Correlation between Level of Functional Ability and Sports Performance among Football Players with Chronic Ankle Instability (CAI)

ABSTRACT:

Background: Chronic ankle instability (CAI) is the most common injury among the football players and it occurs with the players who have history of repetitive ankle sprain. This will result in limitation of functional ability and sport performance of a football player. However, most of the sport rehabilitation focused on the sport performance of an athletic after ankle sprain injury and the functional ability was not stressed on during the return to sport process. It is because the relationship between the level functional ability and sport performance among the football players with CAI is still unclear.

Objectives: To determine the relationship between the level of functional ability and sports performance among the football players with chronic ankle instability (CAI).

Study Design: Correlation study

Methods: Forty two (n=42) of football players were involved in this study by convenience sampling design. Football players filled in the questionnaire which was Foot and Ankle Ability Measure (FAAM) which included the activities of daily living (ADL) subscale and sports subscale. The total score of each subscale for all the players were calculated and Pearson's Correlation Coefficient was used to analyze the relationship.

Results: A total of twenty five (60%) of the football players had higher ADL score than the sports score while seventeen (40%) of them had higher sports score than ADL score. The mean score for ADL subscale was 79.63±20.64 (%) whereas for sports subscale was 75.59±25.43 (%). Pearson's correlation was .92 (*r=.92)* and it is significant at .01 level (*p* <.00).

Conclusion: There is a significant relationship between the level of functional ability and sports performance among the football players with chronic ankle instability (CAI).

Implication: It provides a guideline for the physiotherapy or football player to plan a more structured rehabilitation in order to improve the quality of return to sport performance.

Key Words: *Football Players, Chronic Ankle Instability*

INTRODUCTION

Chronic ankle instability (CAI) has been defined as a disabling condition or the occurrence of the repetitive bouts of lateral ankle instability that resulting in numerous of lateral ankle sprain[1]. It is the most common injury associated with sporting mishaps[2]. The incidence of ankle injuries among the football players is high and ankle sprain has commonly reported among them[2,3&4]. It is because football sport involved a lot of direct contact between the players. Consequently, it leads to a high ankle injury rate in both professional and amateur levels[5]. Due to lack of local data and research about the incident and prevalence of ankle sprain in Malaysia, the United Kingdom data will be referred into this studystated that highest incidence of ankle sprain was court sports and field sport, with a cumulative incidence rate of 7 per 1,000 exposures and 1.0 per 1,000 hours in the United Kingdom respectively[6]. Besides,that around five thousand of new ankle sprains injuries occur each day in the United Kingdom[7]. Based on the analysis of a study, they concluded that the 77% of ankle injury were lateral ankle sprain and 73% of lateral ankle sprain were involved with isolated rupture or tear to the anterior talofibular ligament (ATFL) and only 36% to 85% of the injured athlete were able to get the full recovery in three years duration [7&8]. With the incomplete recovery from the previous injury, the rate of recurrent lateral ankle sprain is about 73% in sporting context which may lead to prolong disability or CAI[9].

CAI has been a high prevalence and severity of lifestyle-limiting symptoms that follow the acute episode because most of the CAI occur with the players who have a history of previous ankle sprains

up to one year duration[10,11&12].CAI may change a football player's foot biomechanics or neuromuscular control around the ankle joint which lead to some disabilities in a football player such as decreased performance or endurance level and unable to attend school or work during the injury period[5,6&12]. Players did have some minimal change in their sports performance and did not return to their baseline pre-injury state after sustaining an ankle sprain. However, there is no any studies show about the effect of CAI on a player's functional ability[13]. Most of the studies focused on the sports performance rather than their functional ability. It is important because assessment for an athlete should be based on functional ability rather than on the sports performance only and it is a key process to allow or help an athlete to return to sport following an injury[14&15].

