ACTIVE & SAFE

Evidence Summary: Basketball

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BC INJURY research and prevention unit

The British Columbia Injury Research and Prevention Unit (BCIRPU) was established by the Ministry of Health and the Minister's Injury Prevention Advisory Committee in August 1997. BCIRPU is housed within the Evidence to Innovation research theme at BC Children's Hospital (BCCH) and supported by the Provincial Health Services Authority (PHSA) and the University of British Columbia (UBC). BCIRPU's vision is *to be a leader in the production and transfer of injury prevention knowledge and the integration of evidence-based injury prevention practices into the daily lives of those at risk, those who care for them, and those with a mandate for public health and safety in British Columbia.*

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Evidence synthesis tool

SPORT:	Basketball	**Target Group:**	Children, adolescent and adults (all levels)
Injury Mechanisms:	Common injury types in basketball include ankle and knee sprains (Pasanen et al., 2017). Other injury types include finger sprains and fractures (Pappas et al., 2011; Gaca et al., 2009). Common mechanisms for injury include overuse injuries, and injuries that occur from jumping and landing, pivoting and cutting manoeuvers (Cumps et al., 2007).		

Incidence/Prevalence	**Risk/Protective Factors**	**Interventions**	**Implementation/Evaluation**	**Resources**
Children and Adolescents It is reported that the overall basketball injury rate in children is 151 injuries/100,000 athlete days (95%CI: 131-171) in males and 124 injuries/100,000 athlete days (95%CI: 108-139) in females (Pappas et al., 2011); for male and female adolescents, studies report an incidence of 1.89 and 2.01 injuries/1000 athlete exposures (AEs) (Borowski et al., 2008; Rechel et al., 2008). <u>Competition</u>: The overall competition injury rate is reported as 3.27/1000 AEs; 2.93/1000 AEs for male and 3.66/1000 AEs for female adolescents (Borowski et al., 2008). <u>Practice</u>: The overall practice injury rate is reported as 1.40/1000 AEs; 1.38/1000 AEs for male and	**Sex** It is reported that high school females have a higher risk of injury in basketball, compared to males; (RR=1.14, 95%CI: 1.03-1.26) (Borowski et al., 2008) however, other studies report no increased risk (Pasanen et al., 2017) **Game vs. Practice** The risk of injury is higher in competition compared to practice (RR=2.33; 95% CI: 2.10-2.75 (Borowski et al., 2008); RR=2.05; 95% CI: 1.69-2.49 boys, RR=2.62; 95% CI: 2.32-2.95 girls (Rechel et al., 2008) in high school basketball athletes. In adult competitive basketball, there is a higher risk of ankle sprains in games compared to training (RR=27.2, 95%CI: 16.7-44.2) (Cumps et al., 2007) **Position**	**Neuromuscular Training (NMT)** Several studies demonstrate the effectiveness of NMT with and without proprioceptive training in reducing the risk of lower extremity injury in youth sport, including basketball (Emery et al., 2015; Vriend et al., 2016; Lauersen et al., 2014; Longo et al., 2012). Taylor et al (2015) reports a statistically significant reduction of ankle sprains in basketball athletes with NMT (OR=0.58; 95%CI, 0.38-0.88), no reductions in ACL injury, however (OR=1.09, 95%CI: 0.36-3.29). Eils et al. (2010) demonstrated a reduction in basketball ankle injuries in athletes participating in a multi-station proprioceptive exercise program, compared to controls (OR=0.36, 95%CI: 0.15-0.84).	One study, examining the implementation of ankle injury prevention strategies, reported the following facilitators and barriers to implementation of the intervention: **Facilitators** Coach and team captain engagement; follow-up with coaches throughout implementation of interventions to ensure compliance; programs which are basketball-specific in format and location; programs that are performed a couple of times a week (lasting less than 30 minutes); minimal equipment requirement; and consideration of players preferences (when choosing their own style of court shoe to wear with an ankle brace) (McGuine et al., 2013). **Barriers** The barriers reported included lack of team buy-in (including	**Stop Sport Injuries:** http://www.stopsportsinjuries.org/STOP/Prevent_Injuries/Basketball_Injury_Prevention.aspx

