

EVALUATION OF STRESS CONDITIONS IN TRAINING, BEFORE AND AFTER GAMES IN JAPANESE MALE AND FEMALE SOCCER PLAYERS

MITSUHIRO MATSUMOTO, DIETER TEIPEL,
YOSHIO SUGIYAMA, KANSHI UEMUKAI

日本サッカー選手におけるトレーニング中及び試合前後のストレス状況の評価

松本 光弘*, ディーター・タイペル*, 杉山 佳生**, 上向 貫志*

要 約

本研究では、サッカーの練習中、及び試合前後にみられる様々なストレス状況に対するサッカー選手の評価が分析された。調査の対象は、400名の日本の男子、及び女子サッカー選手であった。

400名のサッカー選手は、練習中において、ただらした練習や能力を示す機会の少ないといった状況にストレスを感じていた。試合前においては、試合の直前に先発メンバーから外されることや、交通渋滞のため試合会場に到着が遅れること等の状況にストレスを感じていた。試合後の状況では、自分のミスによって負けることや、自分の怪我の状態が悪いことに気づくことなどに高いストレスを感じていた。

また、分析の結果、35のストレス状況のうち19の状況で男女間に有意な差が認められた。有意差の認められた19の状況のうち、男子選手が女子選手よりも高いストレスを感じていた状況は1つの状況であり、他の18状況では女子選手の方が高いストレスを感じていた。特に女子選手は、練習中では、チームメートの荒々しいプレーや監督からの高い期待などに、また試合前では、相手チームの最も巧い選手をマークしなければならないことやウォーミングアップ時に相手観衆から罵られることなど、同様に試合後では、自分のミスによって負けることやプレーの出来についてネガティブな評価を受けることなどに男子選手よりも高いストレスを感じていた。

女子選手は、様々なストレス状況に対して、対処しうるだけの多くの経験を積むべきであろう。

I. INTRODUCTION

The education of soccer players consists of a long-term process in shaping physical abili-

ties, learning technical and tactical skills in training and applying them in games. This educational process also includes the teaching and acquisition of specific cognitive, motiva-

Key words : Evaluation, Stress conditions, Training and game, Japanese male and female soccer players

*筑波大学体育科学系

**筑波大学体育科学研究科

tional and emotional skills. These skills of the players, among other aspects, also refer to the perception, appraisal and interpretation of and coping with various specific situations in training, before, during and after games in a performance enhancing or decreasing way.

Bauer and Ueberle (1984) ¹⁾ pointed out that the task of the coach in training was to guide, direct and observe the various exercises of the players. Before the game the coach should motivate the players individually and regulate their activation levels. After the game the coach should conduct an adequate general causal attribution of the win, tie or loss as well as a cautious individual performance evaluation.

Teipel (1992) ⁶⁾ investigated the attitudes of 230 German male and female soccer players concerning situations during training, before and after games. High evaluations of stress were found during training in situations of lacking motivation of the teammates, conflicts between players and coaches, conflicts between players and teammates and inadequate preparation of the team for the next game. Before the game the highest assessments of stress were detected in conditions of substitution shortly before the start of the game and of feeling not fit during warm-up. After the game highly stressful situations were when the loss was caused by an error of the player and when the injury came out to be worse than expected. The female soccer players rated most of the conditions during training, before and after the game as more stressful than the male soccer players. These higher stress ratings were obviously due to the lower degree of soccer experience in the female than in the male players.

In this exploratory study the evaluations of

stress conditions in training, before and after games are analysed

— in the whole group of 400 Japanese soccer players,

— in comparison of male and female Japanese soccer players.

II. METHOD

A specific questionnaire was applied for the assessment of stress conditions in training, before and after the game. The situations in training consisted of 15 items and the conditions before as well as after the game comprised each 10 items. These game situations were answered on a 7-point scale from '1 = not stressful' to '7 = very stressful'.

400 Japanese male and female soccer players took part in the study. The group of the 246 male players consisted of 70 players from the professional league and 176 players from university teams from high to low level. The 154 female players were active in university teams from high to low level.

The average age of the male soccer players was 21.53 years and of the female soccer players 20.12 years. Thus the male soccer players were almost 1.5 years older than the female soccer players. The male soccer players were with an average experience of 11.23 years by far more experienced than the female soccer players with only 5.16 years.

The statistical analysis of the assessments was conducted by means of descriptive and inferential procedures. The comparison of the evaluations of the stress conditions between male and female soccer players was done by the analysis of variance.

