

Update: Warm-Up activities in Competitive Sports: the German Federal Basketball League and The European Champions League

Landwehr Hanno¹ and Kaeding Tobias Stephan^{2*}

¹Institute of Sport Science, Carl von Ossietzky University Oldenburg, Germany

²Institute of Sport Science, Department of Sport and Health, Leibniz University Hannover, Germany

***Corresponding Author:** Kaeding Tobias Stephan, Institute of Sport Science, Department of Sport and Health, Leibniz University Hannover, Germany.

Received: July 05, 2019; **Published:** August 16, 2019

Abstract

The aim of this follow-up study was to confirm and expand the results from our further study on warm-up activities in competitive sports. This study examined the warm-up activities and routines of professional basketball teams of the German federal basketball league (BBL) and the European Champions League (CL). In 17 matches 18 teams were observed. 12 of those matches took place in the BBL whereas 5 matches took place in the CL. During the observation every warm-up activity of all athletes were observed from 70 minutes before the match started until 30 minutes after the match has ended.

The results of this study confirms those of the former study done in 2018. The teams of the German federal basketball league and also those of the European Champions League are using a wide range of warm-up activities, including stretching, either dynamic or static, running exercises, throwing the ball and other activities. Activities using the ball were less common. Our results confirm the discrepancy between what the teams are actually doing and what research suggests. The athletes should warm-up in a way that prepares them for the upcoming match by combining a minimum risk to get injured with the best performance. This is not the case in most observed teams, were players use out-dated warm-up techniques. The biggest concern is the fact that teams still use static stretching as part of the warm-up strategy, which is confirmed unsuitable by research since years. Besides, players and teams do not put an emphasis on activities that simulate the upcoming stress that occurs during the match.

The results raise the question why professional basketball teams do not use scientific findings to improve their warm-up strategies although they can help optimizing the performance of their players and at the same time reducing the risk of injury. Further studies in this field are suggested investigating the reasons for the discrepancy between using the finding of research and what is done in practice.

Keywords: *Competitive Sports; Basketball; Warm-Up Activities; Stretching; Effects; Injury Prevention*

Abbreviations

BBL: (German) Basketball-Bundesliga; CL: European Champions League

Introduction

Improving the performance of athletes is the key to success in competitive sports. The standard routines of professional sports teams as practiced in the last decades are out-of-date and should be improved in accordance with the latest scientific research. Surprisingly,

most of the professional teams do not seem to follow science-based suggestions as concluded in studies done by Landwehr and Kaeding (2018) [1] in professional basketball and by Akdag (2014) [2] in German soccer. Even worse, they still reproduce routines which have been practiced for decades and are proven to be outdated and, in the worst case, could rise the injury risk of the athletes. To examine the actual state of warm-up activities and routines employed by professional basketball teams, a study in the highest Basketball league in Germany, the Basketball Bundesliga (BBL), was done to prove the assumption that most activities done for warming up are far from perfect and need to be improved [1]. As an example, the teams and players use static stretching or exercises not adequate in relation to the strain the players will experience during the match. Those exercises do not help the players to prepare for the match considering physical capacity and performance. Unfortunately, the aforementioned study only managed to observe eight out of the 18 teams in the BBL. To confirm the results of the study by observing teams during the season of 2016/2017, a follow-up-study was conducted. In this study, we observed more teams of the BBL as well as teams playing in the European Champions League (CL) to compare the results of the German teams with the top teams in Europe. The aim of the study was to confirm the results of our first study and to get a wider (European) perspective, making it possible to compare teams from a national league to teams from all over Europe.

Materials and Methods

We used the identical methods regarding the observation of the teams as in the previous study, details can be found in Landwehr and Kaeding 2018. During the 2017/2018 season, altogether 18 teams of the BBL and the CL were observed between the 8th of October 2017 and the 27th of April 2018. The observations took place at the EWE Arena Oldenburg, where the EWE Baskets Oldenburg play their home games. This is why the EWE Baskets Oldenburg participated in all of the observed games. 17 matches were observed, 12 of which took place in the BBL and 5 took place in the European Champions League (CL). Therefore, 13 of the observed teams (18) were German teams. We observed the teams Science City Jena, medi Bayreuth, Ratiopharm Ulm, Giessen 46ers, Alba Berlin, Brose Bamberg, Basketball Löwen Braunschweig, Telekom Baskets Bonn, Oettinger Rockets Gotha, Eisbären Bremerhaven, FC Bayern München, BG Göttingen and the EWE Baskets Oldenburg. The four teams Oldenburg played against in the Champions League are Enisey Krasnoyarsk, Ucam Murcia, Juventus Utena, AS Monaco and Hapoel Unet Holon.

