Solutions

Marking: **M1** a correct method, **A1** the correct answer, **B1** an independent mark.

Each answer shows the steps, then the **result**.

2.1

acute: from one sudden event / single large force, e.g. ankle sprain, fracture; overuse: from repeated small loads over time without enough recovery, e.g. stress fracture, tendinopathy

2.2

$12 \div 4800 \times 1000 = \mathbf{2.5}$ injuries per 1000 h; without exposure, a team that trains more would look more injury-prone, so rates could not be compared fairly

2.3

intrinsic, any one: previous ankle sprain; poor balance (proprioception); weak ankle muscles; fatigue; extrinsic, any two: landing on an opponent's foot; worn or unsuitable shoes; slippery or uneven court; high training load

2.4

a shorter stride means the foot lands closer to under the body; this lowers the peak force and the braking force at each landing; so the load on the tibia per step falls and the bone has time to adapt

3.1

(a) any two: headache; dizziness / poor balance; memory loss; nausea; blurred vision; slow reactions

(b) remove him from play and do not let him return that day ("if in doubt, sit them out"); medical assessment, then a staged return to sport, at least 24 h per stage, going back a stage if symptoms return

3.2

(a) any three: raises muscle temperature and blood flow, so muscles are more elastic; balance work improves proprioception, so ankles and knees are controlled on landing; strength work (e.g. hamstrings) helps muscles absorb high forces; practises safe landing and cutting technique

(b) compare injury incidence per 1000 h with a similar team (or season) without the warm-up; use the same case definition and record exposure hours

3.3

award up to [6]: first days: protect the muscle, avoid painful stretching and sprinting; ice, compression and elevation may reduce pain and swelling; then gradual, pain-guided loading, because movement helps the tissue heal and line up; rehabilitation restores range of motion and strength, especially eccentric hamstring strength; then sprint drills at rising speed; return when strength and speed match the other leg, to avoid re-injury, as previous injury is the main risk factor

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3.4

(a) $(4.2 - 2.9) \div 4.2 \times 100 \approx \mathbf{31}\%$

(b) any two: whether injury rates actually fall (not only force); whether performance (e.g. speed of the next movement) is worse; use a control group / large enough sample / players of similar level