

## Study on the quality of life at a baseball performance center

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### Abstract:

The recent literature on the successful development of sports has pointed out the importance of the holistic approach to the athlete career in different levels. This perspective to athlete's career presents resonances in studies that seek to identify the quality of life of individuals. The association between the model of holistic development of career of athletes and quality of life can be seen in the concepts and in the research instruments. This study investigated the quality of life of athletes in a sport performance center and in an ordinary team. The WHOQOL-Bref was used to evaluate the quality of life in general, and the Quality of Life Questionnaire for Athletes identified the quality of life related to training and competition. The sample included 42 baseball players, with 21 athletes of a sport performance center and 21 athletes from a regular team. An exploratory analysis of the results was performed, to verify the association of different dimensions of quality of life. The results indicated that the quality of life of athletes is satisfactory, but the Sports Performance Center does not provide sufficient resources to meet the players' demands. The other group of athletes showed signs of overtraining. It both groups the results revealed that the training structure can be improved to attend the demands of the athletes.

**Keywords:** Athletes, Youth Sport, Performance, Well-being

### Introduction

The elite training structures have two sporting purposes. They are designed to guide athletes to learn and domain novel skills. In addition, they have the aim to guarantee that these athletes can achieve the highest level of competence in their sport (Isoard-Gauthier, Guillet-Descas, & Duda, 2013). For this proposal, the athlete's routine in sport performance centers should be designed to meet these goals.

The recent literature on the successful development of sports career has pointed out the importance of the holistic approach to the athlete, describing the phases and transitions that individuals experience in different levels, such as athletic, psychological, psycho-social, academic and educational, during their sport development and the importance of support programs and structures, so the athlete can overcome difficulties and develop their full potential (Henriksen, Stambulova, & Roessler, 2010; Stambulova, Alfermann, Statler, & Côté, 2009; Williams, 2007; Wylleman, Alfermann, & Lavalley, 2004; Wylleman & Reints, 2010). According to Stambulova, Stephan and Jäphag (2007), the effectiveness of coping with transitions depends on a dynamic balance between available resources and the difficulties to be overcome. Internal and external factors can be listed as features that facilitate the transition process. The activity and its scenario are interdependently determined, hence that the activity cannot be understood without the material, social and cultural circumstances in which it happens. From this perspective, the approach relays on the focus is on the athlete/context combination (Saury, Mohamed, Bourbousson, & Rix-Lièvre, 2014).

The theoretical model of holistic approach to athlete's career presents resonances in studies that seek to identify the quality of life of individuals. This affinity can be seen in the concept of quality of life and in the research instruments available to use for this purpose (Bakas et al., 2012; Ledochowski, Unterrainer, Ruedl, Schnitzer, & Kopp, 2012; Metelko et al., 1995; Wrisberg, 1996). Studies of quality of life seek to identify the athlete's satisfaction with the physical, psychological, social and environmental aspects during the career and make it possible to detect problems that can interfere with sport and the integral development of the individual.

For Bullinger, Anderson, Cella and Aaronson (1993) the term quality of life is broad and includes physical well being, but is not limited to the individual's health condition and medical intervention. Berger and McInaman (1993) argue that the quality of life corresponds to the physical, psychological and social well-being by linking it to the existence of a harmony between goals and desires in a positive genuine affection, and a subjective welfare state.

Research on quality of life can use generic tools such as the questionnaire developed by the World Health Organization (Metelko et al., 1995) and specific instruments such as the Quality of Life Questionnaire for Athletes - QLQA created by Cunha (2008). The WHOQOL group (Metelko et al., 1995, p.1) defines the quality of life as the "individual's perception of their position in life in the context of culture and value systems in which

they live and in relation to their goals, expectations, standards, and concerns." To Valovich McLeod, Snyder, Parsons and Sauers (2008) the combination of approaches produces different types of information that are most useful when taken complementary. Specific instruments have a number of issues that are highly relevant to certain conditions, making more sensitive to changes and detection of small changes resulting from interventions (Parsons & Snyder, 2011).