During every observation, the observer sat in the press area next to the playing field. The observation always took place from 30 minutes before the game started until 30 minutes after the match ended. Every warm-up and cool-down exercise executed in this time slot was observed and recorded to get a decent picture of the warm-up activities of each team and each athlete.

The observation was done using a specific sheet already used in the former study. The results are separated into five categories: Stretching (static), stretching (dynamic), running exercises, exercises with the ball, throwing the basketball and other exercises.

Results

The results are presented in two tables. The first table shows exercises done by the teams of the BBL and the second table shows the warm-up activities done by the teams playing in the CL. In both tables the EWE Baskets Oldenburg are included.

Type	Type of Exercise	70 - 30 minutes pre-match (all 13 teams)	30 - 10 minutes pre-match (all 13 teams)
A1	Stretching (static)	10	2
A2	Stretching (dynamic)	7	3
B	Running Exercises	0	13
C	Exercises with the Ball	0	2
D	Throwing the Basketball	13	13
E	Other	11	1

Table 1: Number of teams in the BBL performing warm-up activities of different categories as preparation for the basketball match during the time slots 70 minutes until 30 minutes and 30 minutes until 10 minutes before the match

Teams of the basketball bundesliga (BBL)

The following results represent the warm-up activities done by the observed 13 teams of the BBL (the BBL contains 18 teams). During the first time slot (70 - 30 minutes pre-match), most of the teams used static stretching (A1). In 8 teams, 1-5 players did exercises on their own, whereas in one team, namely Ratiopharm Ulm, all players did those exercises together. Dynamic stretching (A2) was also used in this time slot but only players of 7 teams did such exercises. In 6 teams there were 1 - 3 players stretching dynamically on their own. Again, Ratiopharm Ulm did such stretching in a group setting.

In the first time slot, 70 - 30 minutes pre-match, no team used running exercises (B) or exercises with the ball (C) to warm up the athletes. Instead, each team (every 13 teams) or player threw the basketball on the basket (D). Nevertheless, we saw 5 teams in which only 5 - 6 players threw the basketball at the basket. We also noticed a huge amount of exercises falling in the category of Others (E). 11 teams did such exercises, namely strengthening exercises (9 teams) and exercises with a fascia roll (8 teams). In each case 1 - 4 players did such exercises.

During the second time slot (30 - 10 minutes pre-match), only 2 teams used static stretching (A1), namely Ratiopharm Ulm (half of the team) and Giessen 46ers (whole team). The number of teams that used dynamic stretching (A2) also went down to 3 teams (Ratiopharm Ulm, Brose Bamberg, BG Göttingen).

Therefore, the teams (all of them) used other exercises in this period, like running exercises (B). All teams seem to have a specific routine. Two teams, namely Bonn and Erfurt, did exercises with the ball (C). Again, every team also used exercises involving throwing the basketball (D). One team used a special coordination ladder (E) which was used in running exercises.

Type	Type of Exercise	70 - 30 minutes pre-match (from 6 teams)	30 - 10 minutes pre-match (from 6 teams)
A1	Stretching (static)	4	1
A2	Stretching (dynamic)	1	2
B	Running Exercises	1	5
C	Exercises with the Ball	0	2
D	Throwing the Basketball	6	6
E	Other	2	0

Table 2: Number of teams in the CL performing warm-up activities of different categories as preparation for the basketball match during the time slots 70 minutes until 30 minutes and 30 minutes until 10 minutes before the match.

Teams of the European champions league (CL)

The following results represent the warm-up activities done by the 6 observed teams playing in the CL (the CL contains 32 teams). During the first time slot (70 - 30 minutes pre-match), players from 4 teams used static stretching (A1) as a preparation, but only 1 - 3 players did such exercises on their own. Only in one team a player did some dynamic stretching (A2). One team did a running routine (B) in the first time slot (UCAM Murcia) and players from two teams did strengthening exercises (E). In every team, all players threw the basketball on the basket (D).

During the second time slot (30 - 10 minutes pre-match), there were only two players from one team (UNET Holon) doing static stretching (A1). Two teams used dynamic stretching (A2), whereas the whole team from Monaco did those exercises and only two players from UCAM Holon. In the second time slot, the rest of the team did their running exercises (B) which were all included in a routine. Two teams did exercises with the ball (C), namely Juventus Utena and UCAM Murcia. In both teams all players did those exercises together in a group setting. Again, every team threw the basketball at the basket (D). No other exercises were observed.

