

swimmer	Quality control of BREAST-FREE TURN technique
	1. SWIMMING BEFORE TURN
x	· Timing of moment for touching the wall
	2. APPROACHING PHASE
x	· Forward speed before touch(as high or better compared to swimming)
	3. ROTATION PHASE
x	· Action of arms during rotation (quick recovery,entry when feet touch)
x	· Action of legs during rotation (quick grouping)
x	· Placing the feet to the wall (correctly and simultaneously)
x	· Speed and movement of hips during rotation (not stoping)
x	· Duration of rotation (short)
	4. PUSHING PHASE
x	· Position of arms for push (hide head between the stretched arms)
x	· Body position (side or back)
x	· Mean pushing speed (high)
x	· Push duration (very short)
	5. GLIDING PHASE
x	· Head , body and legs position (on side, streamlined)
x	· Glide speed after push before leg kicks
	6. UNDERWATER KICKING PHASE
x	· Timing of the beginning the first leg kick
x	· Head and arms position during leg kicks
x	· Rhythm and action of legs during kicking
x	· Duration and number of kicks to keep high forward speed
x	· Speed during leg kicks
	7.PULLOUT PHASE
x	· Timing of the beginning of first pullout stroke
x	· Forward speed during first pullout stroke
x	· Timing of the beginning second pullout stroke
x	· Forward speed during second pullout stroke
x	· The action of arm strokes and recovery during pullout
x	· The action of body during pullout
x	· Timing of arms and legs at the end of pullout strokes
	7. SWIMMING AFTER TURN
x	· Swimming speed after turn (better compared to speed of pullout)
100%	

swimmer	Quality control of BACK-BREAST TURN technique
	<u>1. SWIMMING BEFORE TURN</u>
x	· Timing of approaching to the wall
	<u>2. APPROACHING PHASE</u>
x	· Forward speed before touch (same as swimming before)
	<u>3. ROTATION PHASE</u>
x	· Action of arms during rotation (quick recovery, entry when feet touch)
x	· Action of legs during rotation (quick grouping)
x	· Placing the feet to the wall (correctly and simultaneously)
x	· Speed and movement of hips during rotation (not stopping)
x	· Duration of rotation (short)
	<u>4. PUSHING PHASE</u>
x	· Timing of the beginning of push (immediately, when feet touch)
x	· Body position during push (fixed during push, no twisting)
x	· Mean pushing speed (high)
x	· Push duration (very short)
	<u>5. GLIDING PHASE</u>
x	· Forward speed during first glide
x	· Body , head and arm position for the glide
x	· Duration of first glide and timing of pull (relatively short)
	<u>6. LONG PULL PHASE</u>
x	· Forward speed of pulling.(same as gliding speed)
x	· The action of the arms (good acceleration)
x	· Leg action of legs (keep legs straight)
x	· Body and head position during long pull (flat, streamlined)
	<u>7. SECOND GLIDING PHASE</u>
x	· Body position (streamlined)
x	· Forward speed of gliding (same as pulling speed)
	<u>8. ARM RECOVERY & LEG BENDING PHASE</u>
x	· Arms action (close to body, with small resistance)
x	· Legs action (first bending knees, then from hips, knees wide, feet close)
x	· Timing of the leg bending with arms recovery (when arms near shoulder)
x	· Forward speed of arms and legs recovery (not too low)
	<u>9. FIRST KICK & PULLOUT PHASE</u>
x	· Position the body for underwater pullout cycle
x	· Timing of kick and pull (short gliding between)
x	· Body position on the surface at the end of the pullout (flat, high)
x	· Forward speed of pullout cycle (high)
	<u>10. SWIMMING AFTER TURN</u>
x	· Swimming speed after turn (equal compared to speed of pullout)
100%	

