

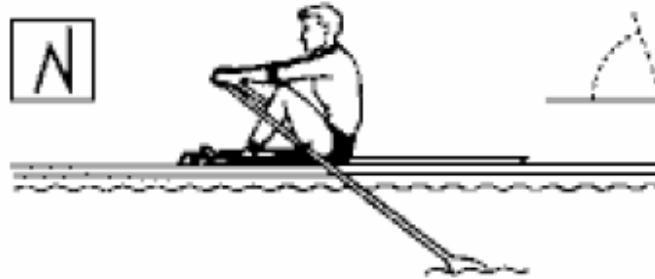
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Analysis Of Movement Errors

1. Body too upright. Body angle is not sufficient.



Effects

- Stroke length too short at the catch
- Inefficient drive phase
- Little propulsion of the boat

Causes

- Incorrect footboard height (too high)
- Torso angle too upright
- Torso did not follow the hands forward after the finish

Corrections

- Demonstrate and describe the correct sequence of movements in order to establish an exact concept of the correct sequence of movements.
- Ensure that the footboard height is correctly adjusted.
- Practice the correct sequence of movements from the finish. Use partial movement sequences and pauses in the stroke cycle.
 - Hands only making sure that the hands move away until the sculls are at 90° to the boat,
 - Hands and body ensuring that the hands move away until the sculls are past the 90° angles to the boat.
 - Rowing full strokes but pausing as the hands reach 90° , and as the hands reach past the 90°
 - Row with an exaggerated body angle but with head held normally and arms stretched out

Analysis Of Movement Errors

2. Body angle is too extreme



Effects

- Inefficient use of the legs
- Allows for “bumshoving”
- Poor coordination of the back lever due to poor position
- Too large vertical movements of the body due to body position

Causes

- Jerky uncontrolled seat movements,
- Movement of the seat before the spoons enter the water.
- Applying the leg drive before the spoon connects to the water at the catch
- Incorrect footboard height (too low)

Corrections

- Demonstrate and describe the correct sequence of movements in order to establish an exact concept of the correct sequence of movements.
- Ensure that the footboard height is correctly adjusted.
- Practice slow controlled seat movements, counting to ensure a correct ratio drive:recovery
- Ensure that the spoon is placed in the water in a quick controlled movement before the change of direction of the seat.
- Row using the first half of the slide practicing slow controlled seat movements and accuracy at the placement.

Analysis Of Movement Errors

3. Prematurely bent arms



Effects

- Stroke length too short at the catch
- Immersing the spoons too deeply in the initial drive phase
- Losing connection through the middle phase of the drive
- Using the torso too late in the drive and encouraging "bumshoving"
- Ineffective use of power for boat propulsion

Causes

- Balance difficulties
- Excessive use of the arms when connecting to the water at the catch
- Incorrect sequence of movements

Corrections

- Demonstrate and describe the correct sequence of movements in order to establish an exact concept of the correct sequence of movements.
- Balance exercises
 - From the finish balance with hands away
 - From the finish hands away and then roll forward balancing
 - From the finish hands away and then roll forward with the catch
 - Rowing with pauses at various seat positions – balancing
- From the catch slowly increase the length of the slide ensuring that the arms stay naturally stretched
 - Increase force and seat movement gradually

Analysis Of Movement Errors

4. Pushing the hands down at the catch



Effects

- "Skying"
- Stroke length too short at the catch
- Immersing the spoons too deeply in the initial drive phase
- Ineffective use of power for boat propulsion

Causes

- Balance difficulties
- Cramped shoulder movement (poor shoulder mobility during placement)
- Incorrect height (too low). Athlete drops hand height to create room for squaring

Corrections

- Balance exercises
 - From the finish balance with hands away
 - From the finish hands away and then roll forward balancing
 - From the finish hands away and then roll forward with the catch
 - Rowing with pauses at various seat positions – balancing
- Mobility and flexibility exercises for the shoulder girdle
- Rowing in slow motion with one scull only
 - With the spoons flat on the water allowing a feel of the hands height required for the placement
 - With the spoons squaring practicing the small movement necessary to execute the placement
- Rowing with both sculls
 - Starting at hands only and increasing the seat movement gradually
- Adjust oarlock to correct height.

