Background Sport can represent an important aspect of people’s lives, for professional and recreational athletes. Some sports involve a high risk of orofacial trauma, particularly contact sports. Undoubtedly, mouthguards are considered by many as an effective solution in preventing injury.

Objective This systematic review aimed to measure the effectiveness of mouthguards in preventing oral-facial injuries.

Design Preferred Reporting Items for Systematic Reviews (PRISMA)

Setting Available electronic databases

Patients (or Participants) Contact sport athletes

Interventions (or Assessment of Risk Factors) MEDLINE and EMBASE electronic databases searches were supplemented by manual searching, of in-vivo studies examining prevention of orofacial injuries by protective devices that cover the teeth and surrounding soft tissues (mouthguards).

Main Outcome Measurements Included studies were assessed for methodological quality and bias. A meta-analysis was performed on data from selected studies, comparing the number of injuries for mouthguard users and non-users. Results are presented as forest plots and relative risks between different studies compared.

Results 1745 records were identified. Fifteen studies were eligible for inclusion in the qualitative synthesis, seven were included in the meta-analysis. The overall quality of studies was low, primarily due to a high degree of bias. The degree of heterogeneity was high throughout the studies affecting most of the variables such as sport, athletes’ age, the definition of injury used and type of mouthguard. The meta-analysis showed that wearing a mouthguard was associated with a greater risk of orofacial injury when compared to non-users (overall RR 0.85%, 95% CI 0.78–0.93). However, the high degree of heterogeneity questions the validity of the summary estimate. (I-squared= 91.2%).

Conclusions There is insufficient evidence to support or refute the use of mouthguards to prevent orofacial injuries. Further research from high quality prospective cohort studies are needed to investigate the protective nature of mouthguards from orofacial injuries, when used in sports. The meta-analysis findings could be explained by athletes being more physical in the knowledge that they are protected.