**Coding Manual for Online Coaching Practices Questionnaire**

Question 18: If yes, what is this model? Please provide as much detail as possible. (E.g. name of elite swimmer/description of the technique).

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| **CODE** | **EXAMPLE** | **Online Survey Count** | **Interview Count** | **COMBINED TOTAL** |
| Modelled on elite swimmers technique (1) | Swimmers name | 6 | 0 | **6** |
| Kick initiation from the chest (2) | Initiation/undulation starting from the chest | 8 | 2 | **10** |
| Symmetry of the kick (3) | Equal timing/power in up and down beats of motion | 5 | 0 | **5** |
| Manipulation of kick amplitude (4) | Shallow/large kicks | 6 | 2 | **8** |
| Dissociation of body segments (5) | Keeping the upper body still | 5 | 1 | **6** |
| Body position (6) | Streamlined position or description of position | 6 | 0 | **6** |
| Strength (7) | Strong core | 3 | 0 | **3** |
| Manipulation of kick frequency (8) | Quick/fast kick | 6 | 1 | **7** |
| Flexibility of joints (9) | Flexibility/mobility | 6 | 0 | **6** |
| Whole body motion (10) | Continuous motion down the body | 4 | 1 | **5** |
| Description of flicking/whipping motion (11) | Whip/flick like motion of the feet | 3 | 0 | **3** |
| Hip driven kick (12) | A kick driven from the hip | 3 | 0 | **3** |
| Individual approach (13) | Approaches are different for each individual | 2 | 1 | **3** |
| Generation of power (14) | Power generation | 2 | 0 | **2** |
| Reduction of motion at lower limbs (15) | Reduction of movement of legs | 1 | 0 | **1** |
| Timings of underwater phases (16) | Break down of glide, kick and break out phases | 1 | 0 | **1** |
| Reaching set distance (17) | Kicking to full 15m | 1 | 0 | **1** |
| Kick initiation from the stomach (18) | Initiation/undulation starting from stomach | 1 | 0 | **1** |
| Proprioception/Feel of motion (19) | Description of feeling the motion | 0 | 0 | **0** |
| Minimisation of knee bend (20) | Keeping the knee flexion movement to a minimum | 0 | 0 | **1** |

Question 40: Please explain the benefit that you believe these external factors bring to underwater fly kick performance.

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| **CODE** | **EXAMPLE** | **Online Survey Count** | **Interview Count** | **COMBINED TOTAL** |
| Core strength (1) | Core strength | 20 | 3 | **23** |
| Leg strength (2) | Leg strength | 3 | 0 | **3** |
| Proprioception (3) | Understanding of movement patterns/feel for the movement | 5 | 2 | **7** |
| Stability (4) | Stabilisation | 5 | 1 | **6** |
| Ankle flexibility (5) | Ankle mobility/flexibility | 5 | 1 | **6** |
| General strength (6) | Mention of unspecific strength or power production | 15 | 2 | **17** |
| General flexibility (7) | General mention of flexibility/mobility | 17 | 6 | **23** |
| Identification of limiting factors (8) | Restrictions/limitations | 2 | 1 | **3** |
| Shoulder flexibility (9) | Shoulder mobility/flexibility | 2 | 0 | **2** |
| Coordination (10) | Coordination | 2 | 0 | **2** |
| Muscular engagement (11) | Engagement/connection | 2 | 0 | **2** |
| Body Position (12) | Streamline/position maintenance | 3 | 0 | **3** |
| Stretching (13) | Stretching | 1 | 0 | **1** |
| Improvement in technical abilities (14) | Improving specific skills on land | 1 | 1 | **2** |
| Chest flexibility (15) | Chest flexibility/mobility | 1 | 0 | **1** |
| Hip flexibility (16) | Hip flexibility/mobility | 1 | 0 | **1** |
| Increased athleticism (17) | Fitness/changes to morphology | 2 | 0 | **2** |
| Efficiency (18) | Relating to swimming efficiency | 1 | 0 | **1** |
| Psychology (19) | Thought processes | 2 | 0 | **2** |
| Measurable outputs (20) | Ability to measure outputs directly related to fly kick performance | 0 | 1 | **1** |
| Not all UFK specific (21) | Might not all be specific to fly kick but exercises will have benefits | 0 | 4 | **4** |

Question 43: For each variable identified, please describe a drill which you would use to improve this.