swimmer	Quality control of FLY-BACK TURN technique	
	1. SWIMMING BEFORE TURN	
x	· Timing of moment for touching the wall	
	2. APPROACHING PHASE	
x	· Forward speed before touch(as high or better compared to swimming)	
	3. ROTATION PHASE	
x	· Action of arms during rotation (quick recovery,entry when feet touch)	
x	· Action of legs during rotation (quick grouping)	
x	· Placing the feet to the wall (correctly and simultaneously)	
x	· Speed and movement of hips during rotation (not stoping)	
x	· Duration of rotation (short)	
x	· Body position at the end of rotation (back, arms streched)	
	4. PUSHING PHASE	
x	· Position of body and arms for push (hide head between the streched arms)	
x	· Back position (rigid and fixed during push)	
x	· Mean pushing speed (high)	
x	· Push duration (very short)	
	5. GLIDING PHASE	
x	· Head , body and legs position (must be very streamlined)	
x	· Glide speed after push before leg kicks	
	6. UNDERWATER KICKING PHASE	
x	· Timing of the beginning the first leg kick	
x	· Head and arms position during leg kicks	
x	· Rhythm and action of legs during kicking	
x	· Duration and number of kicks to keep high forward speed	
x	· Speed during leg kicks	
	7.PULLOUT PHASE	
x	· Timing of the beginning of first pullout stroke	
x	· Forward speed during first pullout stroke	
x	· Timing of the beginning second pullout stroke	
	· Forward speed during second pullout stroke	
x	· The action of arm strokes and recovery during pullout	
x	· The action of body during pullout	
x	· Timing of arms and legs at the end of pullout strokes	
	7. SWIMMING AFTER TURN	
x	· Swimming speed after turn (same as during pullout)	
100%		

swimmer	Quality control of FREESTYLE TURN technique
	1. SWIMMING BEFORE TURN
x	· Swimming speed before turn
	2. TURN-IN STROKE PHASE
x	· Forward speed during last stroke (higher then swimming speed)
	3. ROTATION PHASE
x	· Timing of the beginning rotation (head down at the end of last stroke)
x	· Action of arms during rotation (avoid unnecessary movements)
x	· Action of legs during rotation (dolphin leg kick and quick recovery)
x	· Placing the feet to the wall (correctly and simultaneously)
x	· Movement of hips during rotation (elliptical)
x	· Duration of rotation (short)
	4. PUSHING PHASE
x	· Position of body and arms for push (hide head between the stretched arms)
x	· Body position (side or back)
x	· Mean pushing speed (high)
x	· Push duration (very short)
	5. GLIDING PHASE
x	· Head , body and legs position (on side, streamlined)
x	· Glide speed after push before leg kicks
	6. UNDERWATER KICKING PHASE
x	· Timing of the beginning the first leg kick
x	· Head and arms position during leg kicks
x	· Rhythm and action of legs during kicking
x	· Duration and number of kicks to keep high forward speed
x	· Speed during leg kicks
	7. PULLOUT PHASE
x	· Timing of the beginning of first pullout stroke
x	· Forward speed during first pullout stroke
x	· Timing of the beginning second pullout stroke
x	· Forward speed during second pullout stroke
x	· The action of arm strokes and recovery during pullout
x	· The action of body during pullout
x	· Timing of arms and legs at the end of pullout strokes
	7. SWIMMING AFTER TURN
x	· Swimming speed after turn (better compared to speed before turn)
100%	

