



ATHLETES' SATISFACTION TOWARDS SPORT TRAINING: AN INITIAL INVESTIGATION AND DEVELOPMENT OF QUESTIONNAIRE

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Abstract:

This study aims to investigate and develop a questionnaire to measure athletes' satisfaction towards sports training. This quantitative research used a structural equating modeling (SEM) approach with the help of Smart-PLS. The population of this study consisted of athletes from Yogyakarta Province, Riau Province, and South Kalimantan Province. The sample was 806 athletes from 27 sports (Table 1) who will compete at the National Sports Week (PON) 2024. PON is a multi-event tournament held every four years in Indonesia, so athletes who will compete have high experience and performance. Athletes who participated in this research were aged 22.6 ± 8.3 years, and they had 10.3 ± 4.7 years of training experience. Instrument preparation is done by reviewing the literature and focus group discussions (FGD) involving sports coaching lecturers and nationally licensed coaches. The results of this study are that the outer loading value is >0.7 , and the discriminant validity value (Fornell-Larcker Criteria) is >0.7 . Cronbach Alpha Reliability and Composite Reliability also showed >0.7 . Goodness of Fit (GoF) shows an SRMR value of $0.076 < 0.10$ or < 0.08 , so the model fits the data. The predictive relevance test or Q Square is $0.9 > 0$, so this study has a good observation value. Based on the results, the questionnaire consisted of 16 items divided into four dimensions (Appendix 1), namely the dimensions of training quality, mental and emotional health, competitive performance, and competitive experience. In conclusion, a questionnaire can measure athletes' satisfaction towards sports training. From the results of this study, it is recommended that athletes' sports training satisfaction variable be tested on indirect influences as mediating or intervening variables. It can also be used as a variable that strengthens or weakens (moderator). Then, it is combined with other independent and dependent variables in management, psychology, society, education, and sports. So that in the future, it can produce more comprehensive research.

Keywords: satisfaction questionnaire, sports satisfaction, athlete's satisfaction

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1. Introduction

Athletes' satisfaction towards their sports experience is essential in maintaining their motivation, performance, and overall well-being. In an increasingly competitive and demanding sports environment, a deep understanding of the factors influencing athlete satisfaction becomes crucial for coaches, team managers, and sports practitioners to improve the quality of training programs and the overall athlete experience (Jin *et al.*, 2022).

Athlete's satisfaction is more than just a subjective aspect that can be ignored. However, it significantly impacts athletic performance, mental health, and athlete retention and recruitment in a team or sports organization (P. Liu *et al.*, 2022). Furthermore, research on the satisfaction of athletes in sports is becoming increasingly relevant and vital. Satisfaction of athletes is essential because it is the primary driver to maintain high motivation in achieving their goals (Sumarsono *et al.*, 2023). When athletes are satisfied with their experience, they tend to be more motivated to keep training hard and consistently. Athletes who are satisfied with their training tend to perform better (Reverdito *et al.*, 2023). When they feel that their training is practical and satisfying, they will be more motivated to give their best in training and competition.

Then, athlete's satisfaction is also closely related to their mental and emotional well-being. When satisfied with their sports experience, athletes tend to experience lower stress levels, have higher self-confidence, and can better manage pressure (Kim & Cruz, 2021). A satisfying sports environment can be an important factor in retaining existing athletes and attracting new ones. Athletes who are satisfied with their experience are more likely to remain committed to a particular team or sports organization and recommend their positive experience to others. Athlete's satisfaction can also affect their skill development (Nugroho *et al.*, 2021). When athletes are satisfied with the training and coaching they receive, they tend to be more open to learning and developing new skills, which will ultimately improve their quality and abilities as athletes ((Khorram, 2022), (Fan *et al.*, 2023)).

Various factors can affect an athlete's level of satisfaction, including the quality of training, psychological support, mental and emotional health, competitive performance, and overall quality of competitive experience ((Ahsan & Ali, 2023), (Q. Li *et al.*, 2024)). A deep understanding of the dimensions can identify areas for improvement and develop appropriate strategies to improve athlete satisfaction. However, despite its importance, research focusing on sports satisfaction for athletes still needs to be expanded, especially in local or specific contexts within specific sports. Therefore, further research is needed to gain more comprehensive insight into the factors influencing athlete satisfaction and their impact on athlete performance and overall well-being. This study aims to investigate and develop questionnaires to measure athletes' satisfaction towards sports training. By deepening the understanding of sports satisfaction for athletes, a more conducive and supportive sports environment can be built, improving the motivation, performance, and well-being of athletes in their efforts to reach their maximum potential.