Based on all the studies above which mentioned about the sports performance of a player with CAI, they had failed to explain the relationship between the level of functional ability and sports performance among the football players with CAI. Some of the studies had suggested that not only the player's sport ability must be analysed but the player's functional abilities should be considered and combined with the sport ability because they do believe that the biomechanical and functional changes in a player with CAI can be a very important extrinsic factor that may affect the sports performance of the player[16].Besides, assessing the functional abilities is not only useful in discovering the risk and effect of CAI in a football player but also can help to get more understanding about the injury and the relationship between the functional ability and sports performance by comparing the functional abilities and sports performance results[17]. It is important to do the assessment because it is to test *'one's ability to participate at the desired level in sport, occupation and recreation or to return to participation in a safe and timely manner without functional limitations'* stated by[18]. It may help in improving the rehabilitation protocol of the CAI within the healthcare professionals[19]. To further the understanding of the relationship between both level of functional ability and sports performance, Foot and Ankle Ability Measure (FAAM) which included activities of daily living (ADL) subscale and sports subscale was used in this research to measure the functional ability and sport performance for football players with CAI. According to the study done by[20], they suggested that FAAM should be used to assess the CAI population in order to increase our understanding of the relationships among subgroup, impairment, and lifestyle change. FAAM as a self-reported measurement tool has demonstrated strong psychometric properties like test-retest reliability, internal consistency, validity, reliability and responsiveness and it has been used for a range of different foot and ankle conditions[21]. In addition, FAAM is the most suitable tool to assess activity limitation and sports ability in people with CAI[22]. Therefore, further investigation of the level of functional ability and sports performance among football players with CAI in this study was done by using the FAAM.

Methodology

This study is quantitative studies with correlation design. The purpose of using the correlation design is to find out the relationship between two or more variables which are related among a single group of people. It will help to determine the relationship between the level of functional ability and sports performance among the football players with chronic ankle instability.

Due to lack of data of the population of football players in Malaysia, the non-probability sampling method which does not rely on the randomization techniques to select the samples was used[24].

Fifty young football players who met the inclusion criteria were recruited as the study population from one football academic in Kuala Lumpur for this study. Forty-two players were being selected from fifty people in the population for 95% of confidence level.

Inclusion Criteria:

1. Ten to twenty-four years-old
2. More than two years' participation in football career
3. History of recurrent ankle sprain with the average of six (±five) months since their last sprain
4. Feeling of ankle instability during training

Exclusion Criteria:

1. Older than twenty-four years-old
2. Less than two years' experiences in football career
3. No history of ankle sprain or ankle sprain within the last four weeks
4. History of fracture of the lower limb
5. No feeling of ankle instability during training

Research Measurement Tools

Primary Research Instrument

The level of functional ability and sports performance were the main outcome of the study. Therefore, the primary research measurement tool was a questionnaire with the Foot and Ankle Ability Measure (FAAM).

Secondary Research Instruments

The secondary research instrument was a patient's information sheet which obtained the subject's name, age (years), gender (male or female), number of years in football sports and duration of last ankle sprain (months).

Procedures

Preparation Phase

To have a good understanding about the study, literature review was done during the preparation phase and throughout the study. The title of the study and the research approach or design was decided during this phase. Making clear of the objectives and hypothesis of this study was completed and the selection criteria of the subject were settled during the preparation phase. Few football academies were targeted for the sample recruitment. Informed consent form and the questionnaire with patient information sheet and FAAM were well prepared. Prior to the study, all the preparation and ethical consideration of this study were approved by Faculty of Health & Sport Sciences Research Review Committee, MAHSA University (FRRC).

Implementation Phase and Data Collection Phase

A football academy was invited to participate in this correlation study. The researcher approached the coach of the team and the explanation of this study was done during the first meeting. Based on the information from the coach, players have training sessions two to three times per week in a sport stadium. Permission of doing the data collection during their training sessions was approved by the coach. Screening was done by interview the football players. Fifty young football players who met the inclusion criteria were recruited as the population of this study. Players were required to sign the consent form based on their will. They were allowed to withdraw from this study. Questionnaires which included the patient information sheet and the

FAAM were distributed to them during different training sessions. Before the players filled in the questionnaires, briefing about the study and the consent were given. Players were separated from each other during the data collection in order to prevent the response bias and they were allowed to ask questions to the researcher. According to the sample size calculation, forty-two samples were needed in this study. The data collection from the players stopped when forty-two of completed questionnaires were collected by the researcher and coach. These data collection procedure altogether took around four training sessions. The data from the questionnaires were collected into a data collection table which divided into sample's demographic (age (years), gender (male or female), number of years in football sports, duration of last ankle sprain (months)) and FAAM score in ADL subscale and sports subscale. The total percentage of each subscale were calculated and collected into the table.