swimmer	Quality control of FREESTYLE START technique
	1. REACTION & PREFLEXION phase
☐	· Body position.
☐	· Movement of hip
☐	· Reaction time from start signal to beginning push-off
☐	· Preflexion of knees
	2. PUSHING phase
☐	· Transfer impulsive pushing forces
☐	· Timing of arms action
☐	· Head speed forward
☐	· Body position at the end of push
☐	· The duration of pushing action
	3. FLIGHT phase
☐	· Hip position during flight
☐	· Legs action (rise up before entry)
☐	· Arms action (stright forward)
☐	· Flight speed
☐	· The length of head entry
	4. ENTRY & GLIDE phase
☐	· Head position during entry (between arms)
☐	· Body and legs position during entry (without splashing , entry kick)
☐	· Forward speed of hands during entry (max)
☐	· Forward speed immediately after entry
	5. UNDERWATER KICKING phase
☐	· Timing of the beginning the first leg kick
☐	· Head and arms position during leg kicks
☐	· Rhythm and action of legs during kicking
☐	· Duration and number of kicks to keep high forward speed
☐	· Speed during leg kicks
☐	· Trajectory of gradual rise to surface
	6. PULLOUT phase
☐	· Timing of the beginning of first pullout stroke
☐	· Forward speed during first pullout stroke
☐	· Timing of the beginning second pullout stroke
☐	· Forward speed during second pullout stroke
☐	· The action of arm strokes and recovery during pullout
☐	· The action of body during pullout
☐	· Timing of arms and legs at the end of pullout strokes
	7. SWIMMING AFTER START
☐	· Swimming speed after pullout strokes
100%	

swimmer	Quality control of FREESTYLE SWIMMING technique
	<u>1.Left ARM PULL &Right RECOVERY phase</u>
x	·The position of left shoulder (must be relatively high)
x	· The timing of left catch,right exit,right kick (must be simultaneous)
x	· The left arm pull action (good catch , fixed elbow position)
x	· The position of left arm at the middle of stroke (vertical, max flexed)
x	· Left hand slip during pull (positive, let your body move on the pull)
x	· Forward speed (compare to speed during right pushing phase).
	<u>2. Left ARM PUSH & Right RECOVERY phase</u>
x	· Timing of the left arm pushing action from shoulder , elbow and forearm
x	· The timing of recovering arm entry (middle of the push)
x	· Action of recovering arm (elbow before hand)
x	· The timing of left arm pushing with leg kick (must be simultaneous)
x	· Left hand slip during push (less negative, sticking to water)
x	· Forward speed (higher, compare to speed during left pulling phase)
	<u>1. Right ARM PULL & Left RECOVERY phase</u>
x	·The position of right shoulder (must be relatively high)
x	· The timing of right catch, left exit, left kick (must be simultaneous)
x	· The right arm pull action (good catch , fixed elbow position)
x	· The position of right arm at the middle of stroke (vertical, max flexed)
x	· Right hand slip during pull (positive, let your body move on the pull)
x	· Forward speed (compare to speed during left pushing phase).
	<u>2. Right ARM PUSH & Left RECOVERY phase</u>
x	· Timing of the right arm pushing action from shoulder , elbow and forearm
x	· The timing of recovering arm entry (middle of the push)
x	· Action of recovering arm (elbow before hand)
x	· The timing of right arm pushing with leg kick (must be simultaneous)
x	· Right hand slip during push (less negative, sticking to water)
x	· Forward speed (higher, compare to speed during right pulling phase)
	<u>FULL STROKE CYCLE</u>
x	· Body and wave position (individual optimum)
x	· Sholders rolling, "kayaking" positions (opposite)
x	· Left hand relative speed backwards (the slower the better sticking to water)
x	· Right hand relative speed backwards (the slower the better sticking to water)
x	· Movement during left stroke & right recovery = half stroke length
x	· Movement during right stroke & left recovery = half stroke length
x	· Breathing actions
x	· Stroke length (the longer the better)
x	· Frequency (keep individual optimum)
100%	

