

## The effect of layers of compacted ground on sports injuries among football practitioners at the level of nearby sports complexes in Algeria

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### Abstract:

The study aimed to find out the factors affecting the increase in the rate of sports injuries at the level of football stadiums within neighborhood sports complexes , the researcher in this study used the questionnaire that was distributed to a sample consisting of (17) managers, from managers of nearby sports complexes in the wilaya of Laghouat. The revercher has the présence of imbalances and discrepancies in the process of complétion football ground and preparing them from one complex to another in terms of adherence and respect for the standards and norms that must be followed in the achievement of two determinanats in the Code of the Ministry of Youth and Sports, on the other hand, a weakness was recorded in the operations of maintenance and cleaning works due to the lack of budget and the absence of professional workers specialized in taking care of the Taking care about sports establishment.

**KEY WORDS:** Layers of Compacted Ground; Sports Injuries; Football; Nearby Sports Complexes.

### الملخص:

هدفت الدراسة الى معرفة العوامل المؤثرة في ارتفاع نسب وقوع الإصابات الرياضية لدى الممارسين على مستوى المركبات الرياضية الجوارية المنجزة وفق برنامج وزارة الشباب والرياضة لهذا النوع من المنشأة الرياضية الخفيفة بمحاذاة الأحياء والمؤسسات التربوية في اطار مشروع 1000 مركب رياضي جوارى، وهذا بتوزيع استبيان على 17 مديرا للمركبات الرياضية الجوارية الموزعة على مستوى تراب ولاية الأغواط للوقوف على تأثير مدى مطابقة هذه الميادين الخاصة بممارسة رياضة كرة القدم اثناء إنجازها للمعايير والمقاييس المتعارف

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عليها في عملية إنجازها ، وكذا أهمية عاملي الوعي الثقافي الرياضي لدى الممارسين أثناء استغلالهم لهذا النوع من الميادين، التي تعرف عدد كبير من الممارسين من مختلف الفئات العمرية في اطار ممارسة الرياضة للجميع (رياضة كرة القدم بين الأحياء)، وكذا عامل غياب الرقابة الفنية لهذه الميادين ذات الطبيعة الترابية، في ظل غياب الوسائل المادية والبشرية الكفيلتين بصيانتها والحفاظ عليها على الحالة التي تسمح بالممارسة الآمنة والسليمة وانعكاسهما على الحد أو التقليل من أثر حدوث الإصابات الرياضية وارتفاع نسبها عند ممارسي رياضة كرة القدم.

**الكلمات المفتاحية :** طبقات الأرض المدكوكة؛ الإصابات الرياضية؛ كرة القدم؛ المركبات الرياضية الجوارية.

.IntroductionSports needs an infrastructure represented in facilities and stadiums, while ensuring a certain level of stable funding, in addition to providing various services to the beneficiaries of the public and athletes.(1)In addition, the implementation of a global and effective strategy represented in supporting human resources and various educational and pedagogical means for nearby sports complexes, as part of their success in responding to the aspirations and desires of these various segments of different ages and genders in recreational sporting practice in appropriate conditions, based on the fact that they are sports spaces which respects international norms and standards , and as an example of these standards and measures that must be provided by those related to floors that achieve basic functions for the practitioner, such as good protection of the locomotor system from the impact of falls and shocks trauma resulting from jumping or rebalance, because also , The Sports facilities such as halls, playgrounds and complexes, especially those containing the latest technologies, means and high-quality equipment, are considered a way to attract and encourage students to practice physical education (2) It also guarantees safety when moving, as well as controlling friction (sliding) With the floor, which enables the practitioner to recover sufficient energy that allows him to have a good horizontal elasticity due to its ground layers, making it of high quality and resistant to all environmental conditions in order to be safe

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for young practitioners and even adults to achieve goals that are mainly to direct them within groups for interaction ,so acquaintance and convergence Among them, far from the obsession with exposure to sports injuries of various degrees and in most cases they may be severe injuries caused by grounds that are not adequately prepared for the practice that does not guarantee the safety and security of their users, and we must acknowledge the fact (most of the time we forget it), which is that the ground is an integral part of the total sports facilities and it is not possible in any way to separate them and not give it sufficient importance and make it Our last concerns.

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The high percentage of youth, which represents more than 70% of the population, has increased the importance and status of these recreational activities, and the successive important transformations

that the state is experiencing in various fields have contributed to the creation of many and varied needs, as if one of the most important of them is ensuring free time, for all segments and youth. In particular.