RESULTS

This study was to find out the relationship between two variables which were the ADL and sports subscale, Pearson's Correlation Coefficients was used to determine the correlation.

Demographic Data

Forty-two football players with CAI which were on average of 19.74±3.45 years of age were involved in this study. The number of years of subjects (n=42) in football sports were 5.47±3.17 years while the duration of last ankle sprain (months) for them were 6.10±4.48 months. Forty-two of them were male (100%). Table1 summarised the demographic data (age (years), number of years of football sports, duration of last ankle sprain (months)) of the football players (n=42) in measures of central tendency of mean and standard deviation (SD). Table 2 showed the gender (male or female) in measures of central tendency of frequency and percentage.

Table 1: Demographic Data (Age (years), Number of Years in Football Sports, Duration of Last Ankle Sprain (Months))

Demographic Data	n	Mean	SD
Age (years)	42	19.74	3.45

Number of Years in Football Sports	42	5.47	3.17
Duration of Last Ankle Sprain (months)	42	6.10	4.48

Table 2: Gender (Male or Female)

Demographic Data	n	Frequency	Percentage (%)
Gender (Male or Female)	42 (Male)	42	100

FAAM (ADL Subscale and Sports Subscale)

Football players (n=42) with CAI completed the ADL subscale and sports subscale in FAAM questionnaire. ADL subscale represented the level of functional ability of the players while the sports subscale represented the sports performance of the players. To determine the level of functional ability and sports performance, the total points of ADL subscale and sports subscale were calculated in percentage (%) for each football players. The minimum score for ADL subscale was 23.80% while the maximum score was 100%. The average score of the football players in ADL subscale was 79.63±20.64 (%). On the other hand, the minimum score for sports subscale was 12.50% and the maximum score was 100%. The average score in sports subscale was 75.59±25.43 (%).Table 3 summarised the score of ADL subscale score and sports subscale score among the football players (n=42). Figure 1 and figure 2 represented the score distribution in ADL subscale and sports subscale among the football players (n=42) with CAI respectively.

Table 3: ADL Subscale and Sports Subscale Score (%)

Variable	n	Minimum	Maximum	Mean	SD
ADL Subscale	42	23.80	100	79.63	20.64
Sports Subscale	42	12.50	100	75.59	25.43

Figure 1: Histogram of ADL Subscale Score (%) Among The Football Players with CAI (N=42)

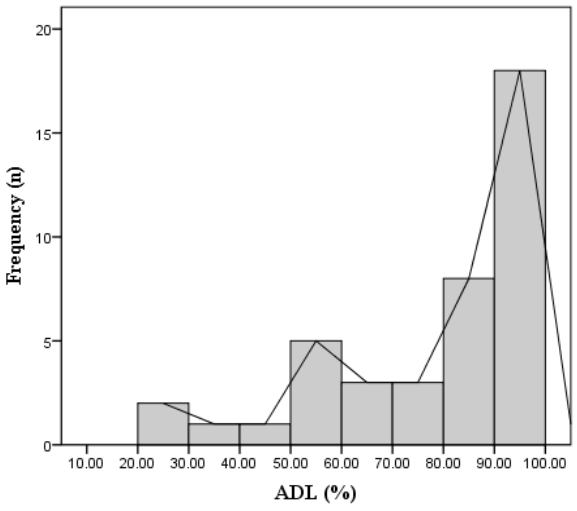
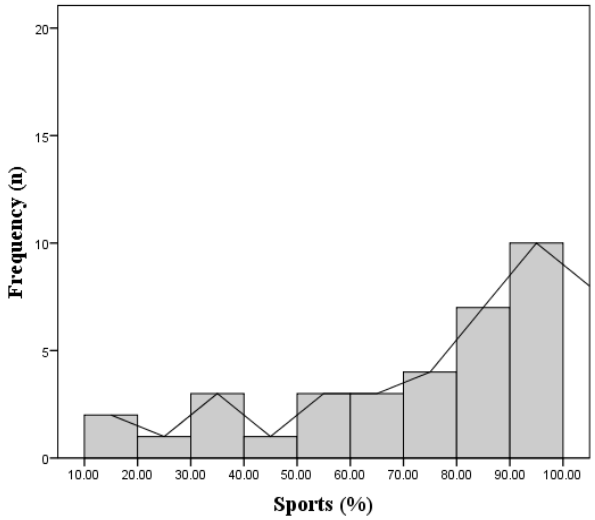