Altahayneh (2003) points out that the athlete satisfaction is related to their perception of quality of life, and the standard of sports administration sensed by the athlete. Thus, the effectiveness of an organization is inextricably linked to the ability to meet the needs of athletes, becoming crucial to understand the level of satisfaction of them (Chelladurai, 1987). In this sense, the structures of competitions and training environment are essential. A good training system, support, and motivation to athletes are the most effective ways to encourage the sporting success (Green, 2005).

This study addresses the perception of adolescent athletes on the generic version of quality of life, as well as the quality of life into specific conditions of sports training. These themes are still little explored in the literature, especially when it is considered the daily routine of athletes in training centers of excellence in sports, which are conceived to obtain high performance. However, there was not found evidence that this kind of structure always approaches the athlete as an integral human being, which includes all dimensions of life that are beyond the athletic role as well as the interaction of these dimensions. The entrance to a national elite sport training center represents a significant transition with several repercussions on athletes' development (Ledon & Debois, 2014). Consequently, it is necessary to generate the reflection on the sacrifices that are really required for an athlete to develop his or her career and what interventions can be avoided so that the athlete can have an ordinary life routine, especially when this theme involves the discussion about youth athletes in sports excellence centers. In Brazil, this demand is even more urgent as a consequence of hosting the Olympic Games in Rio de Janeiro in 2016. The country has recently created and is implementing the National Network of Training with regional and national training centers due to achieve success in sports, requiring massive financial investments (Ministério do Esporte, 2016). The objective of this study is to investigate the perception of quality of life of baseball players, according to different training circumstances and quality of life approaches.

## **Method**

This research is characterized as a descriptive cross-sectional study using two questionnaires as instruments, which aim to research the quality of life using different methods, the first covering general aspects of the individual's life and the second specifically focused on the training and competition environment for athletes.

### *Procedures*

The study was approved by the Institutional Ethics Committee and the sports institutions where the study was conducted. After clarification about the research, the sports managers, technical staff, parents and/or legal guardians, and the athletes signed the informed consent. Data collection was performed on previously scheduled days and locations, according to the convenience of the athletes and lasted about 20 minutes.

### *Participants*

The sample consisted of 42 athletes from baseball, all males and aged between 15 and 18 years. The inclusion principle adopted for the athlete to be part of the study was effective participation in training and competition during the period of data collection.

The first research group was formed by 21 athletes of Cultural and Sports Exbastenses Grêmio - GECEBS, which is characterized by being an ordinary team and conducting training on weekends. The second group included 21 athletes from Yakult Training Center, who come from several teams, but residing at the training center during the week. They receive educational support and have practice sessions from Mondays to Thursdays. During the weekend, they practice and play in their respective teams. The Yakult Training Center is characterized as the main center of excellence for training professional athletes and is administered by the Brazilian Confederation of Baseball & Softball-BCBS (Fukuda & Stanganelli, 2005).

*Instruments* - It was used two research instruments to investigate the perception of quality of life of athletes. The first instrument, known as WHOQOL-bref, was developed by the WHOQOL group (Metelko et al., 1995; WHOQoL-Group, 1998) and translated and validated for Portuguese by Fleck et al. (2000). It is an instrument composed of 26 questions, which two questions are of overall nature of quality of life, and the other represents the 24 facets divided into four domains: physical, psychological, social relationships and the environment. These areas are related to general aspects of the life of an individual. According to Lohr et al. (1996) and Skevington, Lotfy and O'Connell (2004) this instrument shows good internal consistency, discriminant validity, criterion validity, concurrent validity and test-retest reliability, which are important attributes for an instrument that has high quality and follows scientific standardization. The WHOQOL-bref results are recorded on a scale with responses ranging from one to five. The result is expressed on a scale of zero to 100, with 100 indicating better quality of life. The second instrument identifies the Quality of Life Questionnaire for Athletes - QLQA in the sports environment and was developed and validated by (Cunha, 2008) who proved the psychometric properties of the questionnaire. This instrument consists of 14 questions that influence the quality of life of athletes in training and competition environment, and questions are grouped into five areas: signs and symptoms of overtraining; basic health conditions; the social relationship in the sports environment; emotional states of the

