Background Incidence rate of knee injury in mixed martial arts (MMA) is high. MMA is a high-intensity sport that requires constant angle and level change. A majority of the combined movements overlap with biomechanics that have been suggested to be associated with increased risk of knee injury.

Objective To identify the frequency of occurrence of the high-risk movements, i.e. dynamic valgus, during MMA competitions.

Design Video-based notation analysis.

Setting The analysed movements have been separated into two categories, Gross Biomechanical Risks and Detailed Biomechanical Risks. High-intensity movements were analysed in slow motion to ensure accuracy. Three fights were re-watched after all 29 fights as quality control to access the reliability of measurement.

Patients (or Participants) 29 MMA fights.

Interventions (or Assessment of Risk Factors) Documenting all visible high-risk knee injury movements occurred in the fights.

Main Outcome Measurements The frequency of occurrence of the high-risk movements, i.e. dynamic valgus, during MMA competitions. In addition, other gross biomechanics were recorded.

Results On average, an MMA athlete experienced 31 times of knee valgus motion with explosive force drag during a match. The side affected was highly subjective to the stance of the fighter. The rear leg was most likely to go through knee valgus motion.

Conclusions The result showed high-risk knee motions are common in MMA. Based on the data, knee valgus on the rear leg is of interest for future injury prevention focus. The data collected in this study can be used as the backbone for further investigation on the possible ways for knee injury prevention.