**Supplementary material 2. Definitions and calculations for kinetic and kinematic variables examined during turning**

| | Variable | Foot contact | Abbreviation | Definition or calculation |
|---|---|---|---|---|
| Sagittal plane joint angles | Knee flexion angle; hip flexion angle | FFC/PFC | KFA, HFA | Derived from the following order of rotations: flexion (+)/extension (-). Absolute angle of two segments relative to a vertical line. Greater values indicate increased hip flexion, knee flexion. |
| GRF | Mean horizontal braking force (Fx) | PFC | Mean HBF | Average normalised HGRF (Fx) during weight acceptance |
| | Mean horizontal propulsive force (Fx) | FFC | Mean HPF | Average normalised HGRF (Fx) during push-off |
| | Horizontal to vertical braking/propulsive force ratio | PFC and FFC | - | Horizontal force / Vertical force (greater value = greater horizontal force contribution) |
| | Ground contact time | PFC and FFC | GCT | Duration from IC to toe-off |
| Trunk, pelvis, and foot variables | Lateral trunk flexion | FFC | - | Angle of trunk relative to vertical line perpendicular to the pelvis in frontal plane: (0˚) upright / (+) medial trunk flexion away from plant foot/ (-) lateral trunk flexion towards plant foot. At IC. |
| | Forward trunk inclination angle | FFC | - | Angle of trunk relative to a vertical line, (+) forward trunk lean/ (-) backward trunk lean |
| | Pelvic rotation | FFC | - | Angle of pelvis in transverse plane relative to global coordinate system. (0˚) straight and perpendicular, (+) rotation towards intended direction of travel (-) rotation away from intended direction of travel. At IC. |
| | Lateral foot plant distance | FFC | - | Lateral distance from initial foot contact of foot COM to proximal end of pelvis |
| | Initial foot progression angle | FFC | IFPA | Angle of foot progression relative to global coordinate system: straight (0°)/inward rotation (+)/outward rotation (-) angle (°). At IC. |
| Velocity/COM | Horizontal velocity of COM | PFC and FFC | - | The first derivative of the model COM (combined lower-limb and trunk model) position was computed to derive anterior-posterior (x), vertical (z), and ML (y) over the PFC and FFC. Resultant horizontal plane velocity was calculated using the following formula: $\sqrt{((\text{COM vel } (x)^2) + (\text{COM vel } (y)^2))}$ to provide a "velocity profile" along the path of the participants COM during the cut. Model COM velocity at PFC touch-down (approach), FFC touch-down, and toe-off in FFC (exit). |

Key: PFC: Penultimate foot contact; FFC: Final foot contact; COM: Centre of mass; COD: Change of direction; IC: Initial contact; GRF: Ground reaction force; HGRF: Horizontal GRF; MLGRF: Medio-lateral GRF; vel: velocity; ROM: Range of motion.