athlete; planning and periodization of sports training. In each aspect is identified the level of influence that factors have on the athlete's quality of life in training and competition environment. The answers are marked on a scale from zero to four, and express the level of influence each aspect has in the quality of life of athletes, varying from none to totally. In the literature, the QLQA is not presented with a combination of scores for the factors. For comparison purposes, it was used the same calculation of the WHOQOL-Bref questionnaire. To this end, a unit has been added to each factor of the category of response. Consequently, the scale responses, which originally vary from zero to four, result in a scale from one to five.

*Data analysis* - The responses of athletes were recorded in Microsoft Excel for Windows®, version 2007 (Microsoft Corp., Redmond, Washington). An exploratory descriptive analysis of the results was made. Then it was compared the results of WHOQOL-Bref and the QLQA. Finally, it was compared the values of quality of life between the group of Yakult Training Center and the group of ordinary athletes - GECEBS. For the data analysis, it was used the R-Project, x64 3.0.2.

## Results

According to the WHOQOL-Bref, the quality of life of the athletes from Yakult Training Center averaged 66.9 ( $\pm 13.0$ ), with a maximum value of 85.7 and the minimum value of 31.0. The result for the GECEBS athletes showed that the quality of life averaged is 68.0 ( $\pm 7.6$ ), with a maximum value of 81.0 and 53.6 minimum value. The values for each question of the WHOQOL-BREF, on the quality of life of the group of athletes Yakult Training Center and GECEBS, are shown in table 1.

Table 1. *Quality of Life Values and their domains, according to the WHOQOL-bref, for the group of athletes Yakult Training Center and the GECEBS.*

	YAKULT	GECEBS
<b>TOTAL</b>		
General quality of life	72.6	81.0
General health	81.0	79.8
<b>DOMAIN: PHYSICAL HEALTH</b>		
Pain and discomfort	57.1	60.7
Dependence on medication	79.8	78.6
Energy and fatigue	81.0	71.4
Mobility	85.7	77.4
Sleep and rest	51.2	63.1
Activities of daily living	69.0	70.2
Working capacity	66.7	61.9
<b>DOMAIN: PSYCHOLOGICAL</b>		
Positive feelings	76.2	76.2
Spirituality, religion and personal beliefs	72.6	69.0
Thinking learning, memory and concentration	75.0	56.0
Body image	79.8	69.0
Self-esteem	72.6	69.0
Negative feelings	54.8	59.5
<b>DOMAIN: SOCIAL RELATIONS</b>		
Personal relations	75.0	78.6
Sex	71.4	65.5
Practical social support	73.8	77.4
<b>DOMAIN: ENVIRONMENT</b>		
Physical safety and security	72.6	64,3
Physical environment	64.3	64,3
Financial resources	65.5	53.6
Information and skills	54.8	65.5
Recreation and leisure	41.7	64.3
Home environment	56.0	63.1
Access to health and social care	59.5	67.9
Transport	31.0	61.9

Table 2 describes the frequency of responses, in percentage, for each question of the QLQA, and Table 3 presents the mean scores for each item. According to the results, the mean for the quality of life of Yakult Training Center is 57.4 ( $\pm 16.5$ ), with a maximum value of 85.7 and the minimum value of 38.1. For GECEBS, the mean of the quality of life in athletes is 64.3 ( $\pm 11.5$ ), with a maximum value of 80.9 and 42.8 minimum value.