2. Method

This quantitative research investigates and develops a sports training satisfaction measurement model for athletes. It uses a structural equating modeling (SEM) approach. The development of this measurement was tested for validity, and the estimate of the reliability value used Smart-PLS. This Smart-PLS analysis model was second-order.

The population of this study consisted of athletes from Yogyakarta Province, Riau Province, and South Kalimantan Province. The number of samples in this study was 806 athletes who will compete at the National Sports Week (PON) 2024. PON is a multi-sport event held every four years in Indonesia, so athletes who will compete are athletes who have high experience and performance. Athletes who participated in this research were aged 22.6 ± 8.3 years, and they had 10.3 ± 4.7 years of training experience. The types of sports involved in this study are as shown in Table 1 below.

Table 1: Research Sample

No.	Sports	Total of Athletes
1	Athletics	42
2	Basketball	52
3	Cycling	24
4	Road Race	26
5	Billiards	17
6	Bodybuilding	18
7	Bola Voli	60
8	Bowling	34
9	Badminton	26
10	Chess	22
11	Climbing	12
12	Dance	22
13	Drum Band	54
14	Futsal	44
15	Gateball	32
16	Wrestling	18
17	Hockey	42
18	Karate	23
19	Kick Boxing	17
20	Pencak Silat	16
21	Gymnastics	22
22	Football	82
23	Taekwondo	21
24	Table Tennis	24
25	Tennis	20
26	Boxing	18
27	Wushu	18
Total		806

The research instrument was in the form of a questionnaire consisting of four dimensions. The scale used in this study was 1 to 5. The preparation of the instrument was carried out in two stages. The first stage was the collection of literature evidence from scientific articles. The second stage was to hold a focus group discussion (FGD) involving sports coaching lecturers and coaches with a minimum national license. The following is the instrument grid:

Table 2: Instrument Grid

Dimensions	Indicators
Quality of Training (X1)	Availability of Facilities
	Quality of Coach
Mental and Emotional Health (X2)	Psychological Support
	Self-Confidence
Competitive Performance (X3)	Performance Improvement
	Team Competitiveness
Competitive Experience (X4)	Awards and Recognition
	Overall Satisfaction