Sports injuries are among the most crucial problems facing practitioners of physical and sports activities of all kinds, and specializations and categories, as they often cause them to be exposed to different types of injuries that may often constitute an obstacle to their continuation and their appetite to practice in sports nearby

complexes, and the injury may occur. In exercise, or in competition, even for light recreational activity, the incidence and types of these injuries vary, and their correlation varies also

with the type of activity practiced, so we should always bear in mind the principle of the safety of the practitioner first and put in place all the capabilities to prevent the occurrence or recurrence of injuries to reduce their severity through Take all necessary measures during training.

Our review of lit or previous studies related to sports injuries, especially those directed to sports fields such as football stadiums, as well as all studies that dealt with sports institutions in general, and among the studies: Study of Mustafa Jawhar Hayat related to common sports injuries for some clubs of the physical education and sports departments in the State of Kuwait, to identify injuries The most common that affects different parts of the body in different sports according to (types, areas of occurrence, causes, and severity). The research sample consisted of players registered in sports clubs in the State of Kuwait through their reluctance to treatment and rehabilitation in the Sports Medicine and Rehabilitation Center of the Ministry of Social Affairs and Work during the year 1987, their number was 70 players, used a questionnaire form related to sports injuries, the results of the study were:

A cartilage tear in the spinal region is the most common injury, while cramps came in second place, and traumatic injuries came in third and fourth place, followed by dislocations, and then the

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spinal cord, which constitutes the least injuries, and the first half of the sports season is the most frequent injuries, and more The timing of an injury is during training and competition, lack of fitness and poor warm-up are the most common factors that cause injuries. As

for Samia Khalil Muhammad's study, which came under the title: An Analytical Study of Common Sports Injuries Among Students of the College of Physical Education and Sports, aimed at identifying the injuries that affect various The limbs of the body in various sports, as the study aimed to lay preventive foundations that could be achieved by the curricula in the college. The research sample consisted of injured athletes from the injured students of the Jadiriya College and for the four academic stages, where their number reached (204) injured students out of (1845) It is the total number of college students, meaning that the percentage of injured reached (16.38%), The researcher used a questionnaire form to collect informations about injured students (types of injuries, locations of their occurrence in the body, their causes) a questionnaire form regarding the activities in which the injuries occurred, and concluded that there is a high rate of sprains in various joints, followed by trauma, lacerations, dislocations, and fractures were recorded. The lowest percentage, especially in the early stages (the first and second stages) high incidence of injuries to the lower extremities, especially the knee and ankle joints, then back injuries. Insufficient warm-up (warm-up alone) and the absies for each game is one of the tactical and skill characteristics as it is one of the most prominent causes leading to the occurrence of sports injury.

Increase the percentage of injuries in multi-technical activities that require speedy performance like (gymnastic Square)

The study of Muhammad Qasim Abdullah Al-Azzawi, Ibtisam Hassan Khalaf, Ali Fuad A comparative study of sports injuries in physical education lessons The study aimed to compare sports injuries in physical education lessons, their causes, locations, and activities that occurred in them. The research sample consisted of injured athletes from the injured students of Al-Mustansiriya faculty

The tools used in the study: a questionnaire form regarding information about the injured students (types of injuries, locations of their occurrence in the body, their causes). A questionnaire form regarding the activities in which the injuries occurred.

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Results of the study: Researchers believe that bone injuries, muscle contraction and sprains are among the most common injuries among taekwondo players and in areas (metatarsal, foot, forearm, thigh).

Most of the injuries occurred to the ankle for boxers are (cuts, sprains, bone bruises and muscle sprains) and the most vulnerable area is (head, phalanges, shoulder, abdomen)

The lack of information about how to deal with these conditions and procedures calls for both those in charge of them and the beneficiaries of their services to adopt conditions represented in continuous monitoring and periodic maintenance so that they become a reference that protects our practitioners in the first degree from falling into sports injuries through change to ensure and continuously for Technical factors and periodic maintenance and control of these sports spaces with the promotion and implantation of sports culture that is capable of reducing the severity of the high incidence of sports injuries during the exercise of physical and sports activities in such sports spaces.

Sports injuries differ according to the type of activity practitioner, the nature of performance and the level of competition as well as the psychological aspect, skill readiness, physical fitness and sports awareness from danger of the movement performed and the possibility of causing injury as well as his knowledge of how to avoid it and reduce its occurrence.