1.43/1000 AEs for female adolescents (Borowski et al., 2008). Concussion: It is reported that the incidence of concussion in basketball in children (less than 18 years of age) is 0.17/1000 athletic exposures (AEs) for females and 0.10/1000 AEs for males (Pfister et al., 2016). **Adults** The incidence of basketball injury reported in the National Collegiate Athletic Association (NCAA) for men is 3.89/10,000 AEs (95%CI: 3.06-4.72) and 5.95/10,000 (95%CI: 4.87-7.04) AEs for women. (Zuckerman et al., 2015) Another study reports the overall injury rate in competitive level basketball to be 9.8 injuries/1000 hours (95%CI: 8.5-11.1); 8.0/1000 hours (95% CI: 6.6-9.4) for males, and 13.9/1000 hours (95CI: 11.2-16.7) in females (Cumps et al., 2007). Competition: The incidence of basketball injury reported in the National Collegiate Athletic Association (NCAA) during competition for men is 5.60/10,000 AEs (95%CI: 3.45-7.75) and 10.92/10,000 (95%CI: 7.89-13.95) AEs for	During games, the relative risk for ankle sprains is reported higher in offense than in defense competitive adult players (RR=2.1, 95%CI: 1.0-4.2) (Cumps et al., 2007). **Previous Injury** It is reported that re-injuries account for 52.9% of all ankle-sprain injuries (Cumps et al., 2007).	Riva et al. (2016) found the risk of sustaining an ankle injury was reduced with proprioceptive training by 81% (RR = 0.19; 95% CI:0.08-0.46) compared to controls. Knee sprain and low back pain was also reduced by 64.5% (RR=0.36, 95%CI: 0.07-1.83) and 77.8% (RR=0.22, 95%CI: 0.08-0.59), respectively. Longo et al. (2016) demonstrated lower injury rates per 1000 athlete-exposures for overall injuries (0.95 vs 2.16; P = .0004), training injuries (0.14 vs 0.76; P = .007), lower extremity injuries (0.68 vs 1.4; P = .022), acute injuries (0.61 vs 1.91; P < .0001), and severe injuries (0 vs 0.51; P = .004) comparing the NMT intervention (FIFA 11+) to control groups. **Ankle Supports** Taylor et al (2015) reported a statistically significant reduction of ankle sprains in basketball athletes with external ankle supports (OR= 0.38, 95% CI: 0.22-0.68). McGuine et al. (2011) demonstrated a reduction in the incidence, but not severity of acute ankle injury (per 1000 exposures) in the intervention	players and coaches); time commitments; incorrect execution of exercises; lack of expertise (i.e., unsure of which brand of athletic brace to recommend to players (coaches); attitudes towards programs ('I don't think that these programs will reduce ankle injuries'); and perceived hindrance to the game (ankle braces) (McGuine et al., 2013).	

women (Zuckerman et al., 2015). Practice: The incidence of basketball injury reported in the National Collegiate Athletic Association (NCAA) during practice for men is 3.42/10,000 (95%CI: 2.54-4.31) for men and 4.43/10,000 (95%CI: 3.36-5.50) AEs for women (Zuckerman et al., 2015). For NBA players, the most common injury reported during practice is lateral ankle sprain (13.2% of all injuries), followed by patellofemoral inflammation (11.9%) (Drakos et al., 2010). Acute Injuries: The acute injury incidence is reported as 6.0 injuries/1000 hours (95%CI: 5.0 – 7.0) in competitive adult basketball (Cumps et al., 2007). Overuse Injuries: The overuse injury incidence is reported as 3.8 injuries/1000 hours (95%CI: 3.0 – 4.6); overuse knee injury is reported as 1.5 injuries/1000 hours (95%CI: 1.0-2.0) in competitive adult basketball (Cumps et al., 2007). In adolescents, the overuse injury incidence is reported as 1.51 injuries/1000 AEs (95% CI: 1.20 - 1.82) (Leppänen et al., 2017).		group (use of lace-up ankle braces), compared to controls (Cox hazard ratio=0.32; 95% CI: 0.20-0.52). **Mouth guards** One study demonstrated a lower rate of dental injuries with players (men's collegiate) using mouth guards compared to non-users (0.12 injuries vs. 0.65, p <0.05), no differences with respect to concussions or oral soft tissue injuries (Labella et al., 2002). Further research is needed to determine the cost effectiveness of basketball interventions on injury risk.		

