Rugby has changed dramatically in the professional era, as have the players who play it. Here are five areas in which the game has become more dangerous



Clearing out rucks

 When joining a ruck, players are required to bind with a team-mate with at least one arm. But players often "clear out" a ruck by charging at an opponent without binding. One such example was the challenge by Bakkies Botha that dislocated Adam Jones's shoulder, *left*, during the second match between the Lions and South Africa in the summer

High tackles and collisions

 A tackle should be made at or below shoulder height and with both arms wrapped around the tackler. Research has shown that neither of these requirements have been adequately enforced by referees, resulting in high tackles and collisions

of high tackles go unpenalised in the **Guinness Premiership**

Words: John Westerby





Size of players

 Players have become bigger and better conditioned in the professional era. The average weight of a forward in the 1980s was 14st 11lb; now it is 17st 5lb. An average back in the 1980s weighed 12st 4lb; now he weighs 14st 2lb. And as a matter of course, attacking teams try to direct their strongest runners at the opposition's weaker tacklers



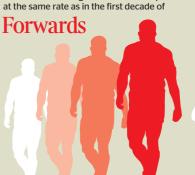
Impact substitutions

• The advent of replacements has meant fresh players emerging from the bench, raising the intensity of the game in the closing stages. Impact substitutes are often explosive players, brought on to exploit tiring, vulnerable bodies in the opposition

Heavyweights

continue increasing over the next 20 years at the same rate as in the first decade of

professionalism, the average forward could weigh almost 20st and the average back about 16st





14st 11lb 16st 7lb 17st 5lb 94kg 105kg

1980s

Double tackles

More than half of the

tackles on a ball-carrier

are now made by more

than one player. The

second impact

ball-carrier off

increasing the

risk of injury

often strikes the

1990s 2000s

19st 2lb 121kg 110kg

12st 4lb 78kg 1980s

13st 5lb 14st 2lb 85kg 90kg

100kg 1990s 2000s 2020s?

15st 12lb

220

Hours lost to injury in international sport (per 1,000 playing hours)

2020s?

Rugby union American football 112 Ice hockey 80 Football 40

Cricket 10