Analysis Of Movement Errors

5. Excessive raising of the arms at the catch



Effects

- Immersing the spoons too deeply in the initial drive phase
- Too hard movements of the arms at the placement
- Vertical and not horizontal movements
- Does not favour correct squaring and feathering

Causes

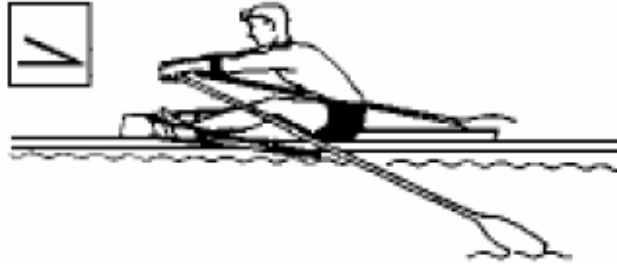
- Cramped arm and shoulder movement
- Wrong movement coordination
- Incorrect height (too high)

Corrections

- Row with very low pressure emphasizing the small movements necessary for the placement
- Rowing with square spoon starting at hands only and gradually increasing slide length
- With the seat stopped at the frontstops gently drop the spoon into the water and initiate the drive phase.
 - Gradually increase the slide length from $\frac{1}{4}$ to full slides with correct arm use.
- Adjust oarlock to correct height

Analysis Of Movement Errors

6. Giving way of the hips during the drive phase - “Bumshoving”



Effects

- Little propulsion
- Increases the torso angle during the 2nd half of the drive phase.
- Ineffective power transmission caused by a lack of co-ordination of the drive movements

Causes

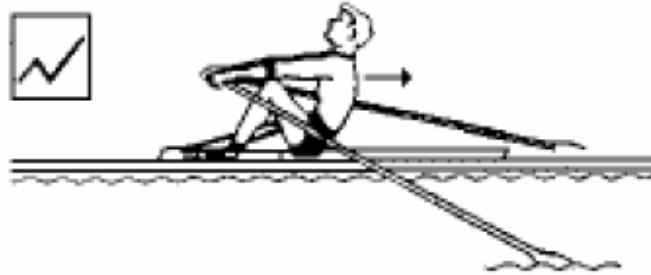
- Poor strength of the lower torso and hip girdle
- Torso angle too great at the placement
- Arms used too strongly or bent prematurely
- Balance difficulties

Correction

- Adjust footboard towards stern
- Row with slide only with straight arms, stressing good torso posture
- Row with full slide length, emphasizing torso posture without force being applied by the legs
- Intensify strength training. Increase the proportion of exercises devoted to core stability of the trunk and the hip girdle
- Practice balance exercises

Analysis Of Movement Errors

7. Opening the body angle prematurely



Effects

- Little propulsion
- Ineffective power transmission by a lack of co-ordination of the drive movements
- Causes the body to fall over the handles at the finish

Causes

- Drive begins before the placement of the spoon by the body angle opening up.
- Head is thrown backwards before the leg drive commences

Correction

- Attempt to dynamically implement leg drive from the catch
- Ensure torso is at the correct angle on the recovery and that the torso angle is maintained during the placement of the spoon.
- Exaggerate the torso angle at the catch. Row only with the legs emphasizing correct torso angle and maintaining the angle during the leg drive

Analysis Of Movement Errors

8. Not using the arms through the middle of the drive phase



Effects

- Over use arms in the final drive phase
- Excessive shoulder employment in the final course
- Spoon moves vertically in the water
- Poor co-ordination of the drive sequence
- Little propulsion
- Cramping of the elbow and shoulder musculature

Causes

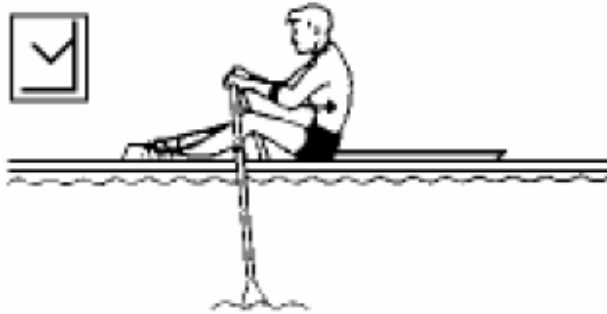
- Overstretched arms at the catch
- Poorly developed elbow and shoulder musculature