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| **Variable** | **CODE** | **EXAMPLE** | **Online Survey Count** | **Interview Count** | **COMBINED TOTAL** |
| Kick Frequency | Exploration (01) | Slow down, exaggerate, explore | 7 | 1 | **8** |
| Vertical Kicking (02) | Vertical kicking | 4 | 1 | **5** |
| Use of Equipment (03) | Fins, tempo trainer | 2 | 5 | **7** |
| Time/kick restriction (04) | Ask swimmer to perform x number of kicks in a set time | 3 | 0 | **3** |
| Pool drill (05) | Suggestion of a drill to be used in the pool | 2 | 0 | **2** |
| Coordination | Land based methods (01) | Landside exercises | 2 | 0 | **2** |
| Changes in orientation (02) | Lateral/side/back kicking | 2 | 0 | **2** |
| Proprioception (03) | Description of feeling the motion | 3 | 1 | **4** |
| Demonstrations (04) | Another swimmer demonstrating the technique | 2 | 0 | **2** |
| Break down motion (05) | Breaking down motions into smaller parts | 1 | 0 | **1** |
| Practice whole motion (06) | Practicing movement as a whole | 5 | 0 | **5** |
| Coach observation and feedback (07) | Watching swimmers and giving feedback | 2 | 0 | **2** |
| Explanation of motion (08) | Providing detailed explanation of the motion as it should be | 2 | 0 | **2** |
| Kick Symmetry | Orientation (01) | Lateral fly kick, fly kick on back | 12 | 4 | **16** |
| Equipment (02) | Fins, tempo trainer | 4 | 3 | **8** |
| Vertical Kicking (03) | Vertical kicking | 2 | 1 | **3** |
| Exaggeration of Motion (04) | Exaggeration, slowing down | 1 | 1 | **2** |
| Focus on Up Beat (05) | Maintaining focus of the up beat phase | 2 | 2 | **4** |
| Proprioception/Feel of Motion (06) | Description of motions the swimmers are aiming for, ‘feel | 2 | 0 | **2** |
| Video Feedback (07) | The use of video systems to show athletes the motion in the pool | 0 | 2 | **2** |
| Specific Pool Drill (08) | Description of a specific drill used in the pool to improve variable | 0 | 2 | **2** |
| Vertical Foot Speed | Vertical Kicking (01) | Vertical Kicking | 2 | 0 | **2** |
| Equipment (02) | Fins | 1 | 0 | **1** |
| Time/Kick restrictions (03) | Set number of kicks per minute | 1 | 0 | **1** |
| Emphasis on both up and down beat (04) | Exploration/emphasis on training both phases | 2 | 0 | **2** |
| Toe Amplitude | Orientation (01) | Lateral fly kick, fly kick on back | 2 | 0 | **2** |
| Equipment (02) | Fins, snorkels | 2 | 0 | **2** |
| Land Based Methods (03) | Landside exercises | 1 | 0 | **1** |
| Exploration (04) | Exploration of extremes | 1 | 1 | **2** |
| Exaggeration of Motion (05) | Exaggeration of movements | 1 | 1 | **2** |
| Proprioception (06) | Feel of the motion/water | 1 | 1 | **2** |
| Dissociation of Arm and Trunk | Land Based Methods (01) | Landside exercises | 1 | 1 | **2** |
| Equipment (02) | Fins/Snorkels/Tempo trainer | 2 | 1 | **3** |
| Orientation (03) | Lateral fly kick, fly kick on back | 1 | 0 | **1** |
| Surface kicking (04) | Fly kicking at the surface | 1 | 0 | **1** |
| Dissociation of Hip and Trunk | Land Based Methods (01) | Landside exercises | 1 | 0 | **1** |
| Description of technique (02) | Explanation of techniques | 1 | 0 | **1** |