Figure 2: Histogram of Sports Subscale Score (%) Among The Football Players with CAI (N=42)



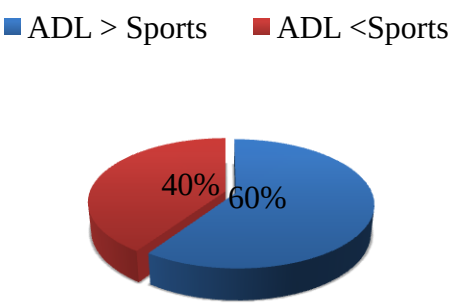
Comparison of ADL subscale score and Sports Subscale score

To find out the relationship between the level of functional ability and sports performance among the football players with CAI, ADL subscale score and sports subscale score had been compared. Based on the questionnaires collected from the football players (n=42), twenty-five (60%) of them self-reported their ADL subscale had higher score than the sports subscale while another seventeen (40%) of them had higher score in sports subscale than ADL subscale (Table 4 and Figure 3).

Table 4: Comparison of ADL Subscale score and Sports Subscale score

Categories	n	%
ADL Subscale score > Sports Subscale Score	25	60
ADL Subscale score < Sports Subscale Score	17	40
Total	42	100

Figure3: Pie Chart for Comparison of ADL Subscale score and Sports Subscale score



Correlation between the Level of Functional Ability (ADL subscale) and Sports Performance (Sports Subscale)

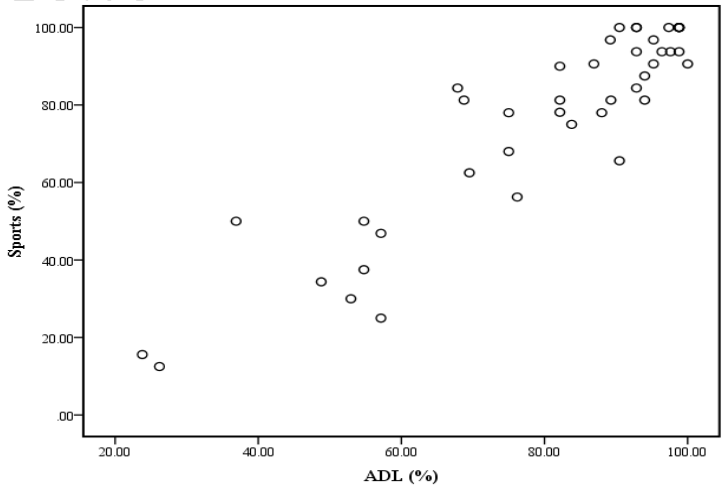
Based on Pearson's Correlation Coefficient analysis, the level of functional ability (ADL subscale) and sports performance (sports subscale) were significantly correlated to each other. Pearson's correlation was .92 and the *p*-value was 0.00 (p=.00). The correlation is significant at the .01 level with 2 tailed (p<.01). Table 5 showed the relationship between the ADL subscale and sports subscale. Figure 4 was a scatter plot which showed the positive linear relationship between both variables.

Table 5: Correlation between the Level of Functional Ability (ADL Subscale) and Sports Performance (Sports Subscale)

		Sports
ADL	Pearson Correlation	.92**
	Sig. (2-tailed)	.00
	N	42

** Correlation is significant at the level at the .01 level (2-tailed)

Figure 4: Scatter plot of ADL Subscale and Sports Subscale



DISCUSSION

The objective of this study was to determine the relationship between the level of functional ability and sports performance among the football players with CAI. CAI has been reported as high

recurrence rate injury along with residual impairments for up to 54% of individual[25]. Most of the studies have showed the consequences of CAI in sport performances of a football player such as decreased physical activity, lost game time and post-traumatic osteoarthritis[26]. However, the functional ability of a football player with CAI was not stressed on before the player is able to return to the sport. It was hypothesized in this study that there is a significant relationship between the functional ability and sport performances among the football players with CAI.