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There are many causes, including wrong training, which is one of the direct causes of its occurrence, such as the wrong warm-up, the lack of gradual charge, the load of the athlete above his physical capabilities, and the failure to fully consider the integration between the elements of physical fitness in the preparation of sports in a comprehensive preparation, and neglecting the medical supervision aspect of the practitioner and not subjecting him to periodic examinations is a Direct reason for being injured Note that the practitioner's ignorance of preventive and remedial measures also has a major role in their occurrence, as well as a factor, lack of sportsmanship and discipline, failure to respect the laws of the game as soon as possible leading to the occurrence of sports injuries in the fields, which may be very dangerous in most cases, without neglect The role of both sports clothing and shoes, as well as sports supplies of all kinds and stadium floors, and not taking into account various environmental factors such as extreme cold, high heat, rain, wind, air pollution and the specificity of sports practice in high places, which are among the real causes of injuries.

Based on what has been discussed about sports injuries and the factors and causes behind them in general and in particular those related to football because of The fame of football as a sport has reached what no other sport has reached, and it has gone beyond the stage of hobby, recreational play, and random programs to become science, study, planning and countless funds that are not spent for the preparation of players, clubs and teams (3)

The following question arises (Problem statement):

Do the layers of compacted soil ground affect the sports injuries of football practitioners at the level of nearby sports complexes ?

Through this research, we will try to shed light on the detection of the level of imbalances in the standards of realization of football sports fields in light of the absence of periodic technical control of these fields, the lack of sports culture for the practitioners about the nature of the floors, and their lack of conformity with the standards in their completion process, which contribute to the high rate of sports injuries among practitioners In sports nearby complexes, from the point of view of managers.

### **I- Method and tools:**

#### **1- The sample:**

our sample consisted of seventeen (17) managers, of nearby sporting complexes in the wilaya of Laghouat.

**2- Research procedures:**

**2-1- Method of research:**

We used in our research this descriptive and analytical approach and we chose this approach due to its compatibility with the nature of the subject being treated, and this approach is based on collecting data, information, opinions and facts, which work on describing the phenomenon or problem that is the subject of study, and a comprehensive description that includes the factors and variables affecting it and affected by it. and branches which solution lies in, and which are better to use.(4)

The descriptive approach is one of the most used research methods, especially in the field of educational, psychological, social and mathematical research. The descriptive method is concerned with collecting accurate and scientific descriptions of the phenomenon studied, describing the current situation and its interpretation. It also aims to study the relationship between the different phenomena. We chose this approach because it is consistent with the nature of The subject of our research, in addition to describing factors and analyzing conditions, all situations and stages, step by step, and collecting facts, data and information related to the phenomenon under study. Hence, the need to rely on the descriptive approach, which is defined as: 'A method of analysis and interpretation in an organized scientific manner In order to reach specific symptoms of a particular social situation, social problem, or population. (5).

So the researcher must classify the data and the facts ; analyze them accurately and adequately, then arrive at generalizations about the phenomenon under study. (6)

Among the methods used in this approach, especially in psychological and social research in the sports field, include an interview and a questionnaire.

**2-2- Tool (s) :**

The research tool is the only means by which the researcher can solve the problem presented in the study and verify its hypotheses, data collection tools are the sum of the means and measures that the researcher adopts to obtain the information required to understand and solve his problem from the relevant sources, and to study the subject of the impact of compact soil layers on sports injuries of algerian football practitioners , and to know their exact nature, can be relied upon in this research on the following tools:



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#### **Questionnaire:**

It is considered one of the tools commonly used in scientific field research, and it is a list of various questions, through which we can prove or deny the research hypotheses. (7)

A questionnaire form was prepared for this purpose: Steps to set the questionnaire:

#### **The first step:**

At the outset, some previous studies and some references related to research and tests that measure study variables were reviewed, the most prominent of which are:

The study of Tayeb Abdel Aziz and Masdawi Suleiman, 2005.

A study of Maouhoubi Issa 2007.

The study of Yassine Benchrif 2011.

The researcher extracted and placed the largest possible number of questions and phrases that correspond to the Algerian environment, and they were divided into a questionnaire:

A questionnaire for nearby sports complexes managers: It consists of 31 phrases distributed on three axes to a group of sports nearby complexes located and distributed across some municipalities of Laghouat Where we explained to them all the axes and phrases of the questionnaire, which they considered easy and clear, and each of the sample managers did not receive any difficulty in understanding the phrases presented to them, in addition to the process of honesty and consistency that we did.

