

MOTIVATION AND MOOD STATES IN CONNECTION WITH SPORTS: AN EMPIRICAL EXAMINATION OF HUNGARIAN AND FRENCH ATHLETES

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ABSTRACT. The authors investigated French and Hungarian gymnasts' and ballgame players' motivation in sport and their individual mood states during a preparation period. For the three hypotheses it was assumed that the external motivator is less characteristic of French gymnasts. It was supposed that for gymnasts that intrinsic motivation toward accomplishment is of greater influence than for ballgame-players, and it is presumed that a higher intrinsic motivator factor value is a consequence of a higher Vigour-value. The Profile of Mood State Scales factors and the Sport Motivation Scale factors statistical analyses showed that Hungarian gymnasts displayed greater values in Anger and Fatigue than the French athletes, whose one external motivation value was statistically significantly different. Ballgame-players displayed significantly higher Anger values, while gymnasts demonstrated an emphasized intrinsic motivation toward accomplishment. The correlation between the two scales showed that two of the internal motivators have been correlated with Vigour factor.

Keywords: Sport Motivation Scale (SMS), Profile of Mood State (POMS), gymnasts, ballgame players, two nations.

Introduction

Sport and exercise are important and useful leisure time activities for everybody. The form of movement and the sports are generally selected intentionally, and are driven by emotions. Our relationship to sport is influenced by our inherent personality characteristics. The methods and tools of psychology, sports psychology measurements of motivation and emotional states are used to find out what the subjects' motivation for sport is, and show their individual mood state during the preparation phase. The reason key gymnasts were

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examined is that the first three of the authors - in addition to the fact that they are also working as sports scientists - were part of sport tournaments in the past, and they are currently active practitioners.

Motivation can be defined as the direction and intensity of one's effort (Sage, 1977). The most encompassing definition of the subject matter of the field of motivation is why human and subhuman organisms think and behave as they do (Weiner, 1992). Motivation is a central problem in sport sciences. On the one hand, motivation is a consequence of social development, which includes the subject of competition, or coach-behaviour. On the other hand, as effects of individual development on behavioural norms are manifested in the process of learning and performing (Duda, 1989; Vallerand et al., 1987).

Sports motivation has been examined through various international and domestic researches. One such procedure is the Sport Motivation Scale (SMS) application. The Sport Motivation Scale is a questionnaire consisting of 28 questions. Seven motivational factors were distinguished based on the answers (Pelletier et al., 1995). Pelletier and his team (1995) examined 593 university athletes and 50 football players with the Sport Motivation Scale in 1995. They proved the internal consistency of the seven factors and established the acceptance of the Cronbach Alpha values, which showed the reliability and the validity of the scale. Hodge and his team (2008) examined the behaviour of 373 athletes, and the relationship between their attitudes and motivation. Besides the Sport Motivation Scale (SMS), the Task and Ego Orientation in Sport Questionnaire (TEOSQ), the Social Motivation Orientation Scale (SMOSS), a scale for performance-based self-esteem (PBS), and an Organizational Commitment Questionnaire (OCQ) were used, too. A relationship can be found between performance goal, social objective, intrinsic motivation, external motivation factors, self-assessment, joy, and commitment. (Hodge et al, 2008)

The French version of the Sport Motivation Scale was validated by Brière, Vallerand, Blais and Pelletier in 1995. The Hungarian version of it was published by Biddle and Soos et al. in 1999, based on research carried out among adolescents. The authors examined 723 Hungarian youths regarding whether physical activity could influence the goal-oriented and self-determination theory (STD). The subjects were between 12 and 16 years of age and were selected from among 28 Hungarian schools. The survey assessed goal orientation with Task and Ego Orientation in Sport Questionnaire (TEOSQ), self-assessment, self-acceptance with Physical Self-Perception Profile and the rules of behaviour with the Self-Regulation Scale. The intention was a simple survey question. The scales questions were adapted to Hungarian children's physical activities and language. Soos et al. modified the SMS scale in 2001, and their results were published in 2004. The researcher examined Hungarian data in 1999. Járai, in 2004, applied one less motivational factor, using six instead of seven. The aim was to identify the hierarchical relationship among the variables which defined the gender differences (Járai, 2004).