3. Results

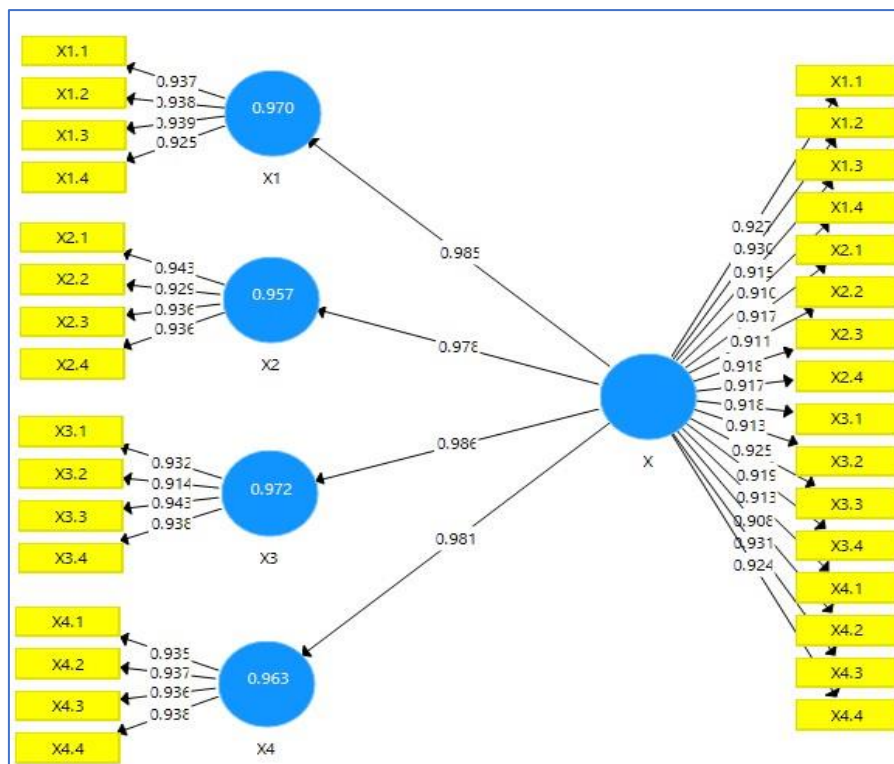


Figure 1: PLS Algorithm Results

The results of this study are presented in the following section. In the first stage, validity and reliability tests were performed in the PLS Algorithm menu (Figure 1).

The initial analysis of this study refers to the outer loading value. If the outer loading value is more than 0.7, then the statement item is eligible for further analysis.

Table 3: Outer Loading Results

	X	X1	X2	X3	X4		
X1.1		0.937					
X1.1	0.927						
X1.2		0.938					
X1.2	0.930						
X1.3		0.939					
X1.3	0.915						
X1.4		0.925					
X1.4	0.910						
X2.1						0.943	
X2.1	0.917						
X2.2						0.929	
X2.2	0.911						
X2.3						0.936	
X2.3	0.918						
X2.4			0.936				
X2.4	0.917						
X3.1				0.932			
X3.1	0.918						
X3.2				0.914			
X3.2	0.913						
X3.3				0.943			
X3.3	0.925						
X3.4				0.938			
X3.4	0.919						
X4.1					0.935		
X4.1	0.913						
X4.2					0.937		
X4.2	0.908						
X4.3					0.936		
X4.3	0.931						
X4.4					0.938		
X4.4	0.924						

From the results of Table 3, the outer loading value of each item of this statement is more than 0.7, making it feasible for further analysis, followed by a discriminant validity test based on the Franklin-Larcker Criteria.

Table 4: Discriminant Validity Results (Fornell-Larcker Criteria)

	X	X1	X2	X3	X4
X	0.919				
X1	0.785	0.935			
X2	0.778	0.750	0.936		
X3	0.786	0.867	0.751	0.932	
X4	0.781	0.754	0.745	0.757	0.937

The Cornell-lacker criterion value is more significant than 0.7 by comparing each construct's square root of average variance extracted (AVE) value with the correlation between the construct and other constructs in the model. If the AVE root value for each construct is greater than the correlation value between the construct and other constructs in the model, then it is said to have good discriminant validity values. So, the validity value of each of these statements is good.

Furthermore, the reliability test is based on Cronbach's Alpha and Composite Reliability. The instrument is highly reliable if the Cronbach's Alpha value is more than 0.7 and the Composite Reliability is more than 0.7.

Table 5: Construct Reliability and Validity Results

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
X	0.988	0.988	0.989	0.844
X1	0.952	0.952	0.965	0.874
X2	0.953	0.953	0.966	0.876
X3	0.950	0.950	0.964	0.869
X4	0.953	0.953	0.966	0.877

Based on Table 5, Cronbach's Alpha value is >0.7 , and the composite reliability value is >0.7 , so this research instrument has high reliability.

Then, the study also displays Goodness of Fit (GoF), which aims to test whether this study has a fit model.

Table 6: Fit Model Test Results

	Saturated Model	Estimated Model
SRMR	0.076	0.076
d_ ULS	6.764	6.758
d_ G	6.521	6.521
Chi-Square	3823.884	3823.884
NFI	0.575	0.575
rms Theta	0.117	

Based on the results of Table 6, the rms Theta or Root Mean Square Theta value is $0.117 > 0.102$, and the NFI value is $0.575 < 0.9$. So, based on the two assessments of the model, it does not meet the criteria for the fit model.

However, based on the SRMR or Standardized Root Mean Square value, the value is $0.076 < 0.10$ or < 0.08 , so the model is fit. Thus, it can be concluded that the model fits the data.

The predictive relevance test, or Q Square, was done in the second stage. Predictive relevance tests the accuracy of the observation value using the blindfolding procedure by looking at the Q square value. If the value of Q square > 0 , then it can be said to have a good observation value, while if the value of Q square < 0 , then it can be stated that the observation value is not good. Q-Square predictive relevance for structural models measures how well the model generates the observation value and estimates the parameters.