III. RESULTS

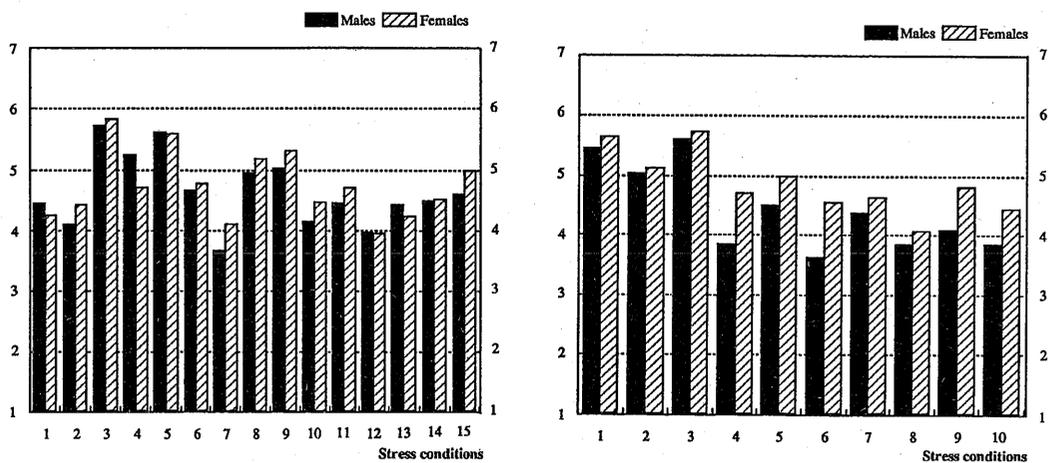
The assessments of the specific stress conditions are described in the whole group of the 400 Japanese soccer players and in terms of the comparison between 246 Japanese male and 154 female soccer players. The results of the evaluations concerning the stress condi-

tions in training, before and after the game are presented in Table 1 and in Figure 1.

In the description of the findings only the label of male players (i.e. he-his) are mentioned for reasons of simplification, but it must be assured that the formulation also applied to the female players (i.e. she-her).

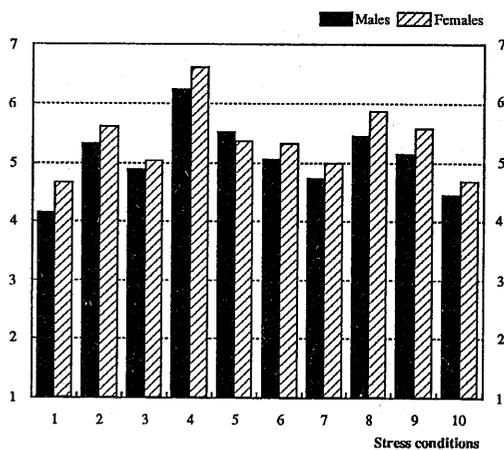
Table 1 : Comparison of the evaluations of stress conditions in training, before and after games in 246 male and 154 female Japanese soccer players ('1 = not stressful' to '7 = very stressful')

