Biomechanics applied to racket sports

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biomechanical methods

• qualitative analysis

• quantitative analysis

observations

measurements

Quantitative analysis

Qualitative analysis
biomechanical methods ....

- qualitative analysis
- quantitative analysis
Qualitative

positioning
Qualitative timing
Qualitative

Stroke production - the serve
the serve - upper arm internal rotation and forearm pronation
Principles of movement applied to racket skills

- proximal-to-distal sequencing
  *(enhancing speed)*

- stretch-shorten cycle
  *(enhancing power)*
principles of movement 1
- proximal to distal sequence
proximal to distal sequence

Segment 1
Segment 2
Segment 3

Speed

time

speed

elbow
wrist
hip
shoulder
racket

time
proximal to distal sequence
principles of movement 2
- stretch-shorten cycle
stretch-shorten cycle - chest
stretch-shorten cycle - shoulder
conclusions ...

- Qualitative analysis based on video can enable the coach to study more about a player’s positioning, timing and stroke production.

- Coaches’ attention can be focussed on specific points when observing performance.

- Knowledge of *principles of movement* help the coach to develop a player’s technique which will lead to improved performance.
thank you