PHYSICAL PERFORMANCE & WARM UP

FIBA OCEANIA JANUARY 2016
PHYSICAL ABILITIES FOR BASKETBALL REFEREES

SPEED
(Sprints)

STRENGTH
(Physical appearance)

ENDURANCE
(Recovery)

FLEXIBILITY
(Injury prevention)
FIBA REFEREE DPT TRAINING MANUAL 2.0

MANUAL FOR BASKETBALL REFEREES’ PHYSICAL TRAINING
**FIBA TRAINING PLANS FOR COMPETITIONS**

**Calendar**

April 2015

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**Training**

**Same**

**Physical Control** = FIBA Referees' Fitness Test. Run as many laps as possible, could be less or more than normal FIBA standard (female 66 & male 86). This is not a pass/fail test; this is an exercise where you can determine your existing fitness level with performing your maximum effort.
2015 COMPETITIONS

848 GAMES

174 REFEREES

8 TOURNAMENTS ANALYZED

EUROBASKET WOMEN
WC U19 MEN
WC U19 WOMEN
AFROBASKET MEN
FIBA AMERICAS
EUROBASKET
AFROBASKET WOMEN
DATA ANALYSIS

WE MADE THE ANALYSIS FROM DIFFERENT POINT OF VIEW

✓ GENDER (MALE, FEMALE)
✓ AGE GROUP (20-29, 30-39, 40-50)
✓ FIBA ZONE (AFRICA, AMERICAS, ASIA, EUROPE, OCEANIA)
✓ ROUND (1ST, FINAL)
✓ COMPETITION (WC U19 MEN, WC U19 WOMEN, AFROBASKET MEN, FIBA AMERICAS, EUROBASKET, AFROBASKET WOMEN)
PROTOCOLS

WE COLLECTED DATA FROM;

1- FITNESS TEST

2- BODY MEASUREMENTS

3- OFFICIAL GAMES
133 REFEREES DID THE FIBA FITNESS TEST
7 TOURNAMENTS

MOST IMPORTANT INFORMATION
RECOVERY INDEX (1´ AND 3´ AFTER THE TEST)
174 referees were measured with a body composition monitor (OMRON) in 8 tournaments

- HEIGHT
- WEIGHT
- BMI (BODY MASS INDEX)
- BODY FAT %

Every referee was analyzed during the 1st phase of the tournament.
MAIN FINDINGS:
ALL OF THEM HAVE BODY FAT % LOWER THAN 25% EXCEPT AFROBASKET WOMEN

U19 MEN, AMERICAS MEN AND AFROBASKET MEN BMI HIGHER THAN 25 (OVERWEIGHT)
18.5-24.9 HEALTHY
>25 OVERWEIGHT

IN FEMALE NONE OF THEM OVER 25 IN BMI
IN MALE 3 ZONES OVER 25 (OVERWEIGHT): AFRICA, AMERICAS AND ASIA. NONE IN 2014
MALE ARE MORE OVERWEIGHT THAN FEMALE (SPECIALLY AFRICA, AMERICAS AND ASIA)
848 GAMES IN 7 TOURNAMENTS
REFEREES WERE USING A PULSOMETER (POLAR TEAM PRO) DURING THE GAMES
### Game Report

**Jugadores**

<table>
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<tr>
<th>Jugador</th>
<th>FC Med [%]</th>
<th>FC Mín [%]</th>
<th>FC Máx [%]</th>
<th>Distancia</th>
<th>Sprints</th>
<th>Velocidad Med [%]</th>
<th>Velocidad Máx</th>
<th>Zonas de FC</th>
<th>Zonas de Velocidad</th>
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<tr>
<td>20 Thomas Short</td>
<td>65</td>
<td>43</td>
<td>86</td>
<td>4.31</td>
<td>0</td>
<td>1.9</td>
<td>24.2</td>
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**Diagrama de FC [%]**

- 40%
- 50%
- 60%
- 70%
- 80%

Tiempo: 00:00:24 a 02:02:24
**Main Findings:**

*In all of them are more than 50% of the time in speed zone 1 (3-7 km/h): walking*

**Distance Covered:** Higher EuroBasket Men & Afrobasket Men (4918 and 5019 m.); lower Afrobasket Women (4386 m) 11-13% lower

**Maximum Speed** between 20-23 km/h (around 1-2% of the time)

**Higher Intensity** EuroBasket Men (93% max HR) and lower Afrobasket Men (86%)

**Female 20 km/h and Male 22 km/h Maximum Speed** (9% faster)
**Female 4478 m and Male 4743m covered in the game** (6% more for Male)
**Intensity in the game** 3% higher for Male (89% vs 92%)
CONCLUSIONS AND PRACTICAL APPLICATIONS

- In the fitness test the referees reached a maximum speed of 15-16 km/h but during the game the reached a maximum speed of 20-23 km/h.
  Fitness test is a good training but not enough