Our other area of examination was the analysis of state of mood and sports performance. Emotions and motives belong closely together. In spite of their similarity, motives and emotions need to be distinguished. The most common basis of distinction is that emotions are controlled from outside, while motives are activated inside, which means that emotions are usually caused by external events. Nevertheless, motives are very often the consequences of inner events, and by their nature, tend towards certain objects of the environment (e.g., food, water or a partner). The other difference between emotions and motives is that emotions always activate the autonomic nervous system, while motives do not (Tóth, 2010).

One 1990 study assessed mood state using the Profile of Mood States and self-motivation (SMI) in 84 female undergraduates vying for a position on a collegiate rowing team. No differences in baseline mood state were observed between the 62 dropouts and the persistent subjects. Dropouts possessed significantly lower SMI and took longer to complete the rowing task than the persistent subjects did. Global mood disturbance increased during the training season, particularly for unsuccessful subjects (Raglin et al., 1990). The research indicated that there is a relationship between sport performance and the mood state found, and that in various demanding situations, such as sports, study and work, mood can be the dominant predictor of stress (Brehm, 1999; Lane and Terry, 2000; Lane et al., 2004; Lloyd et al., 2006; Lane et al., 2006; Gould and Weinberg, 2007; Cox, 2007).

Lane (2006) highlighted the relationship between mood and athletic performance. His book – among others – presented an analysis of subjects' mood swings – one group's during a south polar expedition and one group's during marathon running (Lane, 2006).

In an international and intra-national survey covering three universities (Budapest, Pécs, Sunderland) the authors determined that athletes' mood states in relation to sport performance at the two Hungarian universities are more negative than the students from the University in the North-East England. The reason could be performance pressure. (Leibinger et al., 2004) An international research team surveyed the relationship between mood state and emotional intelligence. The results confirmed that mood state is related to successful performance. They also draw attention to the fact that teaching of mood management techniques to students are of paramount importance to the athlete, which is important in terms of both learning and sport performance (Soós et al., 2007). The same workgroup investigated relationships between self-reported measures of emotional intelligence and memories of pre-competitive emotions before optimal and poor athletic performance. It demonstrates that emotional intelligence correlated with pleasant emotions in both performances. Conversely, individuals reporting low scores on the self-reported emotional intelligence scale appear to experience intense unpleasant emotions before dysfunctional performance.

The Profile of Mood State Scale (POMS) can be used to study mood state. Beedie, et al (2000) justified that the individual's mood while performing is a significantly influencing factor. The POMS measures the general mood state of 40 items with a five-value scale. The mood state contains 6 original factors. The examination of adolescence mood state adapted with the Profile of Mood State Scale - Adolescence (POMS-A). The scale was validated by Terry et al. (1999). POMS was validated in France by Cayrou et al. (2000).

During our study we wanted to find answers as to what sport orientation the students had, and what individual mood state they had during their preparation period. We used sport psychological motivation and mood state tests.

The following hypotheses were put forward by the authors:

1. It was assumed that external motivator value was lower for French gymnasts.
2. It was assumed that, for gymnasts, the intrinsic motivation toward accomplishment value is greater than for ballgame players.
3. It was assumed that a higher intrinsic motivator factor value is due to a higher Vigour-value.

Taking the practical applicability of our results into account, our recommendations for sport professionals lead to the formulation of the following questions:

1. What kind of motivation structure exists for French and Hungarian youth athletes?
2. Does their sports motivation depend on their sport-type?
3. How did they feel during training, and how did they tolerate the preparatory period.
4. Is there any correlation between their mood state and motivation?

Methods

The Profile Mood State Scale (POMS) as well as Sport Motivation Scale (SMS) were filled out by 32 Hungarian gymnasts and 31 ballgame players (volleyball and handball) and 36 French gymnasts and 42 ballgame players (volleyball and handball). The Hungarian Semmelweis University, Faculty of Physical Education and Sport Sciences and the French Universitéde Toulouse student's average age was 21.44 ± 2.5 . Female (N=82) and male (N=59) athletes at different sport levels took part in the survey. There were first class athletes, second class athletes and recreational athletes among them. They filled out the questionnaires in autumn 2008 in their own language. The Hungarian version of the Sport Motivation Scale was taken from Soós et al. (1999), while the French version was taken from Brière, Vallerand, Blais and Pelletier (1995). The Hungarian translation of the POMS was carried out by the fourth co-author, and was proofread by the fifth one. The French version derives from the publication of Cayrou et al. (2000).