Table 2. *Frequency distribution of answers in percentage, obtained from athlete's Yakult Training Center and the GECEBS for each aspect of QLQA.*

	Group	None	Low	Moderate	High	Total
<b>Social relations in the sport environment</b>						
Relationships with colleagues	Yakult	0	0	5	47	48
	GECEBS	0	0	24	33	43
Relationship with technical staff and managers	Yakult	0	0	24	28	48
	GECEBS	0	5	14	33	48
Communication and team rapport	Yakult	0	0	24	28	48
	GECEBS	0	5	19	38	38
<b>Basic health conditions</b>						
Quality of nourishment	Yakult	14	19	29	24	14
	GECEBS	0	10	24	33	33
Quality of sleep	Yakult	5	14	29	33	19
	GECEBS	0	5	29	38	28
Quality of medical services	Yakult	5	5	29	23	38
	GECEBS	0	5	38	33	24
<b>Signs and symptoms of overtraining</b>						
Tiredness / physical fatigue	Yakult	14	14	48	19	5
	GECEBS	0	28	10	38	23
Tiredness / mental fatigue	Yakult	10	28	33	24	5
	GECEBS	14	14	14	34	24
Pain and physical discomfort	Yakult	24	14	28	24	10
	GECEBS	0	24	33	33	10
Injuries	Yakult	28	24	24	10	14
	GECEBS	10	33	14	24	19
<b>Planning and periodization of sports training</b>						
Excessive training and competition	Yakult	19	5	19	28	29
	GECEBS	0	31	31	24	14
Excess travel	Yakult	19	38	14	19	10
	GECEBS	19	24	33	14	10
<b>Emotional athlete states</b>						
Excessive nervousness during competition	Yakult	24	33	24	5	14
	GECEBS	10	14	19	38	19
Pre-competitive anxiety	Yakult	24	14	14	14	34
	GECEBS	14	14	34	24	14

Table 3. *Mean scores the QLQA for the Yakult Training Center and GECEBS athletes.*

	Group	Mean
<b>Social relations in the sport environment</b>		
Relationships with colleagues	Yakult	85.7
	GECEBS	79.8
Relationship with technical staff and managers	Yakult	81.0
	GECEBS	81.0
Communication and team rapport	Yakult	81.0
	GECEBS	77.4
<b>Basic health conditions</b>		
Quality of nourishment	Yakult	51.2
	GECEBS	72.6
Quality of sleep	Yakult	61.9
	GECEBS	72.6
Quality of medical services	Yakult	71.4

	GECEBS	69.1
<b>Signs and symptoms of overtraining</b>		
Tiredness / physical fatigue	Yakult	46.4
	GECEBS	64.3
Tiredness / mental fatigue	Yakult	46.4
	GECEBS	59.5
Pain and physical discomfort	Yakult	45.2
	GECEBS	57.1
Injuries	Yakult	39.3
	GECEBS	52.4
<b>Planning and periodization of sports training</b>		
Excessive training and competition	Yakult	60.7
	GECEBS	58.3
Excess travel	Yakult	40.5
	GECEBS	42.9
<b>Emotional athlete states</b>		
Excessive nervousness during competition	Yakult	38.1
	GECEBS	60.7
Pre-competitive anxiety	Yakult	54.8
	GECEBS	52.4

After analyzing the responses of each instrument, it was checked whether there is an association between the questions of the WHOQOL-Bref and the QLQA. It was calculated the Spearman's correlation coefficient from the scores for each group of athletes. It was observed that there is an association in most crosses. However, only five cases the coefficient resulted in an absolute value greater than 0.60, as shown in Table 4.

Table 4. Spearman correlation coefficients above 0.60 between the WHOQOL-bref and QLQA items, according to the group of athletes.