<u>Ankle Sprain Injury</u>: The ankle sprain injury incidence is reported as 1.5 ankle sprain injuries/1000 hours (95%CI: 1.0 – 2.0) in competitive adult basketball (Cumps et al., 2007).				
Works Cited: Borowski, Yard, Fields & Comstock. (2008). The epidemiology of US high school basketball injuries, 2005-2007. *American Journal of Sports Medicine*, 36(12), 2328-2335. Cumps, Verhagen & Meeusen. (2007). Prospective epidemiological study of basketball injuries during one competitive season: Ankle sprains and overuse knee injuries. Journal of Sports Science and Medicine, 6(2), 204-211. Drakos, Domb, Starkey, Callahan & Allen (2010). Injury in the National Basketball Association: A 17-Year overview. *Sports Health*, 2(4), 284-290. Gaca (2009). Basketball Injuries in Children. *Pediatric Radiology*, 39, 1275-1285. Leppänen, Pasanen, Kannus, Vasankari, Kujala, Heinonen, Parkkari. (2007). Epidemiology of overuse injuries in youth team sport: A 3-year prospective study. *International Journal of Sports Medicine*, 38, 847–85.	**Works Cited:** Cumps, Verhagen & Meeusen. (2007). Prospective epidemiological study of basketball injuries during one competitive season: Ankle sprains and overuse knee injuries. *Journal of Sports Science and Medicine,* 6(2), 204-211. Pasanen, Ekola, Vasanakri, Kannus, Heinonen, Kujala, Parkkari. (2017). High ankle injury rate in adolescent basketball: A 3-year prospective follow-up study. *Scandinavian Journal of Medicine and Science in Sports*, 27, 643–649.	**Works Cited:** Eils, Schroter, Schroder, Gerss & Rosenbaum. (2010). Multi-station proprioceptive exercise program prevents ankle injuries in basketball. *Medicine and Science in Sports and Exercise,* 42(11), 2098-2105. Emery, Roy, Whittaker, Nettel-Aguirre & van Mechelen. (2015). Neuromuscular training injury prevention strategies in youth sport: A systematic review and meta-analysis. *British Journal of Sports Medicine,* 49(13), 865–70. Labella, Smith & Sigurdsson. (2002). Effect of mouthguards on dental injuries and concussions in college basketball. *Medicine and Science in Sports and Exercise*, 34(1), 41-44. Lauersen, Bertelsen & Andersen. (2014). The effectiveness of exercise interventions to prevent sports injuries: A systematic review	**Works Cited:** McGuine, Hetzel, Pennuto & Brooks (2013). Basketball coaches utilization of ankle injury prevention strategies. *Sports Health*, 5(5), 410–416.	

Pappas, Zazulak, Yard & Hewett (2011). The epidemiology of pediatric basketball injuries presenting to US emergency departments: 2000-2006. Sports Health, 3(4), 331–335. Pfister, Pfister, Hagel, Ghali & Ronksley (2015). The incidence of concussion in youth sports: A systematic review and meta-analysis'. *British Journal of Sports Medicine*, 50(5), 292-7. Rechel, Yard & Comstock. 2008. An epidemiologic comparison of high school sports injuries sustained in practice and competition. *Journal of Athletic Training,* 43(2), 197–204. Zuckerman, Kerr, Yengo-Kahn, Wasserman, Covassin & Solomon. 2015. Epidemiology of sports-related concussion in NCAA athletes from 2009-2010 to 2013-2014. *American Journal of Sports Medicine,* 43(11), 2654–62.		and meta-analysis of randomised controlled trials. *British Journal of Sports Medicine*, 48, 871-877. Longo, Loppini, Berton, Marinozzi, Maffulli & Denaro (2012). The FIFA 11+ program is effective in preventing injuries in elite male basketball players: A cluster randomized control trial. *American Journal of Sports Medicine,* 40(5), 996 – 1005. McGuine, Brooks & Hetzel (2011). The effect of lace-up ankle braces on injury rates in high school basketball players. *American Journal of Sports Medicine,* 39(9), 1840–1848. Taylor, Ford, Nguyen, Terry & Hegadus (2015). Prevention of lower extremity injuries in basketball: A systematic review and meta-analysis. *Sports Health*, 7(5), 392–398. Riva, Bianchi, Rocca & Mamo. (2016). Proprioceptive training and injury prevention in a professional men's basketball team: A six-year prospective study. *Journal of Strength and Conditioning Research*, 30(2), 461-75. Vriend, Gouttebarge, van		

		Mechelen & Verhagen. (2016). Neuromuscular training Is effective to prevent ankle sprains in a sporting Population: A meta-analysis translating evidence into optimal prevention strategies. *Journal of ISAKOS: Joint Disorders & Orthopaedic Sports Medicine*, 1(4), 202–13.		