The participation was voluntary and anonymous. The Sport Motivation Scale was filled out first, establishing why they chose their sport. This scale has 7 motivation factors: Intrinsic motivation to know, Intrinsic motivation toward accomplishment, Intrinsic motivation to experience stimulation, External regulation, Introjected regulatory, Identified regulation, and Amotivation, from which four questions were derived. There are 3 inner motivation factors, three external motivation factors and one amotivation factor. First we determined the Cronbach's Alpha value, which provided validation of our survey. Then we determined the motivation factor values. Then the test person mood state was examined with retrospection method by POMS. The 40 items lead to the determination of 6 original factors: Tension, Anger, Fatigue, Depression, Vigour and Confusion. After the same Cronbach's Alpha test, we counted the factor values.

Statistical analysis used the SPSS 17.0 software package. In all cases we received a $p < 0.05$ significant level.

Results

The reliability of the questionnaire is demonstrated in Tables 1 and 2. The Cronbach's Alpha values belonging to each factor showed total reliability with regard to the POMS scale. From the scale factors of SMS was low in the intrinsic motivation to experience stimulation, External regulation, and amotivation.

Table 1.
Cronbach's Alpha values concerning POMS factors

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Tension	Depression	Anger	Vigour	Fatigue	Confusion
0.65	0.79	0.64	0.76	0.61	0.66

Table 2.
Cronbach's Alpha values concerning the SMS' factors

Cronbach's Alpha values concerning the SMS' factors						
Intrinsic motivation to know	Intrinsic motivation toward accomplishment	Intrinsic motivation to experience stimulation	External regulation	Introjected regulatory	Identified regulation	Amotivation
0.83	0.69	0.59	0.61	0.66	0.68	0.52

The first figure shows the distribution of scores in POMS for the Hungarian and French gymnasts. This graph can be characterized as a normal Eisberg-profile. In the six original factors there are similar values, but Anger and Fatigue show significant differences.

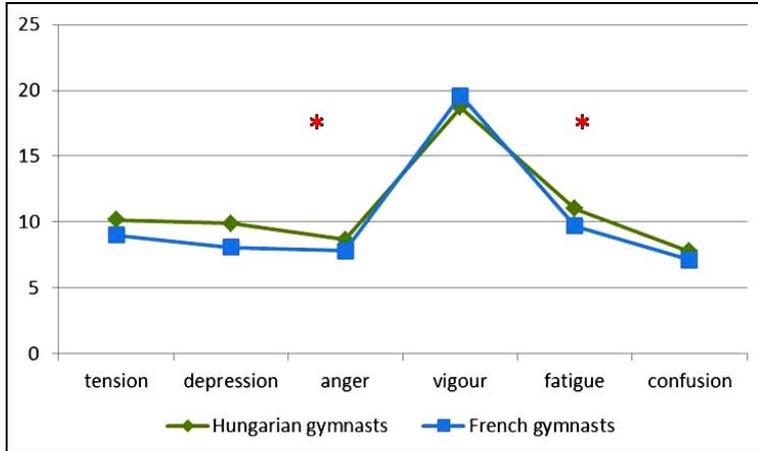


Figure 1. Values of POMS factors according to nationality with regard to gymnasts' answers

The second figure shows the distribution of POMS scores for Hungarian and French ballgame players. There were no significant differences between nationalities.

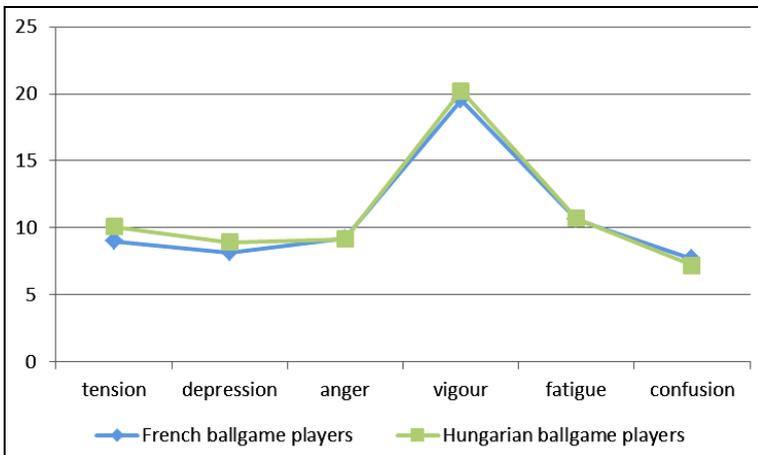


Figure 2. Values of POMS factors according to nationality with regard to ballgame players' answers

