

Stroke Technique & Injury

CHEAT SHEET



Freestyle

- Problem**
1. Flat body position in the water
 2. Wide, swinging arm recovery requiring excessive internal rotation (impingement) in the joint
 3. Thumb in first with hand entry, excessive internal rotation in shoulder
 4. Dropped elbow or straight arm pull through, makes a long lever which overloads the shoulder
 5. Hand entry across the midline of the body

Butterfly

1. Heavy reliance on arms lifting chest from water to breathe
2. Hand entry with hands together can cause impingement
3. Straight arm pull through make a long lever and overloads the shoulder

Breaststroke

- Not common for breaststroke, shoulder injuries would originate from general fitness training, most often using freestyle

Backstroke

1. Weak anterior neck muscles, associated with poor posture, difficulty holding head position

Solution

1. Good body roll and bilateral breathing
2. High, bent elbows during recovery, facilitated by good body roll
3. Flat hand fingers first during entry
4. High elbow/bent arm pull through
5. Hand should enter in line with the shoulder and not pass over to the other 'side' of the body

Solution

1. Fitness and conditioning
1. Strengthening the deep neck flexors and posture correction

KNEE INJURIES

- Problem**
1. Hyperextended (bowed backwards) locked knees
 2. Forceful contraction during flutter kicks and repeated pushing off the wall

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2. Forceful contraction during flutter kicks and repeated pushing off the wall

- Solution**
1. Hip problems – wide, open kick; inability to turn legs and feet out enough, lack of hip extension
 2. Ankle stiffness

1. Poor body position, weak kick – legs and hips drop arching the lower back

Solution

1. Kick with relaxed legs, kick from the hips
2. Strengthen quadriceps, hip and buttock muscles

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1. Narrower kick. Improved rotation of legs and extension at hip offloads the knee, achieved through exercises and physical therapy
2. Increased ability lifting foot upwards and turned outwards offloads knee

1. Strong abdominals and core, improved kicking

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	Freestyle	Butterfly	Breaststroke	Backstroke
NECK PAIN	<p>Problem</p> <ol style="list-style-type: none"> 1. Lack of body roll, flat body position 2. One sided breathing 3. Looking ahead of you <p>Solution</p> <ol style="list-style-type: none"> 1. Learn good body roll 2. Bilateral breathing (breathing to both sides, or on every third stroke) 3. Look down to the bottom of the pool 	<p>Problem</p> <ol style="list-style-type: none"> 1. Extending neck (lifting up) to breathe <p>Solution</p> <ol style="list-style-type: none"> 1. When breathing in look slightly down and forwards, keeping neck straight not arched back 2. Powerful pull, strong kick and good undulating motion allows momentum to lift you to breathe rather than actively using neck muscles 	<p>Problem</p> <ol style="list-style-type: none"> 1. Extending the neck (lifting up) to breathe <p>Solution</p> <ol style="list-style-type: none"> 1. When breathing in look slightly down and forwards, keeping neck straight not arched back 2. Powerful pull, strong kick and good undulating motion allows momentum to lift you to breathe rather than actively using neck muscles 	<p>Problem</p> <ol style="list-style-type: none"> 1. Weak anterior neck muscles, associated with poor posture, difficulty holding head position <p>Solution</p> <ol style="list-style-type: none"> 1. Strengthening the deep neck flexors and posture correction
BACK PAIN	<p>Problem</p> <ol style="list-style-type: none"> 1. Poor body roll, arching back when breathing 2. Inability to maintain good streamline 3. High head position arches lower back <p>Solution</p> <ol style="list-style-type: none"> 1. Improve body roll to rotate as a unit and not twist at the waist 2. Strengthen core muscles 3. Keep neck flat/straight, look down 	<p>Problem</p> <ol style="list-style-type: none"> 1. Lack of upper body strength and powerful kick, means forced arching of back to lift and breathe <p>Solution</p> <ol style="list-style-type: none"> 1. Improved strength and better undulating action allows motion to lift body to breathe, keeping spine flat/neutral 	<p>Problem</p> <ol style="list-style-type: none"> 1. Lack of strength in pull and bad timing requires forced extension of the back to lift and breathe <p>Solution</p> <ol style="list-style-type: none"> 1. Strong pull and fluid rhythm between kick and pull, keeping spine flat/neutral 	<p>Problem</p> <ol style="list-style-type: none"> 1. Poor body position, weak kick – legs and hips drop arching the lower back <p>Solution</p> <ol style="list-style-type: none"> 1. Strong abdominals and core, improved kicking

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