RESEARCH INSTRUMENT	QUESTIONS	SPEARMAN CORRELATION COEFFICIENT	GROUP OF ATHLETES
WHOQOL-bref	General health	0.72	YAKULT
QLQA	Quality of medical services		
WHOQOL-bref	Recreation and leisure	-0.67	YAKULT
QLVA	Tiredness and mental fatigue		
WHOQOL-bref	Personal relations	0.65	YAKULT
QLVA	Relationship with the technical staff and managers		
WHOQOL-bref	Home environment	0.66	YAKULT
QLVA	Quality of nourishment		
WHOQOL-bref	Financial resources	-0.63	GECEBS
QLVA	Relationships with colleagues		

## Discussion

Assuming that high-performance training centers are structured to provide the best possible support to the athletes, the expectations were that the athletes of Yakult Training Center presented better quality of life than ordinary athletes. However, the results indicated that the values of the WHOQOL-Bref and its domains were very similar between the two groups of athletes and the mean of GECEBS for the *overall quality of life*, and the areas referring to *social relations and environment* had an absolute value slightly higher than the group of Yakult Training Center. Concerning the QLQA, the values found in the areas in which the instrument is subdivided were also fairly close. However, it was noticed that the group of athletes belonging to GECEBS revealed that aspects like *basic health conditions, signs and symptoms of overtraining*, and *emotional state* had more influence on the quality of life of this group of athletes when the absolute results are compared with the athletes of the Yakult Training Center.

Moreover, the results indicated that there was a relation between the factors of the two instruments in five cases. For athletes from Yakult Training Center, it was observed that the percentage of athletes who claimed to be satisfied or very satisfied with their health was related to the perception that the level of medical services influences the quality of life in training and competition environment. Studies in this area revealed that, the sports injuries and high levels of pain, were associated with lower levels of quality of life in general (Kuehl, Snyder, Erickson, & McLeod, 2010; Sauers, Dykstra, Bay, Bliven, & Snyder, 2011; Valovich McLeod, Bay, &

Snyder, 2010). So it is understandable that athletes who count on quality health care services tend to show greater satisfaction with their health, and reinforces the importance of specialized and qualified medical care.

It was also noticed the relationship between the absence or little opportunity for leisure activities and the influence of fatigue and mental fatigue on quality of life in the sports environment. This result reinforced the Athletes' Commission position (International Olympic Committee, 2010) that stated the extremely focused dedication to the sport can be detrimental to other life aspects of the individual. To get the best possible performance is necessary to have a balanced life based on four pillars of physical, mental, social and spiritual well-being.

Moreover, the group of Yakult Training Center revealed that the satisfaction with personal relationships of athletes with friends, relatives, acquaintances and colleagues was associated with the relationship with the coach, technical team and with the leaders, which influenced the quality of life in the sports environment. This result echoed the theory proposed by Wylleman and Lavallee (2004) and Wylleman and Reints (2010) who affirm that, from the point of view of psycho-social development; the athlete in this age perceives the coach, teammates and the sports staff as the most significant people in this phase of the sports career. The life of athletes in centers of excellence reinforces the intensity of this condition since they share the time and space with the teammates and the sports staff for a long period. The last topic related to Yakult Training Center Finally was the relationship between satisfaction with the place of residence and the perception about the quality of nourishment and its impacts on quality of sportive life. This information reflected one of the basic principles of the (Association of Sport Performance Centres, n.d.) that claims that athletes should be guaranteed the right to train and compete in a fair, ethical, healthy and safe environment.

For the group of athletes GECEBS, it was detected the opposite relationship between the financial resources to satisfy their needs and the relationship with colleagues. However, the 76% of athletes indicated that the relationship with colleagues was great. The financial resource had the lowest score in all questions of WHOQOL-Bref for this group. To analyze these results, it is important to consider that the Yakult Training Center aims to establish international standards of excellence in order to prepare professional's athletes, and it is the responsibility of the Brazilian Confederation of Baseball & Softball. On the contrary, the group of GECEBES is characterized as one team with scarce resources and structure. The lack of satisfaction presented by Yakult athletes, most of the issues in relation to the WHOQOL-Bref domain environment, showed that the structure offered did not meet the expectations and needs of athletes.

The findings of this study reveal some evidence that sports training centers should be planned and operate carefully, in order to meet the demands for the development of elite athletes, and simultaneously ensure that the others' aspects of the athletes' life are not affected negatively.