In analyzing the external motivation of the two nations' athletes, it was found that Hungarian athletes have higher values in External regulation and Introjected regulatory. Regarding the breakdown of the two separate disciplines, the external regulation level of the ballgame players was much higher for the Hungarian players than their French counterparts. Only in external regulation did the ballgame players have significantly higher level controllers for the Hungarians.

The difference-analyses of SMS factors for gymnasts (Figure 3) highlights the fact that the Hungarian gymnasts had higher values in the level of extrinsic regulatory and introjected regulatory, and the motivation of French gymnasts showed higher values in Identified regulation.

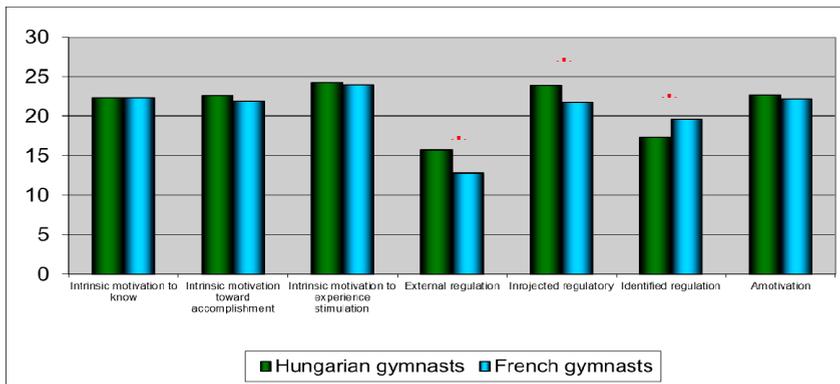


Figure 3. Values of SMS factors according to nationality with regard to gymnasts' answers

In analyzing the emotions of gymnasts and ballgame players (Figure 4), it was found that ballgame players had significantly higher Anger values.

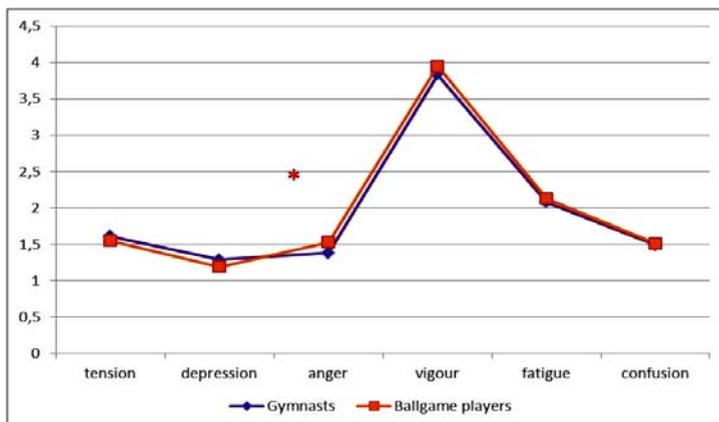


Figure 4. Values of POMS factors according to gymnasts' and ballgame-players' answers

During the examination of motivation (Figure 5), we found that gymnasts have higher values of intrinsic motivation toward accomplishment.