swimmer	Quality control of BUTTERFLY START technique
	1. Reaction & preflexion phase
☐	· Body position.
☐	· Movement of hip
☐	· Reaction time from start signal to beginning push-off
☐	· Preflexion of knees
	2. PUSHING PHASE
☐	· Transfer impulsive pushing forces
☐	· Timing of arms action
☐	· Head speed forward
☐	· Body position at the end of push
☐	· The duration of pushing action
	3. FLIGHT PHASE
☐	· Hip position during flight
☐	· Legs action (rise up before entry)
☐	· Arms action (stright forward)
☐	· Flight speed
☐	· The length of head entry
	4. ENTRY & GLIDE PHASE
☐	· Head position during entry (between arms)
☐	· Body and legs position during entry (without splashing , entry kick)
☐	· Forward speed of hands during entry (max)
☐	· Forward speed immediately after entry
	5. UNDERWATER KICKING PHASE
☐	· Timing of the beginning the first leg kick
☐	· Head and arms position during leg kicks
☐	· Rhythm and action of legs during kicking
☐	· Duration and number of kicks to keep high forward speed
☐	· Speed during leg kicks
☐	· Trajectory of gradual rise to surface
	6. PULLOUT PHASE
☐	· Timing of the beginning of first pullout stroke
☐	· Forward speed during first pullout stroke
☐	· Arms action during pullout stroke
☐	· Forward speed during first recovery
☐	· Body position during first recovery
☐	· The action of body during pullout
☐	· Timing of arms and legs at the end of pullout strokes
☐	· Timing the entry of hands at the end of recovery with leg kick
	7. SWIMMING AFTER START
☐	· Swimming speed after pullout strokes
100%	

swimmer	Quality of BUTTERFLY TURN technique
	1. SWIMMING BEFORE TURN
x	· Timing of moment for touching the wall
	2. APPROACHING PHASE
x	· Forward speed before touch(as high or better compared to swimming)
	3. ROTATION PHASE
x	· Action of arms during rotation (quick recovery,entry when feet touch)
x	· Action of legs during rotation (quick grouping)
x	· Placing the feet to the wall (correctly and simultaneously)
x	· Speed and movement of hips during rotation (not stoping)
x	· Duration of rotation (short)
x	· Body position at the end of rotation (side)
	4. PUSHING PHASE
x	· Timing of the beginning of push (immediately, when feet touch)
x	· Body position during push (fixed during push, no twisting)
x	· Mean pushing speed (high)
x	· Push duration (very short)
	5. GLIDING PHASE
x	· Head , body and legs position (must be very streamlined)
x	· Glide speed after push before leg kicks
	6. UNDERWATER KICKING PHASE
x	· Timing of the beginning the first leg kick
x	· Head and arms position during leg kicks
x	· Rhythm and action of legs during kicking
x	· Duration and number of kicks to keep high forward speed
x	· Speed during leg kicks
x	· Trajectory of gradual rise to surface
	7. PULLOUT PHASE
x	· Timing of the beginning of first pullout stroke
x	· Forward speed during first pullout stroke
x	· Arms action during pullout stroke
x	· Forward speed during first recovery
x	· Body position during first recovery
x	· The action of body during pullout
x	· Timing of arms and legs at the end of pullout strokes
x	· Timing the entry of hands at the end of recovery with leg kick
	8. SWIMMING AFTER TURN
x	· Swimming speed after turn (better compared to speed before turn)
100%	

Swimming technique testing system

by prof. Rein Haljand

swimmer	Quality control of BUTTERFLY SWIMMING technique
	1. Arms pulling phase
x	· The arms action during pull (good catch, high elbow position)
x	· The leg action during the pull (with overextension of knees)
x	· The head action during the pull (good stretching chin forward)
x	· Hands slip during pull (must be positive, body moving on the pull)
x	· Forward speed during pull (higher, compared to previous phase)
	2. Arms pushing with leg kick phase
x	· Position of arms at the middle of stroke (almost vertical)
x	· Timing of push and kick (simultaneous end)
x	· Hands pushing slip (less negative, sticking to water).
x	· Forward speed (max high speed)
	3. Arms recovery phase
x	· Body position during arm recovery,(flat)
x	· The timing of head entry at the end of inhalation(hands passing shoulder line).
x	· Forward speed during recovery.(high)
	4. Arms entry with leg kick phase
x	· The timing of hands entry with leg kick down(simultaneously).
x	· Legs action during kick with arms entry (good transfer of force, fixing knees)
x	· Forward speed during kick with arms entry(high)
	5.FULL STROKE CYCLE
x	· Body and wave position (flat)
x	· Relative speed of hands backwards (the slower the better sticking to water)
x	· Hands speed forward during recovery.(not too quick)
x	· Movement during arms stroke = half stroke length(the longer the better stroker)
x	· Movement during arms recovery = half stroke length (the longer the better flyer)
x	· Breathing actions
x	· Stroke length (the longer the better)
x	· Frequency (keep individual optimum)
100%	