Review of Sport Injury Burden, Risk Factors and Prevention

Basketball

Incidence and Prevalence

The popular sport of basketball demands exceptional athletic ability. The game requires players to run up and down the length of a rectangular court while dribbling a ball, with the aim of shooting a basketball through the opponent's hoop. The sport is fast paced, requiring abrupt changes in direction, jumping and occasional contact with other players (Gaca, 2009).

Children and Adolescents

It is reported that the overall basketball injury rate in children is 151 injuries/100,000 athlete days (95%CI: 131-171) in males and 124 injuries/100,000 athlete days (95%CI: 108-139) in females (Pappas et al., 2011); for male and female adolescents, studies report an incidence of 1.89 and 2.01 injuries/1000 athlete exposures (AEs) (Borowski et al., 2008; Rechel et al., 2008). The overall competition injury rate is reported as 3.27/1000 AEs; 2.93/1000 AEs for male and 3.66/1000 AEs for female adolescents (Borowski et al., 2008). The overall practice injury rate is reported as 1.40/1000 AEs; 1.38/1000 AEs for male and 1.43/1000 AEs for female adolescents (Borowski et al., 2008). In adolescents, the overuse injury incidence is reported as 1.51 injuries/1000 AEs (95% CI: 1.20-1.82) (Leppänen et al., 2017).

Common Injury Types

Ankle Sprains

Ankles sprains, which involve injury to the ligaments and joint capsule, account for 10-28% of all basketball-related injuries among children (Gaca, 2009; Pappas et al., 2011). An ankle sprain that occurs in a developing child can result in injury to the growth plates around the ankle and requires careful examination by a physician (Matthews & Hannafin, 2010). Among high school athletes, the most commonly reported body site injured, according to the High School Reporting Information Online (RIO) (United States), is the ankle/foot, accounting for 39.7% of all basketball-related injuries (Borowski et al., 2008).

Knee Injury

Knee sprains in children are among the top 5 most common basketball-related diagnosis accounting for 12 600 injuries per year (3.9%) (based on emergency room medical records) (Pappas et al., 2011). Knee injuries among high school basketball athletes account for 14.7% of all injuries, second only to injuries sustained to the foot/ankle body site (Borowski et al., 2008). Anterior cruciate ligament (ACL) injury is the most frequent cause of knee trauma among basketball athletes (Gaca, 2009). Overall, knee injuries are found to be one of the leading causes of basketball injury (Drakos et al., 2010). Limited data is available on knee injuries diagnosed in physician offices rather than in the emergency department. Therefore, the data cited may only represent more severe injuries, resulting in an underreporting of minor trauma to the knee.

Several mechanisms of knee injuries have been identified including: overuse (Borowski et al., 2008), jumping (Gaca, 2009; Borowski et al., 2008), landing (Borowski et al., 2008), pivoting (Borowski et al., 2008), cutting (Gaca, 2009), running forwards and backwards (Borowski et al., 2008), changing directions (Gaca, 2009) and contact with other players (Borowski et al., 2008).

Finger Injuries

Mallet (or jammed) finger, also known as basketball finger (or a finger sprain) is a very common basketball injury that disrupts the extensor mechanism at the distal interphalangeal joint (Gaca, 2009). Finger sprains account for 8.0% of all basketball injuries among children while finger fractures account for 7.8%. Among pediatric and high school basketball injuries presenting to the emergency departments, finger sprains and finger fractures were the second and third most common diagnosis (Trojian et al., 2013).

Several mechanisms of sprains have been identified including axial load on a partially flexed finger (Gaca, 2009; Pappas et al., 2016); and contact with other players (Gaca, 2009) or the hoop (Trojian et al., 2013).

Stress Fractures

Stress fractures are commonly seen among adolescent and adult basketball athletes, typically in the lower extremities (Trojian et al., 2013). The standard treatment for stress fractures includes immobilization through casting. Surgery is explored when casting is not successful in repairing the fracture.

Several mechanisms of stress fractures have been identified including: running, jumping and pivoting (Trojian et al., 2013).

Concussion

It is reported that the incidence of concussion in basketball in children (less than 18 years of age) is 0.17/1000 athletic exposures (AEs) for females and 0.10/1000 AEs for males (Pfister et al., 2016). It is reported that girls experience higher rates of concussions in comparison to boys (Trojian et al., 2013). It is estimated that most symptoms of concussions typically resolve themselves within 7-10 days, although recovery can take longer among children and adolescents. The reported most common mechanism of traumatic brain injury is contact with other players (Trojian et al., 2013).