| Emphasis on both up and down beat (03) | Focus upon both up and down beats | 1 | 0 | **1** |
| Ankle Flexibility | Visualisation (01) | Mental Imagery | 1 | 0 | **1** |
| Land Based Exercises (02) | Landside exercises | 5 | 4 | **9** |
| Equipment (03) | Fins/snorkels/tempo trainer | 1 | 1 | **2** |
| Kicking Practice (04) | Fly kick practice | 1 | 0 | **1** |
| Focus on Ankle Movement (05) | Increased focus upon a particular aspect | 0 | 1 | **1** |
| Video Feedback (06) | Showing video footage of the movement to the swimmer | 0 | 1 | **1** |
| Shoulder Flexibility | Land Based Exercises (01) | Landside exercises | 2 | 0 | **2** |
| Pool drill (02) | Description of a specific drill | 2 | 0 | **2** |
| Equipment (03) | Fins/snorkels/tempo trainer | 1 | 0 | **1** |
| Hip Flexibility | Equipment (01) | Fins/snorkels/tempo trainer | 1 | 0 | **1** |
| Land based stretching (02) | Landside exercises | 1 | 1 | **2** |
| Continuous movement (03) | Reinforcing the idea of a continuous movement down the body | 2 | 0 | **2** |
| Ensure symmetry (04) | Ensure symmetry between up and down beats | 1 | 0 | **1** |
| Vertical Kicking (05) | Vertical Kicking | 0 | 2 | **2** |
| Breakdown the Motion and Build Back up (06) | Whole-part-whole methodology | 0 | 1 | **1** |
| Proprioceptive Methods (07) | Description of feeling the motion | 0 | 1 | **1** |
| Orientation (08) | Kicking on the side/back | 0 | 2 | **2** |
| Video Feedback (09) | Showing video footage of the movement to the swimmer | 0 | 1 | **1** |
| Pool Drill (10) | Description of a specific drill used in the pool | 0 | 1 | **1** |
| Knee Flexibility | Ensure symmetry (01) | Ensure symmetry between up and down beats | 1 | 0 | **1** |
| Equipment (02) | Fins/snorkels/tempo trainer | 2 | 0 | **2** |
| Other Flexibility/Strength | Land Based Intervention (01) | Landside exercises | 4 | 1 | **5** |
| Posture/Kick Initiation | Equipment (01) | Fins/snorkels/tempo trainer | 3 | 1 | **4** |
| Progression (02) | Start with basic movement and build up/progress to full fly kick | 1 | 1 | **2** |
| Orientation (03) | Lateral fly kick, fly kick on back | 2 | 0 | **2** |
| Initiation from hands (04) | Initiation of the kick from the hands | 2 | 0 | **2** |
| Exaggeration of Motion (05) | Exaggeration of movements | 1 | 0 | **1** |
| Kicking through whole body (06) | Reinforcing the idea of a continuous movement down the body | 1 | 0 | **1** |
| Proprioceptive Methods (07) | Description of feeling the motion | 0 | 1 | **1** |
| Speed of Hip Rotation | Exaggeration (01) | Exaggeration of movements | 1 | 0 | **1** |
| Equipment (02) | Fins/snorkels/tempo trainer | 1 | 0 | **1** |
| Exploration (03) | Slow down, exaggerate, explore | 1 | 0 | **1** |
| Distance travelled underwater | Distance/Time Restrictions (01) | Ask swimmer to perform x number of kicks in a set time | 2 | 0 | **2** |
| Practice from dive (02) | Perform fly kick form race start | 2 | 0 | **2** |
| Ability to Hold Streamline | Land Based Methods (01) | Introducing physio and S&C to increase flexibility  | 0 | 1 | **1** |
| Vertical Kicking (02) | Vertical kicking  | 0 | 1 | **1** |
| Depth and Trajectory  | Exploration (01) | Exploring at different depths and angles of attack | 0 | 1 | **1** |