In conformity with this assumption, a study performed by Verkooijen, van Hove and Dik (2012) checked the difference in athletic identity and wellness among individuals with 16-30 years, who lived in a sports center and elite athletes who did not live in this kind of facilities. Elite sports center athletes reported lower psycho-social well-being and further reduce the sense of accomplishment, but no difference was detected in the athletic identity or the relation to welfare. This surprising result may indicate that live in a training center requires some adaptation and during this period, the performance of athletes cannot increase. The gap between rising expectations and unchanged performance may explain the reduced sense of accomplishment. In addition, the unique interaction between elite athletes can affect the perception of the athletes on their achievements. According to Isoard-Gauthier et al. (2013) in training centers, it is crucial to show high competence and there is significant importance placed on sporting accomplishment, which can result in the athlete burnout. For this reason, additional information is necessary regarding the social, environmental and individual characteristics of athletes in this context.

Stambulova et al. (2009) emphasize the importance of a comprehensive approach to an athlete, comprising the activities of individuals in the sporting context and also all other existing social roles beyond the training and competitions. Thus, athletes are advised to seek harmony between the requirements of the sport and outside, in order to establish a balanced lifestyle, and that allow the transfer of capabilities between different circumstances, such as setting goals, planning, time management and energy, skills that can be developed as resources to deal with transition periods in and out of the sport. In this sense, the diagnosis of aspects related to quality of life can reveal the person's health condition, and his or her cultural, historical, social and subjective experience, since the concept of quality of life consists of role-set dimensions of position of the individual in the world (Soares et al., 2011). This aspect becomes even more critical when considering the circumstances of the adaptation of an athlete at an excellence training center during adolescence and the support system available to overcome the various transitions inherent in the sports career. As reported by Poczwardowski, Diehl, O'Neil, Cote and Haberl (2013) a training center can offer many features to make the experience of their athletes in this environment favoring sports performance by improving the level of satisfaction of individuals and contributing to the development of sports career of the athlete in an integrated manner. This assistance can be done through multidisciplinary professionals and services and programs of support. Due to the complexity of the concept of quality of life and the scarce literature on the topic in the sporting environment, further investigations are required, especially with regard to the athletes living in training centers. The great demand for economic, human and material resources to create a center of excellence in sports requires extensive scientific foundation that

allows the formulation, implementation and evaluation of projects supporting the development of athlete's career. This knowledge can help decisions about when it is worth or not have young athletes living in centers of excellence, and when this scenario produces or not the expected results. Consequently, future studies of quality of life in athletes residing in training centers should investigate specific characteristics such as gender, age, cultural, psychological, social, educational and vocational development among other things, in order to offer a structure of support to athletes as successful as possible. The limitation of this study is the use of only two groups of athletes in a specific sport and geographically restricted area. The results cannot be generalized, as the context may be influenced by other variables and lead to differing conclusions. However, the information obtained in this study leads to reflect on the training conditions and their impact on the lives of the individuals, particularly in aspects that go beyond the athletic development.

### Conclusion

The results indicate that the quality of life of Brazilian baseball players is satisfactory, related to the general framework and in the specific training and competition environment. Regarding the comparison of the two training centers, data analysis showed that there are some differences between the two centers.

It is observed that the Yakult Training Center, despite being considered a place of sporting excellence, does not seem to provide sufficient resources to athletes according to the demands that characterize high performance, both in the training environment and in relation to aspects of life outside of the sporting context. In this regard, it is noted the need to improve its structure and consider broader aspects that influence the lives of athletes. On the other hand, the Yakult Training Center athletes appear to be in better physical conditions for training and competition than the athletes of GECEBS, which demonstrates the necessity to ameliorate the organization and structuring of training due to the signs and symptoms of overtraining revealed by this group.

It emphasizes the importance of further studies is made in this field, to produce more robust knowledge to provide theoretical support for the planning and activities in such centers.

### Declaration

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