In light of the responses of managers of nearby sports complexes to some exploratory questions and information obtained from some research, books and measurements that dealt with some issues related to sports organizations on the one hand and sports injuries on the other hand, the initial image of the scale was developed, which consisted of a questionnaire containing thirty-one words, and it was taken into consideration. In the formulation of the phrases include:

- Phrases should be clear and understandable.
- Phrases do not contain more than one meaning.
- Avoid complex phrases.
- Field application procedures for the tool:
- The second step is the arbitration process:

In the previous step, we mentioned that the data collection tool was built in light of the study hypotheses. At this stage, the study tool was presented to experts and researcher evaluators for the purpose of

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the arbitration process in order to measure its apparent validity, content validity, by presenting it to a group of professors specialized in biomedical sciences, and professors of the sciences and techniques of physical activities and sports in several Algerian universities.

We presented the questionnaire to a number of the institute members, their number: five (05) professors from the Institute of Sciences and Techniques of Physical Activities and Sports at the Universities of Laghouat and Djelfa.

After the arbitration process, the questionnaire was extracted in its final form

#### **Description of the search tool:**

Based on the mentioned steps, a tool was formed from two questionnaires

Questionnaire of supervisors (trainers): It consists of direct questions related to some general information, which includes in its first part: (gender, age, years of experience in the field of managing establishments, the certificate obtained), and the second part consists of closed and semi-open questions, divided into Three axes, as we mentioned earlier

**Table 1 shows the axes of the questionnaire**

number	Axis name	Number Phrase
01	Supervision by sports complex managers	20
02	practitioners Sports injuries	12
03	Respecting conformity with standards in the process of constructing soccer fields of nearby complex's	10

The questionnaire statements are divided into three axes as follows:

**Table 2 Distribution of statements on the axes of the questionnaire**

Number	Axes	Number of Phrases
01	First	1,2,3,4,5,6,7,8,9
02	Second	10,11,12,13,14,15,16,17,18,19,20,21,
03	Third	22,23,24,25,26,27,28,29,30,31,31.

Direct questions were raised related to some general information, which includes in its first part: (gender, age, years of experience in the field of training, and the degree obtained), and the

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second part was prepared in the manner of 'LIKERT' (1932), and the answer determines the extent of his approval or opposition to Each phrase according to the following scale: (always, sometimes, never).(8)

Then, the respondent asked to place a sign (X) on the answer that expresses his opinion regarding each of the statements included in the scale, and thus the direction of the individual questioned falls from proof to moderate proof to, negation.

The experiments conducted in this field have confirmed the preference of this method for its ease, and because it usually has high degrees of stability, as it accurately shows the degree of individuals' tendency towards the problem of this scale with some kind of grading as it depends on the grading of one phrase instead

of using graded expressions, as well as Fouad Al-Bahi Al-Sayed and Saad Abdel-Rahman stated: 'Likert's grading scale is one of the many scales used in the field of measuring the human sciences, because this scale does not consume much effort and time, in addition to that it was found in many field studies that there is a correlation (9)

### **The third stage: Validity and reliability of the study tool**

To verify the validity of the study tool and to ensure its availability on the psychometric properties, it was applied to a survey sample consisting of (12) individuals, 6 supervisors and 6 managers of a football field in various neighborhood complexes in the wilaya of Laghouat and Djelfa, and through the results obtained, it was calculated:

#### **Validate the tool:**

It is one of the most important conditions that must be met in measuring instruments and it is one of the most important criteria for the quality of the test. Gerard Anastasi says (1990) that the validity of a test means what the test measures and how the measurement is correct, and Lindquist (1951) defines it as the accuracy with which the test measures and what it is designed for. (10)

Validity is accepted on the basis of the correlation coefficients that refer to it, and in order to ensure the validity of the tool, the researcher has followed two methods of codifying the validity factor of the questionnaire, as follows:

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**Table 3: The internal consistency between scores for each axis and the overall score for the questionnaire.**

N	Axis	standard deviation	Correlation coefficient
01	Supervision by sports complex managers	0,87**	significant
02	practitioners Sports injuries	0,89**	significant
03	Respecting conformity with standards in the process of constructing soccer fields of nearby complex's	0,88**	significant

### Tool stability:

The researcher used the Cronbach alpha equation, where his equation known as the coefficient alpha ( $\infty$ ) (Coefficient Alpha) to estimate the internal consistency of multiple choice tests and measures, that is, when the answer probabilities are not zero, i.e. not two-dimensional.

The reliability of the questionnaire for the factors affecting the increase in the percentage of sports injuries at the level of football fields of nearby complexes reached Alpha = 0.96.