Question 45: What challenges does this skill present that may make it difficult to improve?

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| **Variable** | **CODE** | **EXAMPLE** | **Online Survey Count** | **Interview Count** | **COMBINED TOTAL** |
| Coordination | Physical restrictions (01) | Limited range of motion/flexibility | 4 | 2 | **6** |
| Lack of understanding/definition (02) | Lack of understanding in swimmers and coaches | 2 | 2 | **4** |
| Individual differences (03) | Physiological/gender differences between swimmers | 3 | 1 | **4** |
| Incorrect initiation (04) | Initiation of the kick from the incorrect area  | 2 | 0 | **2** |
| Breaking old habits (05) | Swimmers have learnt behaviour which needs to be undone | 1 | 0 | **1** |
| Time on task is high (06) | Takes up a lot of time | 1 | 0 | **1** |
| Difficulty in coaching proprioception (07) | Difficult to coach/describe the feeling of the motion | 3 | 2 | **5** |
| Building a rhythmic undulation (08) | Building a rhythm | 1 | 1 | **2** |
| Coordination in phase (09) | Mentions up or down beat | 2 | 1 | **3** |
| Exploratory Approach (10) | Experimental learning style | 1 | 0 | **1** |
| Flexibility/Strength | Individual differences (01) | Age, gender, biological, physiological differences | 5 | 1 | **6** |
| Medical conditions (02) | Disability/medical conditions | 1 | 0 | **1** |
| Learnt behaviours (05) | Swimmers have learnt behaviour which needs to be undone | 2 | 0 | **2** |
| Time on task is high (06) | Takes up a lot of time | 1 | 0 | **1** |
| Lack of coach education/resource (07) | Lack of time/information relating to the coaching of ufk | 2 | 0 | **2** |
| Swimmer’s commitment (08) | Swimmers giving up/not committing to prescribed training | 2 | 0 | **2** |
| Swimmers Understanding (09) | Lack of understanding of importance | 1 | 0 | **1** |
| Lack of Awareness (10) | Lack of awareness as to where the body is and what it is doing | 0 | 1 | **1** |
| Body Position/Initiation of Kick | Learnt behaviours (01) | Swimmers have learnt behaviour which needs to be undone/have not previously focussed on this aspect | 2 | 0 | **2** |
| Physiological restrictions (02) | Restrictions in strength/flexibility | 2 | 0 | **2** |
| Swimmer’s commitment (03) | Swimmers giving up/not committing to prescribed training | 1 | 0 | **1** |
| Fatigue (04) | Swimmers performance deteriorates as they tire | 1 | 0 | **1** |
| Swimmers Understanding (05) | Lack of understanding of importance | 1 | 0 | **1** |
| Kick Symmetry | Swimmer’s commitment (01) | Swimmers giving up/not committing to prescribed training | 1 | 0 | **1** |
| Proprioception (02) | Swimmers feeling the difference between techniques | 2 | 0 | **2** |
| Swimmer’s comfort (03) | Comfort and confidence in their ability | 1 | 0 | **1** |
| Dissociation of Segments | Lack of coordination/awareness (01) | Awareness of the movements of separate body parts  | 3 | 0 | **3** |
| Lack of core strength (02) | Core strength | 2 | 0 | **2** |
| Physiological restrictions (03) | Lack of flexibility/strength | 1 | 0 | **1** |
| Commitment outside of pool training (04) | Needs work outside of the pool sessions | 1 | 0 | **1** |
| Revert to learnt behaviour (05) | Swimmers return to their old technique | 1 | 0 | **1** |
| Individual differences (06) | Age/gender | 1 | 1 | **2** |
| Swimmer understanding (07) | Swimmers understanding of the importance | 0 | 0 | **0** |
| Time on task (08) | Lack of pool time | 1 | 0 | **1** |
| Kick Amplitude | Time on task (01) | Lack of pool time | 2 | 0 | **2** |
| Swimmers understanding (02) | Swimmers understanding of the importance | 3 | 0 | **3** |
| Physiological differences (03) | Lack of flexibility/strength | 1 | 0 | **1** |
| Trade off with other factors (04) | Finding optimal balance between two variables | 1 | 0 | **1** |
| Breath control | Hypoxic abilities (01) | Ability to hold breath underwater for sustained distances | 3 | 1 | **4** |
| Kick Frequency | Resources/time available (01) | Pool time/space available | 1 | 0 | **1** |
| Lack of core strength (02) | Lack of strength/power production | 1 | 0 | **1** |
| Time on Task (03) | Takes a lot of time to see a change | 0 | 1 | **1** |
| Consistency/Efficiency | Swimmers abilities (01) | Swimmers level of current ability | 2 | 0 | **2** |
| Time on task (02) | Need time to practice and dedication | 1 | 0 | **1** |
| Accounting for Individual Differences | Individual differences (01) | Age/gender | 1 | 2 | **3** |
| Lung capacity (02) | Lung capacity/hypoxic abilities | 1 | 0 | **1** |
| Energetic Cost (03) | The cost that performing fly kick well will have on the remainder of the race | 0 | 1 | **1** |
| Other | Kicking from knees (01) | Knee based kick | 1 | 0 | **1** |
| Difficulties with feedback (02) | Unable to provide instant feedback/requires too much feedback | 2 | 0 | **2** |
| Ankle Mobility | Time on Task (01) | Takes a lot of time to see any changes | 0 | 2 | **2** |
| Time on Task | Making sure fly kick is a priority (01) | Ensuring a focus if placed on fly kick consistently | 0 | 1 | **1** |
| Training at representative levels (02) | Making sure maximal fly kick included in training ptactices | 0 | 1 | **1** |