Correction

- Row with fixed seat at the catch emphasizing naturally stretched arms when placing the spoon, gradually increase slide length
- Allow the spoons to follow the correct course of motion without force being applied
- Strengthening the elbow and shoulder musculature

Analysis Of Movement Errors

9. Premature arm employment in the middle drive phase



Effects

- Impairment of the final drive phase
- Decrease of the possible propulsion
- Cramping of the elbow musculature
- Poor coordination of the drive sequence

Causes

- Attempting to maintain connection with the water by using the arms for force production

Correction

- From the catch slowly increase the length of the slide ensuring that the arms stay naturally stretched
 - Increase force and seat movement gradually

Analysis Of Movement Errors

10. Shrugging the shoulders in the middle drive



Effects

- Cramping of the elbow and shoulder musculature
- Changing the horizontal movements of the elbows and the position of the spoon in the water
- Insufficient power and insufficient opening of the chest and shoulders in the final drive phase
- Decrease of length in the final drive phase

Causes

- Too strong arm employment with cramped shoulders
- Insufficient use of the back musculature
- Wrong head attitude, head is toward stern and not towards the bows
- Incorrect rigging (overlap too large – span and inboard)

Correction

- Row with low pressure ensuring that the spoon follows the correct path in the water.
- Rowing with one scull only, begin with fixed seat and low pressure ensuring the correct movements of the arms and shoulders and gradually increase the slide length and pressure.
- Row with both sculls, begin with fixed seat and low pressure ensuring the correct movements of the arms and shoulders and gradually increase the slide length and pressure.
- Rowing with loose shoulders, aim at horizontal course of the elbows
- Row with stretched arms as well as exaggerated torso angle, emphasize the use of the back musculature
- Rower requested to complete a certain number of strokes with head towards the bows. Increase the number of strokes gradually

Analysis Of Movement Errors

11. Unequal leg impact



Effects

- Spoons move vertically in the water
- Uneven pressure build-up at the spoon
- Decrease of the effective propulsion

Causes

- Uneven force production of the gluteal and leg extension musculature
- Using the torso too early in the stroke

Correction

- See exercises for correction of 7.
- Row with $\frac{1}{4}$ slide emphasizing the leg drive and the connection with the footboard gradually increasing the slide length but ensuring that the force application stays consistent
- Rower request to drive legs dynamically over 1 to 5 strokes, gradually increasing as the rowers consistency of force production improves

Analysis Of Movement Errors

12. Extracting the spoons too early in the drive phase



Effects

- Wash in the final course
- Missing final course
- Ineffective impact structure
- Decrease of the propulsion

Causes

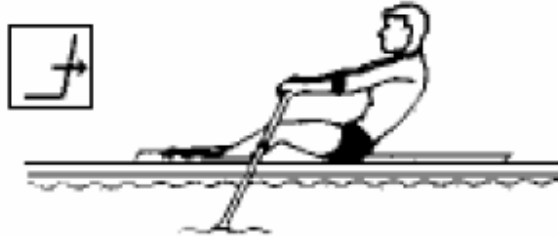
- Insufficient shoulder employment
- Spoon is feathered in the water
- Leg drive is broken off before the body movement
- Hands are pulled down onto the thighs
- Hands away too slow in the crew boat, therefore premature stopping of the leg drive in order to hold rhythm

Correction

- Rowing with fixed seat and torso fixed at the finish position, practice drawing the thumbs through to the lower ribs with the spoons buried.
- Rowing with square blade emphasizing the draw through and the down and away movement.

Analysis Of Movement Errors

13. Over using the torso in the final movement – jerky torso movement



Effects

- Torso falls over hands at the finish
- Increased vertical body movement
- Decreasing propulsion

Causes

- Beginning and middle drive too weak
- Bum shoving in the beginning and middle drive

Correction

- see correction exercises of errors 1, 6, 17

Analysis Of Movement Errors

14. Leaning out of the boat



Effects

- Uneven leg drive
- Uneven water work between bow and stroke sculls

Causes

- Wrong rigging
- Different force employment between bow and stroke
- Head is inclined to one side

Correction

- Move the athletes position further to the stern
- Rowing with fixed slide ensuring correct body movement. Then gradually increase slide
- Mark finish angles of the sculls
- Fixed seat rowing with low pressure ensuring the correct movement of the body and hands,
- gradually lengthen slide and increase force at the finish