Adults

The incidence of basketball injury reported in the National Collegiate Athletic Association (NCAA) for men is 3.89/10,000 AEs (95%CI: 3.06-4.72) and 5.95/10,000 (95%CI: 4.87-7.04) AEs for women. Another study reports the overall injury rate in competitive level basketball to be 9.8 injuries/1000 hours (95%CI: 8.5-11.1); 8.0/1000 hours (95% CI: 6.6-9.4) for males, and 13.9/1000

hours (95CI: 11.2-16.7) in females (Cumps et al., 2007). The incidence of injury is higher in competition compared to practice; the National Collegiate Athletic Association (NCAA) reports the injury rate during competition for men is 5.60/10,000 AEs (95%CI: 3.45-7.75) and 10.92/10,000 (95%CI: 7.89-13.95) AEs for women (Zuckerman et al., 2015). In practice, it is reported at 3.42/10,000 (95%CI: 2.54-4.31) for men and 4.43/10,000 (95%CI: 3.36-5.50) AEs for women (Zuckerman et al., 2015).

During men's NCAA games, the most common injury is ankle sprains (26.2%). Ankle sprains among elite athletes competing in the Women's National Basketball Association (WNBA) and the National Basketball Association (NBA) are also the most frequently reported orthopedic injury captured in the National Basketball Athletic Trainers Association database (Drakos et al., 2010; Trojian et al., 2013).

Several mechanisms of ankle sprains have been identified including: overuse (Borowski et al., 2008), jumping (Drakos et al., 2010; Borowski et al., 2008), landing (Drakos et al., 2010; Borowski et al., 2008), and pivoting/changing directions (Borowski et al., 2008), running forwards and backwards (Borowski et al., 2008).

For acute injuries, the incidence is reported as 6.0 injuries/1000 hours (95%CI: 5.0 – 7.0) in competitive adult basketball (Cumps et al., 2007) and overuse injuries at 3.8 injuries/1000 hours (95%CI: 3.0 – 4.6); overuse knee injury is reported as 1.5 injuries/1000 hours (95%CI: 1.0-2.0) in competitive adult basketball (Cumps et al., 2007). For ankle sprain injuries, the incidence is reported as 1.5 ankle sprain injuries/1000 hours (95%CI: 1.0 – 2.0) in competitive adult basketball (Cumps et al., 2007).

Ocular Injuries

Ocular injuries include eyelid lacerations, abrasions, eyelids or periobital contusions and corneal abrasions. Ocular injuries have a rate similar to ACL injuries (0.16 injuries per 1,000 AE) according to traumas documented in the NCAA men's division (Trojian et al., 2013). Severity of ocular injury ranges but can lead to permanent loss of vision.

Several mechanisms of injury have been identified including nail length and the wearing of contact lenses (Trojian et al., 2013).

Risk and Protective Factors

Factors that place an athlete at increased risk for injury can be categorized into those that are modifiable or non-modifiable.

Modifiable Risk Factors

Game vs. Practice

The risk of injury is higher in competition compared to practice (RR=2.33; 95% CI: 2.10-2.75 (Borowski et al., 2008); RR=2.05; 95% CI: 1.69-2.49 boys, RR=2.62; 95% CI: 2.32-2.95 girls (Rechel et al., 2008) in high school basketball athletes.. In adult competitive basketball, there is a higher risk of ankle sprains in games compared to training (RR=27.2, 95%CI: 16.7-44.2) (Cumps et al., 2007) Basketball practices often involve a repetition of drills or plays, in which players become accustomed to ball movements. In addition, players also often play at a lower maximum exertion effort. In a game, players are required to respond to the offensive or defensive play, which can be unpredictable and vary from what was practiced. Players also often play at a higher exertion effort (closer to 100%) increasing the risk of injury.

Position

During games, the relative risk for ankle sprains is reported higher in offense than in defense competitive adult players (RR=2.1, 95%CI: 1.0-4.2) (Cumps et al., 2007).
Ankle sprains occur significantly more often when playing offence than defense (RR=2.1 [95% CI: 1.0-4.2]) (Cumps et al., 2007). This may be a result of the difference in movement patterns in the two positions. A defensive play requires more horizontal shuffle movements on the ground while an offensive play requires more sprints and lateral jumps (increasing the chance of landing on one's ankle causing a sprain) (Cumps et al., 2007). More research is needed to validate moving patterns between offensive and defensive plays.