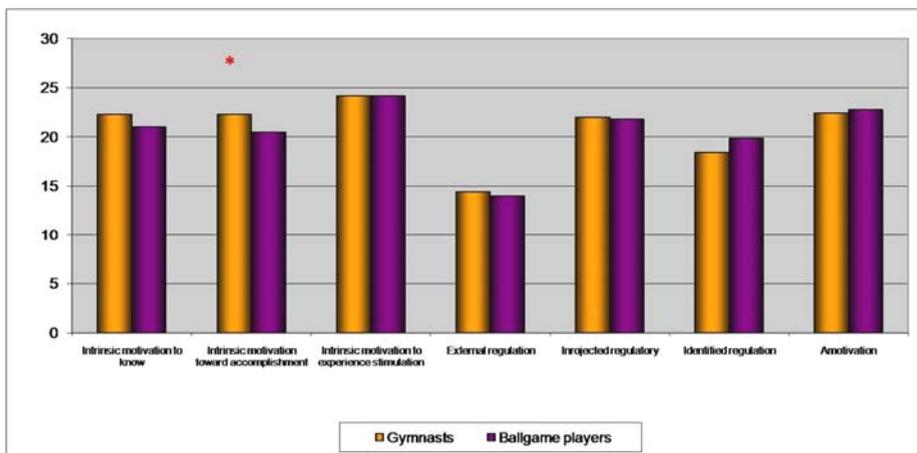


Figure 5. Values of SMS factors according to gymnasts' and ballgame-players' answers

We were also curious as to whether any correlation can be found between POMS' and SMS' factors.

In Table 3 correlations are marked with coloured boxes. The higher values of intrinsic motivation to know ($r=0.21$ $p < 0.05$) and the Intrinsic motivation to experience stimulation ($r=0.220649$; $p < 0.05$), as well as introjected regulatory ($r=0.189664$; $p < 0.05$) contribute a higher value to the Vigour factor. Athletes demonstrating higher values in intrinsic motivation towards accomplishment feel less angry at the same time. Results of amotivation factor are not commented on because of low Cronbach's Alpha values. The Intrinsic motivation to experience stimulations Cronbach's Alpha values was low too. There have also interested trends, when the statistical significant correlation can not justify. All of the internal motivation factors showed a significantly negative correlation with the Anger factor. All of the internal motivation factors show a weak negative correlation with Depression and Confusion. In External regulation factors can be identified certain trend. External regulation is the only motivation factor which shows a negative correlation with the positive mood factor, Vigour. Introjected regulatory shows a weak negative correlation with Anger and Confusion. Identified regulation shows a weak negative correlation with Tension and Depression and an almost significant negative correlation with Confusion and an almost significant positive correlation with Vigour. It can be observed that the sport motivation factors, except one (External regulation), show a negative correlation with Confusion.

Table 3.

Correlation between POMS and SMS

		Tension	Depression	Anger	Vigour	Fatigue	Confusion
Intrinsic motivation to know	r	0.08	-0.07	-0.12	0.21	0.02	-0.08
	p	0.38	0.44	0.17	0.01	0.81	0.36
Intrinsic motivation toward accomplishment	r	0.03	-0.01	-0.17	0.11	-0.06	-0.05
	p	0.72	0.93	0.04	0.20	0.48	0.52
Intrinsic motivation to experience stimulation	r	-0.05	-0.03	-0.11	0.22	0.08	-0.02
	p	0.52	0.75	0.19	0.01	0.37	0.77
External regulation	r	-0.00	0.14	0.08	-0.02	0.09	0.01
	p	0.96	0.11	0.35	0.77	0.31	0.88
Introjected regulation	r	0.08	0.03	-0.03	0.19	0.08	-0.05
	p	0.33	0.69	0.75	0.03	0.35	0.54
Identified regulation	r	-0.04	-0.09	0.07	0.16	0.05	-0.15
	p	0.66	0.29	0.38	0.06	0.59	0.07

Discussion

Leibinger et al. (2004) found that the Hungarian university students displayed a less positive mood state, than that of their English counterparts (Leibinger et al., 2004). This is consistent with recent test results, which show that stress and depression were more typically found in Hungarian athletes than their French counterparts during the preparation period. Performance pressure and insufficient preparation conditions (material and human) strongly influenced mood. In the grouping of sports it was found that the Hungarian gymnasts had higher values in Anger and Fatigue. Interestingly, no difference was found in ballgame players regarding the mood state of the nation's athletes. While the different sports were investigated, it turned out that Anger is more characteristic of ballgame players, and this anger arises from their dissatisfaction with their lack of success in scoring.