swimmer	Quality control of BREASTSTROKE START technique
	1. REACTION & PREFLEXION PHASE
☐	· Body position.
☐	· Movement of hip
☐	· Reaction time from start signal to beginning push-off
☐	· Preflexion of knees
	2. PUSHING PHASE
☐	· Transfer impulsive pushing forces
☐	· Timing of arms action
☐	· Head speed forward
☐	· Body position at the end of push
☐	· The duration of pushing action
	3. FLIGHT PHASE
☐	· Hip position during flight
☐	· Legs action (rise up before entry)
☐	· Arms action (stright forward)
☐	· Flight speed
☐	· The length of head entry
	4. ENTRY & GLIDE PHASE
☐	· Head position during entry (between arms)
☐	· Body and legs position during entry (without splashing)
☐	· Forward speed of hands during entry (max)
☐	· Forward speed during first glide
☐	· Body , head and arm position for the glide
☐	· Duration of first glide and timing of pull (relatively short)
	5. LONG PULL PHASE
☐	· Forward speed of pulling.(same as gliding speed)
☐	· The action of the arms (good acceleration)
☐	· Leg action of legs (keep legs straight)
☐	· Body and head position during long pull (flat, streamlined)
	6. SECOND GLIDING PHASE
☐	· Body position (streamlined)
☐	· Forward speed of gliding (same as pulling speed)
	7. ARM RECOVERY & LEG BENDING PHASE
☐	· Arms action (close to body, with small resistance)
☐	· Legs action (first bending knees, then from hips, knees wide, feet close)
☐	· Timing of the leg bending with arms recovery (when arms are shoulder line)
☐	· Forward speed of arms and legs recovery (not too low)
	8. FIRST KICK & PULLOUT PHASE
☐	· Position the body for underwater pullout cycle
☐	· Timing of kick and pull (short gliding between)
☐	· Body position on the surface at the end of the pullout (flat,high)
☐	· Forward speed of pullout cycle (high)
	9. SWIMMING AFTER START
☐	· Forward speed af swimming after pullout(high as pullout)
100%	

swimmer	Quality control of BREASTSTROKE TURN technique	
	1. SWIMMING BEFORE TURN	
x	· Timing of moment for touching the wall	
	2. APPROACHING PHASE	
x	· Forward speed before touch(as high or better compared to swimming)	
	3. ROTATION PHASE	
x	· Action of arms during rotation (quick recovery,entry when feet touch)	
x	· Action of legs during rotation (quick grouping)	
x	· Placing the feet to the wall (correctly and simultaneously)	
x	· Speed and movement of hips during rotation (not stopping)	
x	· Duration of rotation (short)	
	4. PUSHING PHASE	
x	· Timing of the beginning of push (immediately, when feet touch)	
x	· Body position during push (fixed during push, no twisting)	
x	· Mean pushing speed (high)	
x	· Push duration (very short)	
	5. GLIDING PHASE	
x	· Forward speed during first glide	
x	· Body , head and arm position for the glide	
x	· Duration of first glide and timing of pull (relatively short)	
	6. LONG PULL PHASE	
x	· Forward speed of pulling.(same as gliding speed)	
x	· The action of the arms (good acceleration)	
x	· Leg action of legs (keep legs straight)	
x	· Body and head position during long pull (flat, streamlined)	
	7. SECOND GLIDING PHASE	
x	· Body position (streamlined)	
x	· Forward speed of gliding (same as pulling speed)	
	8. ARM RECOVERY & LEG BENDING PHASE	
x	· Arms action (close to body, with small resistance)	
x	· Legs action (first bending knees, then from hips, knees wide, feet close)	
x	· Timing of the leg bending with arms recovery (when arms near shoulder)	
x	· Forward speed of arms and legs recovery (not too low)	
	9. FIRST KICK & PULLOUT PHASE	
x	· Position the body for underwater pullout cycle	
x	· Timing of kick and pull (short gliding between)	
x	· Body position on the surface at the end of the pullout (flat,high)	
x	· Forward speed of pullout cycle (high)	
	10. SWIMMING AFTER TURN	
x	· Swimming speed after turn (better compared to speed before turn)	
100%		