Non-Modifiable Risk Factors

Sex

One study reported that high school females have a higher risk of injury in basketball, compared to males; (RR=1.14, 95%CI: 1.03-1.26) (Borowski et al., 2008) however, other studies report no increased risk (Pasanen et al., 2017).

Previous Injury

It is reported that re-injuries account for 52.9% of all ankle-sprain injuries (Cumps et al., 2007). Ankle injuries are not necessarily a one-time occurrence. Players need to be educated about the increased risks of re-injury after an initial sprain.

Overall there is limited quality data available addressing the risk and protective factors of injuries commonly sustained by basketball athletes. Further research is needed.

Opportunities for Prevention: Effective Interventions, Cost-Effectiveness, Implementation and Evaluation

Neuromuscular Training (NMT)

Several studies demonstrate the effectiveness of NMT with and without proprioceptive training in reducing the risk of lower extremity injury in youth sport, including basketball (Emery et al., 2015; Vriend et al., 2016; Lauersen et al., 2014; Longo et al., 2012).

Taylor et al (2015) reports a statistically significant reduction of ankle sprains in basketball athletes with NMT (OR=0.58; 95%CI, 0.38-0.88), no reductions in ACL injury, however (OR=1.09, 95%CI: 0.36-3.29). Eils et al. (2010) demonstrated a reduction in basketball ankle injuries in athletes participating in a multi-station proprioceptive exercise program, compared to controls (OR=0.36, 95%CI: 0.15-0.84).

Riva et al. (2016) found the risk of sustaining an ankle injury was reduced with proprioceptive training by 81% (RR = 0.19; 95% CI:0.08-0.46) compared to controls. Knee sprain and low back pain was also reduced by 64.5% (RR=0.36, 95%CI: 0.07-1.83) and 77.8% (RR=0.22, 95%CI: 0.08-0.59), respectively. Longo et al. (2016) demonstrated lower injury rates per 1000 athlete-exposures for overall injuries (0.95 vs 2.16; P = .0004), training injuries (0.14 vs 0.76; P = .007), lower extremity injuries (0.68 vs 1.4; P = .022), acute injuries (0.61 vs 1.91; P < .0001), and severe injuries (0 vs 0.51; P = .004) comparing the NMT intervention (FIFA 11+) to control groups.

Ankle Supports

Ankle braces are commonly used as an injury prevention intervention. The evidence varies with regards to the effectiveness of braces in primary prevention (Trojian et al., 2013). Braces are typically structured fabric with additional straps or laces around the ankle to promote increased stability. Ankle braces are designed to be worn over a pair of socks within the basketball shoe. Braces range in price from about $40 to $60 per pair (McGuine et al., 2013). The challenge with ankle brace uptake, specifically among high school students, is the perception that the brace may negatively impact performance (running speed, agility, and jump height). Basketball coaches' buy-in is key when promoting the use of ankle braces.

Taylor et al (2015) reported a statistically significant reduction of ankle sprains in basketball athletes with external ankle supports (OR= 0.38, 95% CI: 0.22-0.68).

McGuine et al. (2011) demonstrated a reduction in the incidence, but not severity of acute ankle injury (per 1000 exposures) in the intervention group (use of lace-up ankle braces), compared to controls (Cox hazard ratio=0.32; 95% CI: 0.20-0.52).

Mouth guards

One study demonstrated a lower rate of dental injuries with players (men's collegiate) using mouth guards compared to non-users (0.12 injuries vs. 0.65, p <0.05), no differences with respect to concussions or oral soft tissue injuries (Labella et al., 2002).

Implementation and Evaluation

One study, examining the implementation of ankle injury prevention strategies, reported the following facilitators and barriers to implementation of the intervention:

Facilitators

Coach and team captain engagement; follow-up with coaches throughout implementation of interventions to ensure compliance; programs which are basketball-specific in

format and location; programs that are performed a couple of times a week (lasting less than 30 minutes); minimal equipment requirement; and consideration of players preferences (when choosing their own style of court shoe to wear with an ankle brace) (McGuine et al., 2013).

Barriers

The barriers reported included lack of team buy-in (including players and coaches); time commitments; incorrect execution of exercises; lack of expertise (i.e., unsure of which brand of athletic brace to recommend to players (coaches); attitudes towards programs ('I don't think that these programs will reduce ankle injuries'); and perceived hindrance to the game (ankle braces) (McGuine et al., 2013).

References

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