In light of the results, it can be stated that there was a statistical difference in extrinsic motivation for Hungarian athletes in two factors, whereas there was only one for the French athletes. It can be stated that the Hungarian university athletes are under external motivational pressure when selecting a sport. For the Hungarian gymnasts, extrinsic motivation had a greater role than for their French counterparts, accepting the first hypothesis. This result may be due to the fact that the Hungarian university students choose sport because of the opportunity to take part in many tournaments, because they want to practice for practical exams, or because they have no other choice.

Gillet and Rosnet also tested French athletes with the Sport Motivation Scale. The purpose of the investigation was to examine the relationships between competitive and recreational sport structures, gender, individual and team sports, level of competition, sport motivation and athletes' perceptions of autonomy, competence and relatedness in order to enhance our knowledge of the motivational processes in sport. They results revealed that female athletes felt less competent and demonstrated less External regulation than males, while exhibiting more intrinsic motivation than this group. In addition, they showed that recreational athletes felt more autonomous and had lower scores on External regulation than competitive athletes. Differences in the levels of competition also emerged: athletes at the district level displayed less intrinsic motivation and less External regulation than athletes at the regional level. District level athletes also exhibited less intrinsic motivation, less introjected regulation, and less External regulation than national level athletes (Gillet and Rosnet, 2008).

Singh et al. (2010) studied the differences between university level individual and team sport players with regard to motivation and locus of control. There were no significant differences with regard to achievement motivation and locus of control among individual and team game players (Singh et al., 2010).

In analyzing the emotions of gymnasts and ballgame players, it was found that ballgame-players had a significantly higher Anger value.

Gymnasts indicated an emphasized intrinsic motivation toward accomplishment; accordingly, the second hypothesis was confirmed.

It was found that only two of the internal motivators correlated with the Vigour factor; the third hypothesis was not proved. The negative correlation of the third internal motivation factor with the Anger factor is interesting. A more perfect execution correlated with less Anger. A correct answer to the question is needed for sport performance measurement in the future.

An attempt was made by the authors to answer the given questions, but only partial conclusions could be drawn because of the complexity of the questions, and a deeper and more comprehensive analysis is needed.

Based on the answers received for our first practical questions related to motivational differences, it can be stated that the Hungarian university students are more motivated by external pressure. It would be worthwhile to examine further to what extent this affects their performance.

The motivational differences between the two sports shed light on the fact that gymnastics attracts the intrinsic factor of striving for perfection much better, which motivates the athlete to execute their sport techniques as well as possible. With respect to the emotional state during preparation period and the emotions felt in training, it can be said that the Hungarian athletes in general have more tension and more depressed than their French counterparts.

Conclusion

In conclusion closing, we express our hope that our survey could highlight the facts that, in practice, many factors influence an athlete's mood, and to draw attention to the fact that this motivation can originate from different sources. In order for athletes to form a single team and be able to cooperate effectively, it is necessary to know the individual's motivation and mood related to their sport. The goal is always the same: every athlete has fun in training because this is the only way they can effectively participate in the preparation. The knowledge of motivational conditions is important for coaches because only with possession of this knowledge can they shape their athletes positive attitude.

With more precise psychological definitions, such groups can be formed during trainings which can support each other with their similar motivations.

The Totterdell (2000) analysis confirmed the empirical fact that the team members' individual mood and subjective state of preparedness of the team also depends on the collective mood. Mood is better and happier when the team members are committed to a common problem (Totterdell, 2000).

But perhaps as a future direction it would be worth placing certain athletes into groups with higher internal motivation who have become unsure of themselves or didn't choose their sport on their own. These groups might prove to be able to raise these athletes level of motivation.

In this study, we did not measure performance; therefore, only indirect conclusions can be drawn from these results. Furthermore, it would be worth supplementing this research with a physical test, and compare the sampled persons with their results of their competitions. From our present study in France and Hungary, only one was performed in a university sports club. Another aspiration of ours is to assess all the gymnastics associations in Hungary to gain a more comprehensive picture of Hungarian gymnasts' emotional and motivational states. This may help to stop the decline of sport in Hungary, and in addition, may successfully prevent gymnasts from leaving their sport. A long-term objective includes expanding the survey to the younger generation as well, because the majority of those persuing gymnastics leave the sport between the ages of 6-18. It would be worth studying the athletes' motivation and mood state in other sports which are within the scope of gymnastics (rhythmic gymnastics and aerobics) and compare their results to that of the gymnasts.

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