swimmer	Quality control of BREASTSTROKE SWIMMING technique	
	1. LEG KICK PHASE	
x	· Timing of arms at the beginning of leg kick (arms must be stretched)	
x	· Position of legs at the beginning of the kick (shins vertical, knees separated)	
x	· Body and head position during kick (horizontal, between arms)	
x	· The backward slip of feet during kick (no slip)	
x	· Forward speed during kick (high)	
	2. GLIDING phase	
x	· Glide speed after kick (compared to kick speed)	
x	· Glide duration after kick (longer if higher speed)	
x	· Body position during glide (avoid deep sinking)	
	3. ARM PULL PHASE	
x	· Arms action during pull (wide, high elbow)	
x	· Hands slip during arm pull (positive slip moving on the pull)	
x	· The length of the arms pull (hands reach the shoulder line)	
x	· Forward speed during arm pull (high)	
	4. ELBOWS BRINGING TOGETHER PHASE	
x	· Position and action of elbows (close to the body)	
x	· Forward speed (rising max high)	
	5. ARMS RECOVERY & LEGS FLEXION PHASE	
x	· The timing of stretching arms and flexing legs (without dropping body)	
x	· Action of arms during recovery (quick forward elbows under water)	
x	· Action of legs preparing the next kick (first from knees then from hips)	
x	· Duration of recovery actions (short)	
x	· Forward speed of recovery actions (high)	
	6. FULL STROKE CYCLE	
x	· Breathing actions	
x	· Stroke length (long)	
x	· Stroke frequency (keep individual optimum)	
100%		

swimmer	Quality control of BACKSTROKE START technique	
	1. REACTION & HANDS RELEASE PHASE	
x	·	Start position
x	·	Reaction time from signal to hand release
x	·	Hip position (out from water)
	2. PUSHING PHASE	
x	·	Transfer impulsive pushing forces
x	·	Timing of arms action
x	·	Head speed forward
x	·	Body position at the end of push
x	·	The duration of pushing action
	3. FLIGHT PHASE	
x	·	Hip position during flight
x	·	Legs action (feet out of water before entry)
x	·	Arms action (near and from side of the body)
x	·	Flight speed
	4. ENTRY & GLIDE PHASE	
x	·	Head position during entry (between arms)
x	·	Body and legs streamlined entry (without splashing , through " one hole")
x	·	The length of head entry
x	·	Forward speed of hands during entry
x	·	Speed immediately after entry before first kick
	5. UNDERWATER KICKING PHASE	
x	·	Timing of the beginning the first leg kick
x	·	Head and arms position during leg kicks
x	·	Rhythm and action of legs during kicking
x	·	Duration and number of kicks to keep high forward speed
x	·	Speed during leg kicks
x	·	Trajectory of gradual rise to surface
	6. PULLOUT PHASE	
x	·	Timing of the beginning of first pullout stroke
x	·	Forward speed during first pullout stroke
x	·	Timing of the beginning second pullout stroke
x	·	Forward speed during second pullout stroke
x	·	The action of arm strokes and recovery during pullout
x	·	The action of body during pullout
x	·	Timing of arms and legs at the end of pullout strokes
	7. SWIMMING AFTER START	
x	·	Swimming speed after pullout strokes
100%		