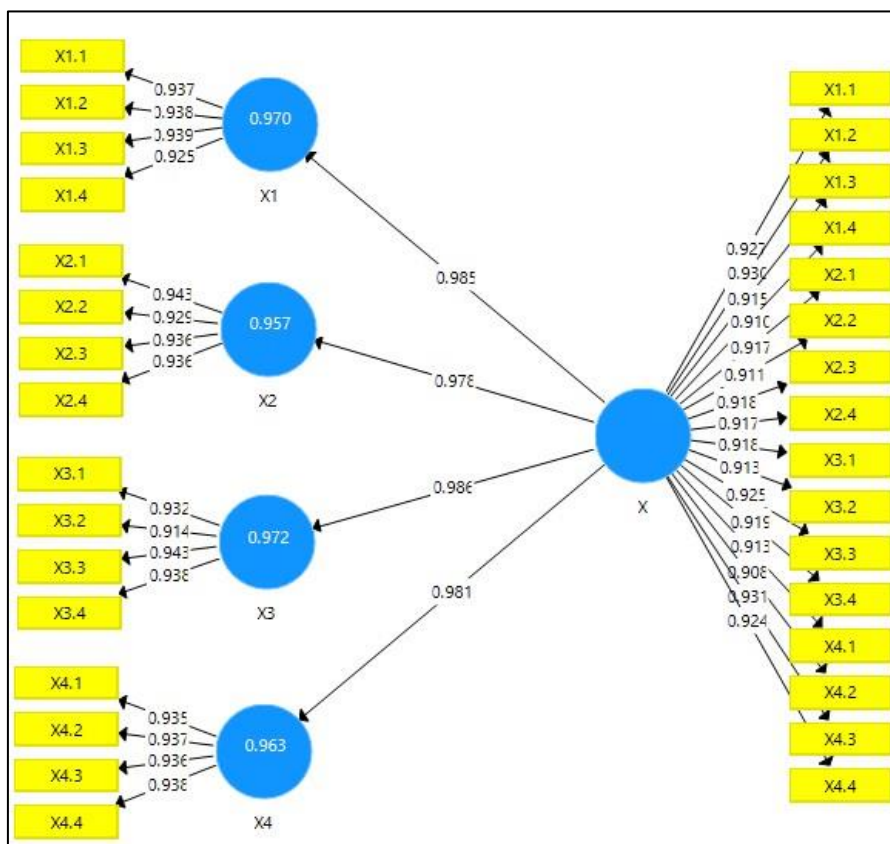


Figure 2: Blindfolding Results

The results of the Q square of this study are based on Figure 2. From the results presented in Figure 2, the quality of training dimension (X1) shows a Q₂ value of 0.970, the mental and emotional health dimension (X2) shows a Q₂ value of 0.957, the competitive performance dimension (X3) shows a Q₂ value of 0.972, the competitive experience dimension (X4) shows a Q₂ value of 0.963. Therefore, this study is of good value for observation.

4. Discussion

This study makes an essential contribution to the understanding of the satisfaction of sports training for athletes, especially in local or specific contexts in certain sports. With an emphasis on developing valid and reliable questionnaires, this study lays a solid foundation for further research into understanding the factors influencing athlete satisfaction and their impact on athlete performance and overall well-being.

4.1 Quality of Training

The quality of training highlights factors related to the effectiveness and quality of training athletes receive. The quality of training directly affects the ability of athletes to improve their skills and fitness (Boyaci & Kizilet, 2023). Exercises that are structured, varied, and tailored to individual needs can help athletes achieve optimal levels of performance. When athletes feel that their training is practical and helps them develop, this will increase their satisfaction with training. Quality training can also increase athlete motivation and engagement (Kızar *et al.*, 2021) When athletes see the value and relevance of their training, they tend to be more motivated to participate to the maximum and are committed to achieving their goals. This can increase their level of satisfaction because they feel involved in the process of forming their abilities.