Among the study, forty two of football players (n=42) who aged 19.74±3.45 years old with the experiences of 5.47±3.17 years in football sport and had the duration of 6.10±4.48 months of the last ankle sprain were involved in this study. The football players (n=42) self completed the FAAM scale which included the ADL subscale and sport subscale based on their daily performance. It is important to know the relationship because a good sports performance is always come along with a strong foundation movement which is our functional movement[27]. Scores of each scale for each football players (n=42) were calculated and twenty-five (60%) of them had higher score in ADL than sports while seventeen (40%) of them had higher score in sports than ADL. By comparing the mean of both scales for all the football players (n=42), ADL subscale was 79.63±20.64 (%) while the sport subscale was 75.59±25.43 (%). This showed a strong positive relationship (r=.92) between the functional ability and sports performance. Therefore, with the strong evidence of p<.00 the null hypothesis is rejected and the main finding for this study is there is a significant relationship between the level of functional ability and sports performance among the football players with CAI. This indicates that when a player's ADL or functional ability is affected by CAI, the sports performance of this individual will be reduced at the same time.

With the history of previous lateral ankle sprain, it became a risk factor to have a recurrent sprain and develop CAI. It is because constantly overstretching of the ATFL may lead to associated lesions of the sensory nerves and affect the ankle joint kinematics[28]. As mentioned above, mechanical instability and functional instability can be seen in the CAI subject. Mechanical instability related to ligament laxity and it can lead to the limitation in ankle movement which may cause a reduction in functional ability. According to[28], overstretching or rupture of the ATFL may cause the malposition of lateral malleolus or subtalar instability which may cause limitation in dorsiflexion of the ankle. Ankle dorsiflexion has been marked as an important component in our daily activity such as walking and landing. Other study showed the limited range of motion (ROM) of ankle dorsiflexion may affect the biomechanical of the movement and the force that acts on the other joints such as hip and knee joint which will cause further injury on the other joints. Furthermore, functional instability which included the affected muscle structures and the sensory nerve will alter the level of functional ability also. Muscle reaction time may be delayed and ankle joint proprioception may be affected due to the trauma to the receptors on the ligaments. For example, delayed activation of peroneal longus and peroneus brevis muscle or reduced sensation at ankle joint may affect the quality of functional and sports movement like limited ROM or ankle weakness and this will increase the risk of recurrent ankle sprain. In addition, proprioception deficit has been proved that it is the main reason that affects the functional recovery and increases risk for long term ankle instability.

Based on the results, football players showed reduce in functional ability and most of them are having difficulty in sports performances at the same time. It is because a normal functional movement or ability like walking, climbing or squatting required a stable ankle joint to achieve an ideal movement while the perfect sports movements like jumping or landing depended on the good functional ability. According to[29], they believed that the quality of functional movement is one of the main components for an athlete to return to sports with same or higher level of performance. Rehabilitation like immobilization and training with sport-specific exercises were showed no best outcome for the CAI patient and it may resultin longer return to play time because the foundation of a movement is not treated. Therefore, this showed the important relationship between the functional ability and sports performance for a football player and the functional ability should be focused during the rehabilitation.

Clinical Implications

Ankle sprains during match play or during training are very common in sporting population. Repetitive sprain may lead to CAI. Individuals with CAI will experience the ankle instability as an impairment, activities like running or jumping will be affected and the participation restriction which is cessation of sport involvement.

Physiotherapy always focuses on the quality of sport performance when a football player comes for sport rehabilitation. Their goal is to return the player to the same or higher level of competition as before the injury by giving the sport-specific exercise and activities that challenge the injured structure without overstressing them. However, this study provides the information of how

important is the functional ability to the sport performances. The results is strong enough because the measurement tools of this study which is FAAM has highly recommended in assessing patient with foot and ankle injury[30].

Therefore, this study is a framework for physiotherapy to plan a best treatment or more structured rehabilitation for the CAI football players based on their common activity limitation which can help in improving their sports performance.

LIMITATION

There were few limitations in this study. The first limitation was gender. Although other study has mentioned that female was significant higher risk in ankle sprain than male but there was no female involved in this study because there was limited female football players from the invited football academy. Future study may include the female player in order to get more understanding about the CAI and help to improve the rehabilitation.