And as a conclusion from the study of the validity and reliability coefficients (honesty ranges between 0.97 - 0.99 and reliability by 0.96), we can say that there is a statistical significance between all the phrases of the axis and the total degree of the axis that represents it, and that all three axes of the questionnaire are related to the total score of the questionnaire.

### 2-3 - statistical tools

After the implementation phase, the questionnaires data that are valid for the purposes of the study and which are completed and answered were dumped into the computer for the purpose of analyzing and processing them through the Statistical Program for Social Sciences (SPSS) version 20, and this is in order to discuss the hypotheses in light of the research objectives. We have used the following statistical methods:

Calculating the Pearson correlation coefficient, to study the factors affecting the high rate of sports injuries at the level of football fields in nearby complexes in Algeria and the correlations between the phrases of the questionnaire axes (truthfulness).

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Calculation of the Alpha Cronbach equation and correlation coefficients in standardizing and determining the psychometric properties of the search tool (stability)

Calculating the percentages of repetition of managers 'and supervisors' responses to questionnaire statements, the factors affecting the high percentage of sports injuries at the level of football fields in neighborhood complexes.

### III Results: Presentation and analysis of discussion results of the first axis:

Supervision by sports complex managers

**Table 4: Supervision by sports complex managers**

Answer	Frequency	Percentage
Always	11	65%
sometimes	04	23%
Never	02	12%
The Sum	17	100%

#### Analysis:

Through the results in the above-mentioned table, we note that the answers of the study sample individuals on the first axis of the questionnaire of soccer fields of a dirt nature with neighborhood sports complexes, 11 , or 65% of managers, that there is always a frequent use of the football field with the absence of periodic maintenance A reason for the high percentage of injuries, while 04 or 23% of managers say that sometimes the reason for this, while 02 of the managers surveyed, or 12%, says that the frequent use of the football field does not at all cause an increase in the percentage of injuries suffered by practitioners in Dirt floors in nearby sports complexes.

**Presentation and analysis, discussion of results of the second axis:** practitioners' Sports injuries.

**Table 5: practitioners Sports injuries**

Answer	Frequency	Percentage
Always	14	82%
sometimes	02	12%
Never	01	06%
The Sum	17	100%

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### Analysis:

Through the results in the aforementioned table, we note that the answers of the study sample members on the first axis of the questionnaire of soccer fields of a dirt nature with neighborhood sports complexes, where 14 managers, i.e. 82%, say that there is always a relationship between the validity and nature of the field and the degree of injuries to which they are exposed Practitioners, while 02 managers, or 12%, say that sometimes there is a relationship like the aforementioned, while 01 of the surveyed managers, or 6%, say that there is no relationship at all between the validity of the field of practice and the degree of injuries that practitioners are exposed to on dirt floors with neighborhood complexes. .

### Presentation and analysis , discussion , results of the third axis:

Respecting conformity with standards in the process of constructing football fields with sports complexes

**Table 6: Respecting conformity with standards in the football field construction process**

Answer	Frequency	Percentage
Always	09	53%
sometimes	05	29%
Never	03	18%
The Sum	17	100%

### Analysis:

Through the results in the above table, we note that the answers of the study sample individuals on the third axis form of soccer fields of a dirt nature with neighborhood sports complexes, where 09 or 53% of the manager say that they always analyzes the dangers related to the football field and keeps it according to the standards And specifications, while 05 manager , (29%) believes that they sometimes does this, while 03 of the managers surveyed, or 18%, says that they never analyze the risks and their dimensions, and the nappy on the field of football matches the standards known to the sports complexes.

### VI - Discussion:

By presenting the results of the first axis and our analysis of it, most of the sample members confirmed that the football fields in the neighborhood sports complexes Being subject to regular technical supervision by 65%. On the other hand, it appeared that the procedure

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for restricting sports accidents that cause sports injuries is not generalized to all complexes, which does not provide accurate statistics on their number and percentages.

The results of the table showed that managers watch over the continuous monitoring process of the football field and the gear used by practitioners at a high rate.

In addition, the majority of managers, with a percentage of 96.5%, ensure the provision of good conditions for practice by eliminating the black points that may be behind the occurrence of sports injuries. The consideration is to avoid the crossbar falling onto the practitioner due to unsteadiness and the risk of falling into a serious sports injury.