The quality of training creates a positive experience for athletes. Exercises that are fun, challenging, and rewarding for athletes can help create a positive bond between athletes and their sports (Padli *et al.*, 2023). This positive experience strengthens the intrinsic motivation of athletes and increases their satisfaction with participation in training. Quality training can also have a positive impact on the mental and emotional health of athletes. Exercises supported by a supportive environment, social support from coaches and teammates, and an emphasis on developing psychological skills such as mental resilience and stress management can help reduce stress levels and improve the psychological well-being of athletes (Wibowo *et al.*, 2024).

Qualified training also allows athletes to gain a deeper understanding of their sports (Setiawan *et al.*, 2023), (Wijayanti *et al.*, 2024), (Juita *et al.*, 2024). Through proper instruction, exposure to strategies and tactics, and opportunities to develop tactical and technical understanding, athletes can feel progress and improvement in their understanding of their sport. It can increase athletes' satisfaction as they feel more connected to their sport and feel more in control of their experience. With a better understanding of the factors affecting athlete satisfaction, coaches and team managers can adjust training programs to improve their quality and effectiveness.

4.2 Mental and Emotional Health

Mental and emotional health aims to investigate aspects of an athlete's mental and emotional well-being that are affected by their training experience. Good mental and emotional health provides a strong foundation for optimal performance of athletes. When athletes feel mentally and emotionally healthy, they tend to have better focus, greater

resilience to stress, and a better ability to manage their emotions (Jaiyeoba & Ogunsanya, 2021). It all allows them to perform better in practice and competition. Good mental health also supports the motivation and involvement of athletes in training. When athletes feel good mentally, they tend to be more motivated to participate passionately and commit to achieving their goals. It contributes positively to their satisfaction with the training, as they feel actively involved.

Good mental and emotional health can help athletes cope with injury and fatigue better. Athletes who have robust mental health tend to have more effective coping strategies and can maintain a level of motivation and morale even when they face brutal obstacles and challenges (Ekelund *et al.*, 2022). Good mental health also has an impact on overall well-being. Athletes who feel happy, confident, and have good self-esteem tend to have higher satisfaction levels with their training and performance. Conversely, mental health problems such as stress, anxiety, or depression can interfere with the exercise experience and lead to decreased satisfaction (Kurniawan *et al.*, 2023), (Zhang *et al.*, 2024).

Mental health can also strengthen athletes' interpersonal relationships with coaches and teammates. Open communication, emotional support, and a sense of team unity all contribute positively to athletes' satisfaction with their training experience (Sridana *et al.*, 2024). Focusing on mental and emotional health aspects can help in developing appropriate support programs to improve the overall well-being of athletes. Thus, mental and emotional health significantly impacts athletes' satisfaction with their training. Protecting and strengthening these aspects of an athlete's well-being should be a priority for coaches and team managers to ensure that athletes are happy, fit, and motivated to participate in their workouts with passion.

4.3 Competitive Performance

Competitive performance emphasizes the relationship between training satisfaction and the competitive performance of athletes in matches. Competitive performance is a crucial indicator of the extent to which athletes successfully achieve their goals in sports ((Mandan *et al.*, 2024), (Prayoga *et al.*, 2024)). When athletes achieve or even exceed the targets, they set for themselves, this increases their satisfaction with their training and preparation. Achievement in competition gives athletes a strong sense of accomplishment. When they succeed in competition, they feel recognized and rewarded for their hard work and dedication to training. It gives a positive boost to their satisfaction with sports and exercise.

Good competitive performance often gets recognition and appreciation from coaches, teammates, and supporters. This support and praise can increase an athlete's sense of pride and satisfaction with their performance, thus helping to strengthen the positive bond between training and competitive experience. Good competitive performance can also be a vital source of motivation for athletes to continue to develop and improve their abilities (W. Li, 2022). When they see the results of their efforts in competition, this encourages them to keep working hard in practice to achieve even

higher performance levels in the future. Achievements in competition can also help strengthen an athlete's identity. Feeling successful in their sport increases their satisfaction with their practice and forms an integral part of who they are as individuals (Liu *et al.*, 2023).

Good competitive performance often gets recognition from the wider sports community, including the media and spectators (Shang & Yang, 2021), (Maciel *et al.*, 2021). It gives athletes an added boost and increases their satisfaction with their workouts because they feel part of something bigger than themselves. Paying attention to training satisfaction as a factor that affects competitive performance can help develop more effective strategies to improve athlete performance on the field. Thus, competitive performance is not just about the outcome of a competition but also about the broader psychological impact on athletes' satisfaction with their training. Increased competitive performance can motivate, recognize, and pride athletes, contributing to their satisfaction with their sport and training.