swimmer	Quality control of BACKSTROKE TURN technique	
	1. SWIMMING BEFORE TURN	
x	· Swimming speed before turn	
	2. ROLL-OVER STROKE PHASE	
x	· Forward speed during roll over stroke (higher then swimming speed)	
	3. ROTATION PHASE	
x	· Timing of the beginning rotation (head down at the end of last stroke)	
x	· Action of arms during rotation (avoid unnecessary movements)	
x	· Action of legs during rotation (dolphin leg kick and quick recovery)	
x	· Placing the feet to the wall (correctly and simultaneously)	
x	· Movement of hips during rotation (elliptical)	
x	· Duration of rotation (short)	
	4. PUSHING PHASE	
x	· Position of arms for push (hide head between the streched arms)	
x	· Back position (rigid and fixed during push)	
x	· Mean pushing speed (high)	
x	· Push duration (very short)	
	5. GLIDING PHASE	
x	· Head , body and legs position (must be very streamlined)	
x	· Glide speed after push before leg kicks	
	6. UNDERWATER KICKING PHASE	
x	· Timing of the beginning the first leg kick	
x	· Head and arms position during leg kicks	
x	· Rhythm and action of legs during kicking	
x	· Duration and number of kicks to keep high forward speed	
x	· Speed during leg kicks	
	7. PULLOUT PHASE	
x	· Timing of the beginning of first pullout stroke	
x	· Forward speed during first pullout stroke	
x	· Timing of the beginning second pullout stroke	
x	· Forward speed during second pullout stroke	
x	· The action of arm strokes and recovery during pullout	
x	· The action of body during pullout	
x	· Timing of arms and legs at the end of pullout strokes	
	7. SWIMMING AFTER TURN	
x	· Swimming speed after turn (better compared to speed before turn and pullout)	
100%		

swimmer	Quality control of BACKSTROKE SWIMMING technique
	<u>1. Left ARM PULL & Right RECOVERY PHASE</u>
x	· The position of left shoulder (must be relatively high)
x	· The timing of left catch, right exit, left kick (must be simultaneous)
x	· The left arm pull action (good catch down, aside, fixed elbow position)
x	· The position of left arm at the middle of stroke (vertical, max flexed)
x	· Left hand slip during pull (positive, let your body move on the pull)
x	· Forward speed (compare to speed during right pushing phase).
	<u>2. Left ARM PUSH & Right RECOVERY PHASE</u>
x	· The left arm push action (elbow and hand close to body, with wrist locked e.c.t.)
x	· The timing of recovering arm entry (must be before the end of the push)
x	· The timing of left arm pushing with left leg kick (must be simultaneous)
x	· Left hand slip during push (less negative, sticking to water)
x	· Forward speed (higher, compare to speed during left pulling phase)
	<u>3. Right ARM PULL & Left RECOVERY PHASE</u>
x	· The position of right shoulder (must be relatively high)
x	· The timing of right catch, left exit, right kick (must be simultaneous)
x	· The right arm pull action (good catch down, aside, fixed elbow position)
x	· The position of right arm at the middle of stroke (vertical, max flexed)
x	· Right hand slip during pull (positive, let your body move on the pull)
x	· Forward speed (compare to speed during left pushing phase).
	<u>4. Right ARM PUSH & Left RECOVERY PHASE</u>
x	· The right arm push action (elbow and hand close to body, with wrist locked e.c.t.)
x	· The timing of recovering arm entry (must be before the end of the push)
x	· The timing of right arm pushing with right leg kick (must be simultaneous)
x	· Right hand slip during push (less negative, sticking to water)
x	· Forward speed (higher, compare to speed during right pulling phase)
	<u>5. FULL STROKE CYCLE</u>
x	· Body and wave position, shoulders roll (individual optimum)
x	· Left hand relative speed backwards (the slower the better sticking to water)
x	· Right hand relative speed backwards (the slower the better sticking to water)
x	· Movement during left stroke & right recovery = half stroke length
x	· Movement during right stroke & left recovery = half stroke length
x	· Stroke length (the longer the better)
x	· Frequency (keep individual optimum)
100%	