### Abstracts

**Background** Dutch handball has gained popularity since recent international successes. Downside is the risk of injuries.

**Objective** To gather information on the prevalence and distribution of injuries in Dutch handball for the development and implementation of targeted preventive measures.

**Design** Repeated cross-sectional design.

**Setting** Adolescent and adult handball players active in Dutch leagues of any playing level were invited through social media, club mailings and the website of the Dutch Handball Federation to participate in a monthly online survey.

**Participants** Handball players (16 years or older) were included. In total 1136 respondents (80% female) filled in 4171 monthly questionnaires from September 2018 to June 2019.

**Risk Factors** Outcomes were categorized by sex and playing position.

**Main Outcome Measurements** New injuries (injury incidence) and number of injured players divided by the total number of respondents (prevalence) per body location. Injury definition: *the inability to fully participate in handball training and/or matches over the last month due to a problem sustained during handball.* The Oslo Sports Trauma Research Centre Questionnaire (OSTRCQ) was used to quantify injury severity.

**Results** Of 657 new injuries, the knee (21%), ankle (17%) and shoulder (10%) contributed similarly in both sexes and the lower leg predominantly in female players (10%). Overall injury prevalence was 43% (female 46%, male 34%). Most prevalent body locations and their mean (standard deviation (sd)) OSTRCQ-scores were the knee (8.8%; OSTRCQ 61, sd 26), shoulder (4.4%; OSTRCQ 50, sd 22), ankle (4.0%; OSTRCQ 55, sd 27) and the lower leg (3.1%; OSTRCQ 56, sd 26). For all playing positions the knee showed the highest prevalence followed by the shoulder (wings and backs) and/or ankle (backs, pivots and goalies).

**Conclusions** The high prevalence of knee, ankle and shoulder injuries in both sexes in Dutch handball emphasizes the need for implementation of preventive measures. Preventive training programs already proven successful in handball populations from other countries can be implemented in Dutch handball as well.

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**231 INJURY PREVENTION POLICIES IN DUTCH HANDBALL CLUBS**

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Background To reduce the number of Handball injuries implementation of preventive measures on all organisational levels is necessary. In Dutch handball clubs, many youth teams are trained/coached by volunteers. Qualified trainers at senior level come and go.

Objective To investigate (barriers and facilitators to) current preventive policies in Dutch handball clubs.

Design Cross-sectional survey.

Setting An online survey was sent to all (371) Dutch handball clubs in February 2018.

Participants Technical committee members/head coaches of sixty-seven clubs (18% response), covering all competition levels, answered the questionnaire. Units of investigation: Handball clubs: management and trainer level

**Main Outcome Measurements** Club policies regarding injury prevention and barriers and facilitators for implementation on club level.

**Results** Of all responding clubs, 20% had a club policy on injury prevention, in 51% the choice was up to trainers themselves and the other 29% had no clear knowledge of a policy on injury prevention. Only 14% of all clubs had a long-term policy on maintenance of preventive measures. On average 30% of the active trainers in a club had a trainer’s licence of any level. Important barriers for implementation were insufficient knowledge on injury prevention in trainers and/or within the club and lack of implementation competencies within the club. Other barriers were financial, organisational and the high number of volunteers. Insight in the contents and effectiveness of preventive measures by means of an app and/or yearly in-company workshops were suggested strategies to facilitate implementation. Furthermore, external support from the Dutch Handball Federation and support for the implementation process in the club as well as incorporating prevention within athlete development were mentioned.

**Conclusions** Injury prevention policies seem to be scarcely implemented in Dutch handball clubs although interpretation of these results must take the 18% response rate into consideration. Externally supported knowledge transfer and implementation management on club level are needed to facilitate the implementation of injury prevention in Dutch handball clubs.

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**232 DESCRIPTION OF THE CONTEXT FOR INJURY PREVENTION INTERVENTIONS DEVELOPMENT AND IMPLEMENTATION IN YOUTH BRAZILIAN BASKETBALL: A CROSS-SECTIONAL STUDY**

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Background The implementation of injury prevention interventions commonly do not consider the context where injury occurs.