The potential available time for warm-up activities during the game and in the halftime should not be neglected. The two tables do not include these timeslots since in both leagues (BBL and CL) neither team nor players did warm-up exercises while sitting on the bench, for example prior to a substitution. In every team and every match, the players always entered the match “cold” when they came into the game from the bench. During halftime, every team went into the locker rooms and came back about two or three minutes prior to the start of the second half. In this short time slot, the teams threw the basketball at the basket in lay-up exercises. We also assume that no warm-up activities were done in the locker room.

Discussion

Since this study is a follow-up to the aforementioned study by Landwehr and Kaeding (2018) [1] the discussion will compare the results of those two studies. The following table shows the results of the study by Landwehr and Kaeding (2018) [1].

Type	Type of Exercise	70 - 30 minutes pre-match	30 - 10 minutes pre-match
A1	Stretching (static)	7	3
A2	Stretching (dynamic)	7	6
B	Running Exercises	1	6
C	Exercises with the Ball	1	4
D	Throwing the Basketball	7	8
E	Other	5	0

Table 3: Number of teams performing warm-up activities of different categories as preparation for the basketball match during the time slots 70 - 30 and 30 - 10 minutes pre-match [1].

The results of the follow-up study are similar to those of our former study. Comparing the results of the clubs from the BBL, it is obvious that during the first time slot (70 - 30 minutes pre-match) most teams include exercises involving static and dynamic stretching in their routine. Mostly, teams or players throw the ball at the basket. In this period before the game, the players seem to prepare themselves for the game mostly on their own. There are no exercises done in a group setting and therefore no specific plan seems to be followed done. The only significant difference between our two studies is the fact that even in the second time slot (30 - 10 minutes pre-match) most of the teams use static (3) and dynamic stretching (6) for their warm-up compared to the former study, when this was not the case. Nevertheless, the use of those exercises is limited to the previous study and all the players participated in a warm-up routine in a group setting. In both studies, exercises with the ball (C) were used more often, but still most teams did not use such exercises. In both studies, exercises of the category Other (E) were not seen during the second time slot. It seems that teams and players concentrate on classic standard warm-up routines in a group setting, containing stretching exercises and throwing the basketball at the basket.

To prove the fact that such warm-up routines and exercises are not only a field of potential improvement among German teams, this study aimed at observing a few European teams to get a glimpse at routines used in other countries. In the European Champions League the best European teams play against each other. Therefore, we conclude, that they must have optimised their warm-up routines to ensure the best possible performance of their athletes. We saw that the patterns of the warm-up routines are the same as in the BBL. Players also use static stretching and other exercises (E) in the first time slot. All players did such exercises on their own with no specific recognizable plan. Only in the second time-slot, teams could be observed doing routines together and throwing the ball at the basket. The only difference between the two leagues seems to be the fact that 2 of the 6 teams observed in the European Champions League are doing exercises with the ball (C) that represent the strain the players will experience during the game. In the BBL, also only 2 of the 13 teams observed use such exercises. The percentage of teams using such exercises seems to be higher in the CL. Nevertheless, it has to be pointed out that even those exercises (C) done by the teams did not simulate the same amount of strain and intensity the players would experience in a match.

Conclusion

The fact that both studies share similar results regarding the exercises done by teams and players proves that the warm-up routines of professional basketball teams are out-dated. The coaches and players do not seem to acknowledge the importance of an optimized warm-up routine. The proven fact that no static stretching should be incorporated into warm-up routines still has not reached competitive sports. In addition, the amount of exercises that demand the same kind of intensity as the athletes will experience in a competition has to be higher. By optimizing warm-up routines, injuries might be prevented, and the players do not have to overexert. The fact that no (re-) warm-up exercises are done during halftime and when sitting on the bench is problematic. It is highly recommended that players do such exercises to achieve the best possible performance level and a maximised injury prevention. The time sitting on the bench even seems to be crucial since the players often enter a game at a point of high intensity. Our results also raise the question if warm-up routines before training sessions are out-dated as well.

Acknowledgements

The authors thank the EWE Baskets Oldenburg for their support.

Conflict of Interest

The authors declare that there are no conflicts of interest.

Bibliography

1. Kaeding T and Landwehr H. "Warm-Up Activities in Competitive Sports: An Observational Study in the German Federal Basketball League". *EC Orthopaedics* 9.3 (2018): 100-104.
2. Akdag M. "'Warm-up and Cool-down". In der Fußballbundesliga. Eine Analyse des Bewegungsverhaltens der Startformationsfeldspieler". Annual conference of the dvs-kommission Fußball in Erlangen (2014).

Volume 10 Issue 9 September 2019

©All rights reserved by Landwehr Hanno and Kaeding Tobias Stephan.