	Male players		Female players		F-value	Sig.
	M	SD	M	SD		
In training						
1. I regard some exercises as ineffective.	4.45	1.32	4.25	1.47	1.93	.1646
2. Some teammates play aggressively.	4.10	1.42	4.42	1.44	4.60	.0324
3. Some boring exercises are conducted.	5.72	1.24	5.83	1.13	0.70	.4030
4. The field conditions are bad.	5.25	1.23	4.70	1.31	17.79	.0000
5. I am not challenged up to my abilities.	5.63	1.20	5.60	1.23	0.07	.7843
6. There is not enough training.	4.66	1.38	4.78	1.40	0.69	.4062
7. The coach expects too high performances from me.	3.67	1.41	4.11	1.53	8.68	.0034
8. My teammates do not have the adequate attitude.	4.95	1.42	5.19	1.44	2.64	.1045
9. The atmosphere in training is tense.	5.03	1.36	5.31	1.32	3.92	.0484
10. There are conflicts between me and the coach.	4.15	1.82	4.46	1.76	2.91	.0885
11. There are conflicts between me and my teammates.	4.44	1.77	4.70	1.89	1.93	.1655
12. The training is too hard.	3.98	1.58	3.95	1.70	0.03	.8430
13. The training requires too much time.	4.42	1.61	4.23	1.71	1.29	.2564
14. The final training is too intensive.	4.50	1.70	4.51	1.80	0.00	.9423
15. The coach does not prepare the team adequately for the next game.	4.61	1.75	4.98	1.63	4.26	.0394
Before the game						
1. The team arrives just shortly before the start of the game because of traffic jams.	5.46	1.39	5.65	1.27	1.84	.1749
2. During warming up I do not feel fit.	5.03	1.23	5.12	1.29	0.56	.4523
3. I am taken from the team shortly before the game.	5.61	1.42	5.74	1.31	0.79	.3737
4. I am insulted by opponent spectators during warming up.	3.84	1.62	4.70	1.48	28.23	.0000
5. I must play on a position which is not appropriate for me.	4.51	1.53	4.99	1.33	10.36	.0014
6. I must play against the best player of the opponent.	3.62	1.56	4.55	1.60	32.60	.0000
7. In my opinion the coach selected a wrong tactic.	4.37	1.55	4.64	1.44	2.99	.0841
8. The opponents are known for hard and physical playing.	3.84	1.36	4.06	1.56	2.10	.1477
9. A referee acts with whom I had problems before.	4.10	1.56	4.82	1.46	21.21	.0000
10. The expectations of the club presidency are unrealistically high.	3.86	1.53	4.44	1.48	14.15	.0002
After the game						
1. The spectators whistle because of our poor performance.	4.16	1.37	4.66	1.44	12.12	.0006
2. I am criticised by my teammates despite my good performance.	5.33	1.21	5.61	1.19	4.82	.0285
3. The coach attributes the loss to lacking motivation.	4.89	1.36	5.03	1.37	1.05	.3041
4. I caused the loss by a misbehavior.	6.24	1.07	6.62	0.71	14.67	.0001
5. The coach does not give any explanation for my substitution.	5.51	1.32	5.37	1.38	1.05	.3051
6. We lost because of poor performance of the referee.	5.06	1.48	5.33	1.50	3.17	.0754
7. The poor performance was caused by lacking effort of some teammates.	4.72	1.36	4.98	1.29	3.54	.0603
8. My injury turns out to be worse than expected.	5.46	1.34	5.86	1.19	9.07	.0028
9. After a loss there is lack of cohesion on the team.	5.15	1.24	5.58	1.24	11.28	.0009
10. The press evaluates our performance inadequately negatively.	4.44	1.49	4.68	1.27	2.69	.1017



a) In training

b) Before the game



c) After the game

Figure 1 : Comparison of evaluations of stress conditions in training, before and after games in 246 Japanese male and 154 female soccer players ('1=not stressful' to '7=very stressful')

- a) In training
- b) Before the game
- c) After the game

In training

The whole group of the 400 Japanese male and female soccer players considered the 15 situations during training from low to high stressful. The comparatively highest stress evaluation was found when some boring exercises were conducted. The second highest stress assessment was found in the situation, when the player was not challenged up to his ability. Furthermore, the condition, when the atmosphere was tense, was regarded as rather stressful. In contrast, the situation, when the coach expected too high performances, was assessed as low stressful. Besides, the condition, when the final training was too intensive, was considered as low burdening.

The analysis of the stress conditions in training made in 6 of 15 conditions at least tendentially significant evaluation differences ($p < .10$) obvious. In one condition the assessment of the male players was higher, but in 5 situations the female players showed higher stress evaluations than the male players. The male players regarded the item that the field conditions were bad as by far higher stressful than the female players. In contrast, the female players considered the situation as more burdening than the male players when the coach expected too high performances from them. For the female players the condition when some teammates played aggressively was more stressful than for the male players. The perception that the coach did not prepare the team adequately for the next game meant higher stress for the female than the male players. Besides, the condition that the atmosphere was tense resulted in a higher stress evaluation in the female than in the male players. Furthermore the situation when there were conflicts be-

tween the player and the coach was looked upon as more burdening in female than in male players.

Before the game

The whole group of the 400 soccer players regarded the situation as highest stressful when the player was taken from the team shortly before the game. The condition when the team arrived just shortly before the start of the game because of traffic jams was considered as the second highest stressful situation. The condition when the player did not feel fit during warming up was assessed as the third highest degree of stress. On the contrary, the condition of unrealistically high expectations of the club presidency were evaluated as rather low stressful. The situation when the player had to play against the best player of the opponent was rated as low burdening. Comparatively, the lowest extent of stress was registered in the condition when the opponents were known for hard and physical playing.

The comparison of the assessments between male and female players revealed 6 statistical differences in the 10 conditions. The evaluations of the female players were in all 6 situations by far higher than those of the male players. The female players considered it as higher stressful than the male players when they had to play against the best player of the opponent. The female players also felt more burden than the male players when the player was insulted by opponent spectators during warming up. Furthermore the female players reacted with higher stress evaluations in the conditions when a referee acted with whom they had had problems before and when the expectations of

the club presidency were unrealistically high. Moreover, the female players considered the condition as more stressful than the male players when the player had to play on a position which was not appropriate for him. Finally, the female players felt a higher degree of stress than the male players when the player was of the opinion that the coach selected a wrong tactic.