- Male are more overweight than female (specially Africa, Americas and Asia)

- In all of the competitions are more than 50% of the time in speed zone 1 (3-7 km/h) : walking. Should we change the perspective of the endurance training. Maximum speed between 20-23 km/h (around 1-2% of the time)
  New perspective in speed training
CONCLUSIONS AND PRACTICAL APPLICATIONS

- FEMALE 4478 M AND MALE 4743M COVERED IN THE GAME (6% MORE FOR MALE)
- FEMALE 20 KM/H AND MALE 22 KM/H MAXIMUM SPEED (9% FASTER)
- STILL SOME DIFFERENCES BETWEEN GENDERS

- DISTANCE COVERED, MAXIMUM SPEED AND SPEED ZONES ARE QUITE SIMILAR IN BOTH ROUNDS
- 1ST ROUND A LITTLE BIT MORE INTENSE (91% VS 89%)
- MAYBE PSYCHOLOGICAL EFFECTS IN 1ST ROUND??

- BMI AND BODY FAT % HIGHER IN 2015, MORE FOCUS NEEDED IN NUTRITION??
COMPARATION WITH OTHER SPORTS

FOOTBALL (NO DIFFERENCES BETWEEN HALVES)
DISTANCE COVERED: 5219 M (NO DIFFERENCES BETWEEN HALVES)
MAXIMUM SPEED: 19.3 KM/H
AVERAGE SPEED: 6.6 KM/H

RUGBY (DIFFERENCES BETWEEN HALVES)
DISTANCE COVERED: 6322 M
TIME IN SPEED ZONES: 37.3% WAS SPENT WALKING, 24.1% JOGGING, 10.4% RUNNING AT LOW INTENSITY, 17.6% AT MEDIUM INTENSITY, 5.5 AT HIGH INTENSITY, AND 5.2% AT SPRINT
1- NEW FOCUS IN ENDURANCE AND SPEED TRAINING BECAUSE OF THE 2015 RESULTS

2- SPECIFIC TRAINING TO IMPROVE THEIR PERFORMANCE ON THE COURT

3- SPECIFIC ACTIONS IN THE DIFFERENT ZONES FROM THESE RESULTS

4- NUTRITIONAL STUDY NEEDED TO IMPROVE THEIR BODY COMPOSITION

5- IMPROVE WARM UP PROTOCOL

6- DEEPER STUDY OF THE GAMES WITH THE NEW TECHNOLOGIES
10 referees (5 male and 5 female) were selected to follow a specific protocol at the same time that they were realizing the training plan of their respective Tournaments.
INNOVATION & FUTURE
THE IDEA OF THIS PROJECT WAS TO EVALUATE IF A SPECIFIC WARM UP WILL HELPS IN OUR LATER PHYSICAL PERFORMANCE ON THE COURT.

2014 SUMMER TOURNAMENTS SHOWED THAT SOME OF THE REFEREES DID NOT EXECUTE A PROPER WARM UP AND ALSO WE FOUND THAT Q1 AND Q2 WERE HIGHER IN INTENSITY THAN Q3 AND Q4.
RESULTS

New Warm up protocol

Regular Warm up protocol
2 referees/same game

Similar Recovery during the whole game (1st & 2nd half)

Most intense point in the warm up in both referees
20°-18° coming out to the basketball court, going to the table officials to leave water bottles and to check everything.

18°-13°

4-5 Skipping (up knees and kicking backwards)
4-5 karaoke + sprint
4-5 running the basketball court (BASELINE TO BASELINE 3 times) increasing the intensity EVERYTIME
Standing activation exercises (EXERCISES STANDING IN THE HALF COURT)
Active stretching in the half court
WARM UP TIMELINE

13’-8’
4-5 defensive steps FROM BASELINE to half court
4-5 turn around + sprint
Standing activation exercises
Active stretching in the half court
WATER INTAKE (IF NEEDED)

8’-6”30”
3 suicides to half court
3 sprints (non looking sprints)
Standing activation exercises
Active stretching in the half court
WARM UP TIMELINE

6’30”-6” water intake

6’-3’ teams presentation

3’-1’30” last part of the warm up
2 sprints FULL COURT (submaximal intensity)
3 short sprints FROM BASELINE TO HALF COURT (turn around + sprint)

1’30”-30” water intake + euroleague anthem (JUST IN EUROLEAGUE GAMES)

0” beginning of the game
More intensity and more similar heart rate than the intensity found in the different quarters. Also in % of their max hr

Similar heart rate % in warm up and in the game (that’s what we were looking for)

Green: before

Yellow: after

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<thead>
<tr>
<th></th>
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<th>Q1</th>
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<td>92,41</td>
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<td>Yellow</td>
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<td>90,11</td>
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SPECIFIC TRAINING: EXAMPLES

TURN AND SPRINT

NON LOOKING SPRINTS