training is that effective learning can be accelerated if a variety of strategies are combined. More specifically in the sub-text of this presentation, it relates to a physical, psychological or tactical stimulus triggering a desired, mechanical change. Loosely coined "complex training" when only physical and technical objectives are combined, integrated training can oftentimes guide players along a path of technical "self-discovery".

In the following presentation we will provide examples of technical (**Te**), tactical (**Ta**) and physical (**P**) cues and integrated intervention strategies for a number of different flaws in stroke production. From a technical perspective you may wish to consider the ***old way –***

new way approach in modifying stroke technique (Hanin et al., 2002)(see Table 1). Practical examples of how to use this approach will be included in the on-court session below.

Step	***Old way*** ***New Way***
1	• Player MUST be motivated to want to ***change.*** • At times with professional players it may be necessary to work gradually on change through a drill environment. Let them realise that they HAVE changed in response to a particular need established through a drill or sequence of drills.
2	Physical & mental awareness of error. That is awareness of ***flaw(s) in the old way*** (technique).
3	Comparison to model of performance - awareness of the ***new way*** (new technique)
4	Skill discrimination: Multiple trials of ***old way (OW)*** – ***new way (NW).*** The idea is to clarify the change in ones mind. **OW_NW; OW_NW: OW_NW; OW_NW: OW_NW**
5	Practice - Feedback on ***new way: Repeat NW ~ 5 times***
6	Reevaluation: **Check against tactical goals**

Table 1: Learning Structure for new technique

THE SERVE

1. Ineffectual leg-drive

- **Te**: Poor positioning of the feet - relate to rotation of the trunk and movement of the hips.
- **Te**: Lack of knee flexion - relate to knee flexion angle, position of racket in backswing and impact position.
- **Te**: Touching chair underneath bottom, serving and exaggerating arabesque landing.
- **Ta:** Kick serves from back fence over a rope between service line and net on server's side of court.
- **P**: Depth jump with serve, volleyball spike then serve, pogo jumps (for firing plantar flexion) then serve; serve bare foot in a bucket of sand (or on a trampoline).

2. Inappropriate trunk rotation

- **Te**: Landing on back-foot following impact – check level of twist rotation.
- **Te**: Abduction angle between trunk and upper arm at impact outside range of acceptability – relate to trunk rotations.

- **Ta**: Play points only serving to the backhand court; feed quick returns into the player's forehand side.
- **P**: OH medicine ball throws for height (encouraging cartwheel rotation); OH medicine ball throws for distance with arabesque finish; perform cartwheel with round off (to incorporate flexion in sagittal plane) and then serve; weighted throws for height followed by serving.

3. **Poor internal rotation**
   - **Te**: No internal rotation of upper arm in forwardswing – relate to the ball toss.
   - **Te**: Lack of internal rotation speed in forwardswing – relate to position of racket in follow through.
   - **Te**: Serve from service line trying to get ball to bounce as high as possible in service box; racquet face palm in – palm out; standing front on serve into ground.
   - **Ta**: Play ping pong (serves to bounce on players' own side then on partner's side); first serves only from ¾ court (allowing young – smaller – players to hit with maximum velocity and not be concerned with imparting spin to serve to counter net height).
   - **P**: Theraband swing throughs / weighted racquet swings followed by serves; cuff dribble followed by one maximal throw.

4. **Dropped elbow during backswing**
   - **Te**: Throwing technique; edge forward racquet position; practice backhand smash.
   - **Ta**: Rope over net; kick serves only.
   - **P**: Stretch internal rotators (dropped elbow alleviates stretch on pectorals); theraband abduction & external rotation; cuff dribble; backward throws with external rotation followed by conventional, forward throw.

THE FOREHAND

1. **Lack of penetration**
   - **Te**: Check position of backswing, number of segments used, back leg-drive as start of trunk rotation.
   - **Ta**: Rally crosscourt using only forehand drive or drive volleys; half court forehand only rallies where a point is lost if the 2nd bounce lands <1m after the baseline.
   - **P**: Diagonal bounding; theraband pull 'n' push; medicine ball chest pass with rotation; weighted racquet swings; discus throwing.

2. **Trunk rotation**
    - **Te**: Ball impact position; separations angle at end of backswing and follow-through; placement of lead foot and pivoting or thrust of lead leg (right leg for right-handed player).
    - **Ta**: Rallying inside out forehands in doubles alleys; wheelchair tennis.
    - **P**: Medicine ball FW/BW trunk rotation; trolley rotations; baseball hitting for distance.

3. **Hitting through the ball**
    - **Te**: Check position of non-racquet arm; head alignment; swing path.
    - **Te**: Butt-cap pointing at the ball; palm-in palm-out drill.
    - **Ta**: Rally in the doubles alleys down-the-line; point play with any forehand impacted below waist height resulting in immediate loss of the point.
    - **P**: Forehand frisbee throws; side-underarm forehand straight line release (velcro pad + ball).

THE BACKHAND

1. ***Lack of power in two-handed stroke*** **-** Unit vs. multi-segment forwardswing
    - **Te**: Position of ball impact; separation angles at end of backswing and follow-through, placement of outside foot and pivoting or movement of outside leg (left leg for right-handed player); contribution of non-racquet arm.
    - **Ta**: Forehand rallies with non-dominant hand, point play inside baseline (predisposing players to use open stance); playing backhands only players rally from 2m behind baseline and have to hit within 1m of their opponent's baseline.
    - **P**: Medicine ball chopping up/down; theraband single arm trunk rotations; weighted racquet swings.

2. ***Lack of external rotation and supination in one-handed stroke***
    - **Te**: Check alignment of shoulders post-impact; racquet finish.
    - **Te**: Drill repetition of short, angled crosscourt backhands; practicing backhand topspin half-volleys.
    - **Ta**: Crosscourt backhand rallies with bonus points for every time opponent contacts ball wider than doubles alley; crosscourt mini-tennis with backhands only.
    - **P**: Backhand frisbee (or hat!) throws, dumbbell wrist curls.

REFERENCES

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