This confirms that The physical or tangible appearance is considered as.... (the stadium, sports halls, facilities ... etc.) where through the physical appearance of the stadium the quality of the tangible products (equipment and buildings) is shown in how the service is provided.(11)

The results of the second axis are evident, The changes in surfaces may affect the performance and pattern of injury in addition to other factors that drive the athlete to injury, which is the friction between the surface and the shoes (12) and the several types of injuries, including those occur as a result of (slipping) on a dry surface and it is an injury that occurs jointly by both the type of shoe used by the practitioner and the nature of the floor that allows slid (sliding) continuously In all directions, in the presence of water, and on any type of floor, falls and sports injury is prevented.(13)

### **Discussion:**

Results of the third axis mentioned that the response of the respondents, with 53% of the managers, analyzes the dangers related to the football field and keeps it according to the standards and specifications, and they find it difficult to realize the deficiencies they face in maintaining the good condition of the football field and this due to the lack of material resources and the intensity of their exploitation By a huge number of practitioners from all groups during the days of the week and throughout the year indicating a result or a large percentage, and according to the managers always that the football unit in the neighborhood sports complexes is not concerned with oversight by the specialized committees that are concerned with the development of these fields and the beneficiaries of them by 96.5% and this Contrary to what is in force in sports establishment in

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which various sports competitions are held and open to the masses for periodic visits to ensure their compliance with the standards and standards set by the Algerian sports federation.

#### **V - Conclusion:**

The results concluded that there are discrepancies in the process of accomplishing football fields at the level of these complexes in terms of respecting the standards and norms set in advance in the Ministerial Code on methods for implementing neighborhood sports complexes, including in particular with regard to the layers forming this ground that must be respected during the realization process in order to be safe for Practitioners (infiltration, leveling, inclination, two layers of sand and a layer of teff sieve to protect practitioners from the presence of stones and gravel). This weakness in the process of carrying out maintenance and cleaning operations is matched by the lack of material and human resources at the level of some complexes, as some of them witness the total absence of these suppliers represented in financing. and professional qualification specialized in the process of undertaking maintenance and cleanliness works.

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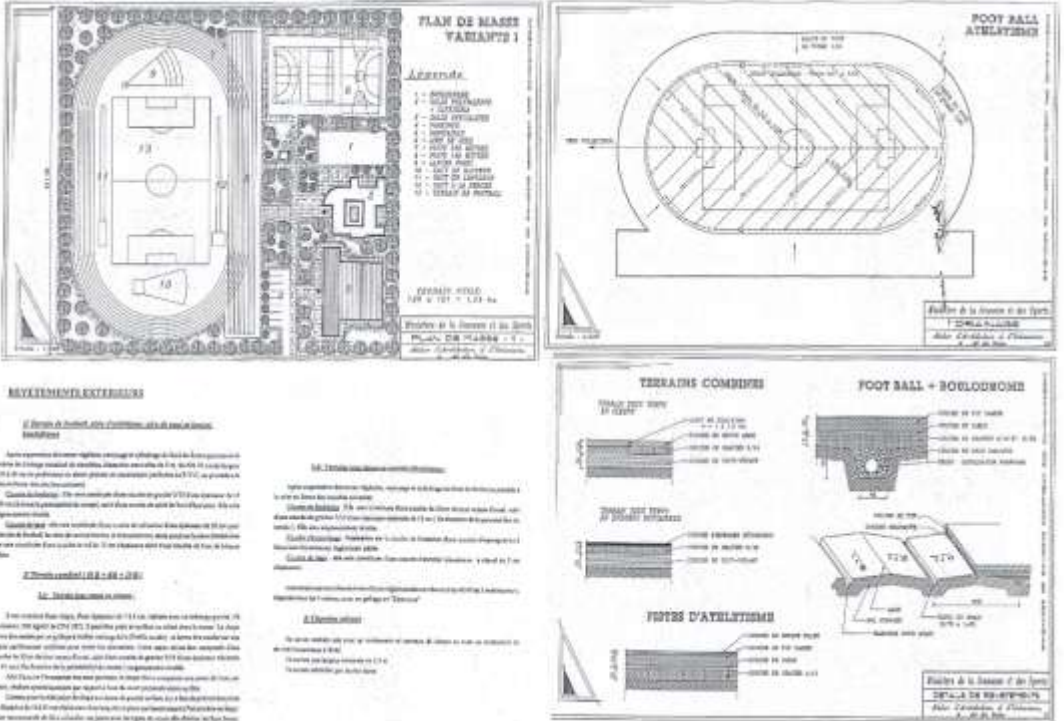
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### Appendices :

(14)and (15) The appendices represent the technical



components of the stadiums and building layers