4.4 Competitive Experience

Competitive experience means understanding how the training experience affects the athlete's perception of their overall competitive experience. Competitions provide opportunities for athletes to apply the skills and strategies they learn in practice (Karadağ *et al.*, 2021), (Novan *et al.*, 2021). This experience allows athletes to see how far they have developed and how their skills function under competitive pressure. It gives them a sense of accomplishment and reinforces their satisfaction with their training. Competitions provide a direct measurement of an athlete's progress in their sport. When they can see improvements in their competitive results over time, this provides positive confirmation that their training is impacting and helping them develop as athletes (Almas *et al.*, 2023). It increases their satisfaction with the efforts they make in the field.

Competitive experiences are also valuable opportunities to learn and grow (Aga *et al.*, 2023). From both wins and losses, athletes can gain insight into their strengths and weaknesses and areas where they need to improve. These experiences help them grow as athletes and increase their satisfaction with training because they see the value in their development. Competitive experiences often significantly affect athletes' emotions. Victory can bring joy and satisfaction, while defeat can bring disappointment and frustration. Nonetheless, these emotional experiences give depth and meaning to the competitive experience, thus strengthening the bond between athletes and their sport.

Competitions provide a platform where athletes can gain recognition and appreciation for their achievements. Support from coaches, teammates, and supporters and recognition from the broader sports community can increase athletes' sense of self-worth and satisfaction with their training. Competitive experiences reinforce a sense of community and connection between athletes, fellow teammates, and sports community members (Rossi *et al.*, 2022). Together, facing challenges and achieving common goals strengthens social bonds and increases their satisfaction with training as part of a team.

By understanding how the training experience affects athletes' perception of their competitive experience, team managers can design more holistic programs to improve the overall competitive experience. Thus, competitive experience is not only about the final result in a competition but also about the journey and learning experienced by the athlete during the process. This experience provides an opportunity for athletes to grow, learn, and be satisfied with their journey in their sport.

5. Conclusion

The results of this study produce an initial investigation and development in the form of a questionnaire to measure the athletes' satisfaction towards sports training. Athletes' satisfaction towards sports training is divided into four dimensions: the quality of training, mental and emotional health, competitive performance, and competitive experience. The results of this study can be used to measure the level of athletes' satisfaction from the beginning of training to becoming an elite athlete or professional athlete so that the results of the questionnaire can be a benchmark for coaches, teams, organizations, and officials to pay more attention and meet athletes' needs. From the results of this study, it is recommended athletes' sports training satisfaction variable could be tested together with other variables in the fields of management science, psychology, society, education, and sports.

Conflict of Interest Statement

The authors declare no conflicts of interest.

About the Author

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Appendix 1: Sports Training Satisfaction Questionnaire for Athletes

Dimension	Indicator	Sub-indicator	Code
Quality of Training	Availability of Facilities	It is easy for me to access necessary sports facilities.	X1.1
		The facilities provided are sufficient to meet my training needs	X1.2
	Quality of Coach	The coach provided adequate guidance and direction in my training.	X1.3
		The coach has high competence in helping to improve my sports skills.	X1.4
Mental and Emotional Health	Psychological Support	I feel emotionally supported by my coaching team and teammates.	X2.1
		I do not feel stressed or pressured during practice or match preparation.	X2.2
	Self-Confidence	I am confident in my sporting ability after training or match preparation.	X2.3
		I feel no doubt or always confidence in my abilities as an athlete.	X2.4
Competitive Performance	Performance Improvement	I am satisfied with my performance in the last competition.	X3.1
		My physical test results improved over time.	X3.2
	Team Competitiveness	I feel that cooperation in my team is effective.	X3.3
		Team strategies in achieving common goals are effective.	X3.4
Competitive Experience	Awards and Recognition	I often get awards or recognition for my achievements in sports.	X4.1
		Appreciation or recognition from others is important to me.	X4.2
	Overall Satisfaction	I have been comfortable as an athlete since the beginning of my first training.	X4.3
		Sports provide benefits that improve my quality of life.	X4.4

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