Second limitation was the sample size. Due to lack of data of the total number of football players in Kuala Lumpur and the players who involved in CAI, the population for this study was set in fifty people and consequently the sample size for this study became small. It may reduce the statistical power of the results. Therefore, more sample or larger sample sizes are recommended in future study to increase the reliability of the results.

Next limitation was there was no any examination like physical testing or special test were performed. The screening was based on how the football players answer the demographic data like age(years), gender, number of years in football sports and duration of last ankle sprain (months). Football players may tend to report or give wrong information to the researcher because they just want to be involved in this study. Last limitation was the training duration of the players and their endurance and speed were not covered in this study.

Conclusion

In conclusion, the null hypothesis of this study was rejected and the alternative hypothesis was accepted which is there is a significant relationship between the level of functional ability and sports performance among football players with CAI. Most of the football players presented with having reduction in sports performance when their functional ability was affected by CAI. This study provides good information for the football players or the physiotherapy and it may help them to have more awareness about the impact of CAI and may enhance the process of rehabilitation for the CAI football players.

Recommendation

This study was to determine the relationship between the level of functional ability and sports performance among football player with CAI. Further studies are suggested to investigate the effect of CAI on one particular functional movement or specific sport technique such as running or cutting in lateral movement in order to have more understanding about the change of the biomechanics or the joint kinematics of a CAI subject. It can be done for other population like tennis players. Besides, studies about the relationship between the training duration and performance among the football players with CAI can performed because training duration was considered as one of the important factors that may affect their functional ability or sports performance. Endurance and speed of football players or other sports players with CAI can be identified in future studies. The most important study is how to prevent further injury in CAI individual during the daily activity and sports because it may help to reduce the rate of recurrent and enhance the quality of movement. All of these finding will give benefit in future sport rehabilitation.

REFERENCES

1. Mandarakas, M., Pourkazemi, F., Sman, A., Burns, J., & Hiller, C. E. (2014). Systematic review of chronic ankle instability in children. *Journal of foot and ankle research*, *7*(1), 1-10.
2. Attenborough, A. S., Hiller, C. E., Smith, R. M., Stuelcken, M., Greene, A., & Sinclair, P. J. (2014). Chronic ankle instability in sporting populations. *Sports Medicine*, *44*(11), 1545-1556.
3. Vereijken, A. J. (2012). *Risk factors for ankle sprain injury in male amateur soccer players: a prospective cohort study* (Master's thesis).
4. Nery, C., Raduan, F., & Baumfeld, D. (2016). Foot and ankle injuries in professional soccer players: diagnosis, treatment, and expectations. *Foot and ankle clinics*, *21*(2), 391-403.
5. Walls, R. J., Ross, K. A., Fraser, E. J., Hodgkins, C. W., Smyth, N. A., Egan, C. J., ... & Kennedy, J. G. (2016). Football injuries of the ankle: A review of injury mechanisms, diagnosis and management. *World journal of orthopedics*, *7*(1), 8.
6. Doherty, C., Delahunt, E., Caulfield, B., Hertel, J., Ryan, J., & Bleakley, C. (2014). The incidence and prevalence of ankle sprain injury: a systematic review and meta-analysis of prospective epidemiological studies. *Sports medicine*, *44*(1), 123-140.