After the game

The whole group of the soccer players regarded the condition as most stressful when the player caused the loss by a misbehavior. The second highest stress evaluation was found in the situation when the injury turned out to be worse than expected. The third highest stress assessment was detected when the player was criticised by his teammates despite adequate performance. In contrast, the stress rating was rather low when the poor performance of the team was caused by lacking effort of some teammates. Besides, the stress perception was low when the press evaluated the performance inadequately negatively. In comparison, the lowest stress assessment was found in the situation when the spectators whistled because of poor performance.

The female players showed in 7 of 10 conditions higher stress evaluations than the male players. The situation when the player caused the loss by a misbehavior was assessed by far more stressful by the female than the male players. Also the condition when the spectators whistled because of poor performance resulted in a higher burden rating in the female than in the male players. Moreover the situation of lacking cohesion on the team after a loss was regarded as more

stressful by the female than by the male players. Besides, the condition that the injury turned out to be worse than expected led to a higher stress rating in the female than in the male players. The situation of criticism by teammates despite adequate performance was responded to with a higher extent of stress in the female than in the male players. Furthermore, the female players regarded the condition as more burdening than the male players when the poor performance was caused by lacking effort of some teammates. Finally, the situation when the team lost because of a poor performance of the referee was looked upon as more disturbing by the female than by the male players.

The relatively vast attitudinal differences can be due to the obviously large differences in experiences as soccer players between male and female players. It can be assumed that the by far longer experience of various situations during training, before, during and after games of the male players resulted in lower stress assessments than the shorter experience of the female players.

The findings of this investigation manifested a high degree of similarity with the results of the study of Teipel (1992) ⁶⁾ in which the whole group of 230 German male and female soccer players assessed most of the conditions of high selfresponsibility during training, before and after the game as highly stressful. The female players showed higher stress assessments in most of the conditions than the male soccer players.

IV. SUMMARY

In this study the evaluations of specific stress conditions in training, before and after games of 400 Japanese male and female soccer

players from high to low performance levels were investigated.

The whole group assessed the situations of boring exercises and low challenges as highly stressful during training. The players assessed the substitution shortly before the start of the game and late arrival due to traffic jams as the most stressful conditions before the game. The conditions when the player caused the loss by a misbehavior and when the injury turned out worse than expected were regarded as highly burdening after the game.

The analysis of the assessments showed statistical differences between male and female soccer players in 19 of 35 situations. In one situation the stress evaluation of the male players was higher, in 18 conditions their ratings were lower than those of the female players. The female players considered the situations of too high expectations of performance, aggressive play and inadequate preparation of the coach for the next game as more stressful than the male players during training. Before the game the female players revealed higher degrees of stress than the male players when the player had to play against the best opponent player, when the player was insulted by spectators during warm-up and when a referee acted with whom the player already had had problems. After the game the female players were more stressed than the male players in the situations when the player had caused the loss by a misbehavior and when the spectators had made negative reactions.

Above all the female soccer players should be given a lot of opportunities to gain more experience in various conditions during training, before and after games. In this way they

can be instructed by the coaches to reduce their relatively high stress evaluations and to learn and practice specific kinds of coping mechanisms.

V. REFERENCES

- 1) Bauer G and Ueberle H (1984) : Fussball. Faktoren der Leistung, Spieler- und Mannschaftsführung. BLV, München.
- 2) Bisanz G and Gerisch G (1992) : Fussball. Training, Technik, Taktik. Rowohlt, Reinbek.
- 3) Jinshan X, Xiaoke C, Yamanaka K and Matsumoto M (1993) : Analysis of the goals in the 14th world cup. (Eds) Reilly T, Clarys J and Stibbe A (In) Science and football II, Spon, London, pp.203-205.
- 4) Mützelberg D (1987) : Spezifische Probleme der Fussballausbildung von Mädchen und Frauen. (Eds.) Naul R, Schmidt W and Tiegel G (In) Beiträge und Analysen zum Fussballsport, Greinert, Clausthal-Zellerfeld, pp.103-112.
- 5) Naul R (1988) : Female soccer coaches' socialisation, attitudes towards soccer, and their assessment of training as licensed coaches. (Eds.) Reilly T, Lees A, Davids K and Murphy WJ (In) Science and football, Spon, London, pp.630-636.
- 6) Teipel D (1992) : Beanspruchung von Spielern und Trainern im Fussball. Sport und Buch Strauss, Köln.
- 7) Yamanaka K, Hughes M and Lott M (1993) : An analysis of playing patterns in the 1990 world cup for association football. (Eds) Reilly T, Clarys J and Stibbe A

(In) Science and football II, Spon, London, pp.203-205.