Objective To describe the socioecological context to guide the development and implementation of injury prevention interventions in youth Brazilian basketball (YBB).

Design Cross-sectional study.

Setting YBB teams affiliated to the Basketball Federation of the State of São Paulo. Participants recruitment and data collection occurred during the regular season, between March and September 2018.

Patients (or Participants) 534 athletes and 54 staff members of YBB teams were included in the study. Eligibility criteria included (1) staff members who have graduated in a health care profession and (2) youth athletes with age between 10 and 19 years old.

Interventions (or Assessment of Risk Factors) Participants responded a survey on a regular day of practice or official match.
Main Outcome Measurements Athletes survey included personal information, training profile, knowledge about injury prevention and history of basketball-related musculoskeletal injuries over the last 3 months. Staff member survey included personal information, professional profile, team characteristics, knowledge about injury prevention, and preferences related to the development of an injury prevention program.

Results 52% (n=277) of youth athletes (12.2 ± 1.7 years-old) and 21% (n=11) of staff members (sport experience: 17.1 ± 9.5 years) never received any information about sports injury prevention interventions. 31.4% (n=11) of YBB teams do not perform injury prevention interventions with their athletes. Injury prevalence was 23.2% and the most common injury was ankle sprains (25.3%; n=40).

Preferences related to the development of an injury prevention program included a program presented through a website, delivered by the physiotherapist within the daily warm-up routine.

Conclusions The majority of staff members had already received information about sports injury prevention interventions and YBB teams had already implemented injury prevention interventions with their athletes, but more than a half of athletes knew nothing about the topic. Additionally, information reported by athletes was frequently not evidence-based.

Main Outcome Measurements We defined the outcomes as: sample characterization; adherence to the preventive program; study feasibility and complaints, and basketball-related diseases.

Results An injury prevention program called CBB 12 was proposed, based on three pillars, (1) health information, (2) behavior on and off the courts, and (3) guided warm-up pre-participation activity. The feasibility of the injury prevention program was assessed in a 12-week clinical trial of 68 basketball athletes, 2 coaches, 1 club. The questions about feasibility presented average ranging from 3.6 to 3.9 points among athletes, in a scale ranging from 1 to 4 points. The average preventive training CBB 12 (adherence) was 1.8 ± 0.9.

Conclusions The CBB 12 injury prevention program was positively evaluated by the athletes and the coaching staff, regarding its magnitude, adequacy and practicality.

Background Most university female athletes are suffering from various diseases, injuries and some physical problems than male university athletes in Sri Lanka.

Objective To determine the prevalence of disordered eating (DE) and menstrual dysfunction (MD) among female university athletes in Sri Lanka.

Design Sri Lankan university female athletes (n=308) age between 21–26 years. Data were collected by Eating Attitude Test 26 and behaviour and menstrual history questionnaire.

Setting Sri Lankan university female athletes from 12 different sports.

Participants Female university athletes (n=308) who represented respective universities’ sports teams at Sri Lanka National Games 2019.

Assessment of Risk Factors Duration of administration was June to August of 2020 in Sri Lanka. Eating disorder (ED) was identified as the independent variables of the study.

Main Outcome Measurements MD, BMI (Body Mass Index), and Premenstrual syndrome (PMS) were considered as the dependent variables.

Results Of the 308 participants, 24.0% reported having irregular cycles. Oligomenorrhea was the most frequently reported problem (15.3%), and polymenorrhagia was much less prevalent (3.2%). Hypomenorrhea recorded 8% and 6.6% of having Menorrhagia. Athletes of 68% recorded about PMS. ED was reported by 19.8% of the athletes and 7.7% are classified as risk of ‘Bulimia Nervosa’. There was no association between ED and MD. Netball players (28%) reported the highest to have ED. Taekwondo and Karate players are having an average of ED 27.7%, 25% respectively.

Conclusions According to the results of this study, many female athletes have ED and menstrual cycle-related problems. Age 21–26 is the important age for females. It is recommended to consider to have balanced nutrition and maintain mental wellness.