7. Bleakley, C. M., O'Connor, S. R., Tully, M. A., Rocke, L. G., MacAuley, D. C., Bradbury, I., ... & McDonough, S. M. (2010). Effect of accelerated rehabilitation on function after ankle sprain: randomised controlled trial. *Bmj*, *340*.
8. Fong, D. T., Chan, Y. Y., Mok, K. M., Yung, P. S., & Chan, K. M. (2009). Understanding acute ankle ligamentous sprain injury in sports. *BMC Sports Science, Medicine and Rehabilitation*, *1*(1), 1-14.
9. Thompson, C., Schabrun, S., Romero, R., Bialocerkowski, A., & Marshall, P. (2016). Factors contributing to chronic ankle instability: a protocol for a systematic review of systematic reviews. *Systematic reviews*, *5*(1), 1-6.
10. Kofotolis, N., & Kellis, E. (2007). Ankle sprain injuries: a 2-year prospective cohort study in female Greek professional basketball players. *Journal of athletic training*, *42*(3), 388.
11. Hubbard, T. J., Kramer, L. C., Denegar, C. R., & Hertel, J. (2007). Contributing factors to chronic ankle instability. *Foot & ankle international*, *28*(3), 343-354.
12. Halabchi, F., Angoorani, H., Mirshahi, M., Shahi, M. H. P., & Mansournia, M. A. (2016). The prevalence of selected intrinsic risk factors for ankle sprain among elite football and basketball players. *Asian journal of sports medicine*, *7*(3).
13. Childs, J. (2016). The Effects of a Lateral Ankle Sprain on Balance and Jumping Performance in Varsity Athletes.
14. Memel, D. (2008). Assessing functional ability is important.
15. Paine, R., Chicas, E., Bailey, L., Hariri, T., & Lowe, W. (2015). strength & functional assessment of healthy high school football players: analysis of skilled and non-skilled positions. *International journal of sports physical therapy*, *10*(6), 850.
16. Wong, P., & Hong, Y. (2005). Soccer injury in the lower extremities. *British journal of sports medicine*, *39*(8), 473-482.
17. Guillo, S., Bauer, T., Lee, J. W., Takao, M., Kong, S. W., Stone, J. W., ... & Calder, J. (2013). Consensus in chronic ankle instability: aetiology, assessment, surgical indications and place for arthroscopy. *Orthopaedics & traumatology: surgery & research*, *99*(8), S411-S419.
18. Reiman, M. P., & Manske, R. C. (2011). The assessment of function: How is it measured? A clinical perspective. *Journal of Manual & Manipulative Therapy*, *19*(2), 91-99.
19. Webster, K. A., & Gribble, P. A. (2010). Functional rehabilitation interventions for chronic ankle instability: a systematic review. *Journal of sport rehabilitation*, *19*(1), 98-114.
20. Hiller, C. E., Kilbreath, S. L., & Refshauge, K. M. (2011). Chronic ankle instability: evolution of the model. *Journal of athletic training*, *46*(2), 133-141.
21. Hoch, M. C., Hoch, J. M., & Houston, M. N. (2016). Development of the quick-FAAM: a preliminary shortened version of the foot andankle ability measure for chronic ankle instability. *International Journal of Athletic Therapy and Training*, *21*(4), 45-50.
22. Houston, M. N., McKeon, P. O., & Hoch, M. C. (2013). Foot and Ankle Ability Measure scores in patients with chronic ankle instability following joint mobilization. *International Journal of Athletic Therapy and Training*, *18*(2), 4-7.
23. Kumar, R. (2018). *Research methodology: A step-by-step guide for beginners*. Sage.
24. Balch, D., Blanck, R., & Balch, D. H. (2016). Rubrics--Sharing the Rules of the Game. *Journal of Instructional Research*, *5*, 19-49.
25. Pourkazemi, F., Hiller, C. E., Raymond, J., Nightingale, E. J., & Refshauge, K. M. (2014). Predictors of chronic ankle instability after an index lateral ankle sprain: a systematic review. *Journal of Science and Medicine in Sport*, *17*(6), 568-573.
26. McCann, R. S. (2017). Prediction of Acute and Recurrent Ankle Sprains in Athletes.
27. McKeown, I., Taylor-McKeown, K., Woods, C., & Ball, N. (2014). Athletic ability assessment: a movement assessment protocol for athletes. *International journal of sports physical therapy*, *9*(7), 862.
28. Bonnel, F. T. E. M. C. T. Y., Toullec, E., Mabit, C., & Tourné, Y. (2010). Chronic ankle instability: biomechanics and pathomechanics of ligaments injury and associated lesions. *Orthopaedics & traumatology: Surgery & research*, *96*(4), 424-432.
29. Mattacola, C. G., & Dwyer, M. K. (2002). Rehabilitation of the ankle after acute sprain or chronic instability. *Journal of athletic training*, *37*(4), 413.
30. Eechaute, C., Vaes, P., Van Aerschot, L., Asman, S., & Duquet, W. (2007). The clinimetric qualities of patient-assessed instruments for measuring chronic ankle instability: a systematic review. *BMC musculoskeletal disorders*, *8*(1), 1-11.