The term osteitis pubis appeared as such for the first time in the literature in 1924 and was described by Dr. Edwin Beer as a complication following surgery performed above the pubic symphysis. Later, this condition was also found to appear as an inflammatory process in athletes, causing pain at the insertion of the abdominal muscles, in the adductors and in the pubic symphysis.

In 2011, Demetrius E.M.L. wrote in his paper entitled Athletic Pubalgia (Sports Hernia) published in Clin. Sports Med., that this issue is very common among football players, representing 10% - 13% of all injuries throughout a year. This idea was also supported in 2015 by Matsuda D.K. in Endoscopic Pubic Symphysectomy for Athletic Osteitis Pubis, published in Arthroscopy Techniques stating, at that time, that osteitis pubis was a common form of pubalgia in athletes.

Moreover, the authors also claimed that the pubalgic syndrome (osteitis pubis) was becoming more and more common among football and tennis players. One possible explanation in this regard could be the fact that practice nowadays is much more intense and produces more wear and tear than 30 or 40 years ago; the number of practice hours has increased, and the intensity, volume and complexity have doubled or tripled. The high frequency of occurrence of this condition is determined by effort overload, as well as by practice errors, improper warming-up, competitive and practice field/court surfaces, high number of competitions every year, etc. These aspects are also confirmed by C.J. in the study Athletic Osteitis Pubis, Sports Medicine (2011), who

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described osteitis pubis at that time as an overuse injury caused by biomechanical overloading of the pubic symphysis.

In this regard, the national and international literature has failed to provide a conservative treatment model to help football players become quickly rehabilitated and reintegrated into competitive life. This was also stressed upon by Cheatham S.W. in 2016 in *The Effectiveness of Nonoperative Rehabilitation Programs for Athletes Diagnosed With Osteitis Pubis*, Journal of Sport Rehabilitation, who pointed out that there was very little evidence to highlight the effectiveness of rehabilitation programs in recovering athletes and in getting them back to the level they were before the onset of this condition. In this context, through this paper, we aim at helping football coaches and players by offering them a viable conservative method in the fight against the pubalgic syndrome (osteitis pubis), but also as quick a return to the sporting activity as possible.

The first part of this doctoral thesis, entitled “Scientific foundation of the research topic”, focused on identifying the state of the art in the field, both in the national and international literature. The databases of three virtual libraries were consulted in this regard, namely: ScienceDirect, Thomson ISI – Web of Science and SpringerLink. After checking those three data bases and identifying a number of 279 articles whose titles contained one of the indexing criteria, i.e. “osteitis pubis” and “pubalgia”, I found, on the one hand, that none of the articles belonged to Romanian researchers and, on the other hand, that the international authors addressed the syndrome from a surgical or pharmacological point of view, or only based on the methods of diagnosing the pubalgic syndrome.

Once I have identified the state of the art in the literature, I have continued my documentation by broadening the scope of knowledge of the literature studied to include anatomy, physiology, medical recovery etc. This has allowed me to obtain a better understanding of the onset of the pubalgic syndrome (osteitis pubis), of the effects it produces, of the diagnostic methods, as well as the conservative methods used in the recovery from this syndrome. In this direction, my research focused on identifying an optimal recovery treatment protocol in the recovery of the pubalgic syndrome (osteitis pubis) and on returning to the sporting activity as soon as possible after such treatment.

The second part of my thesis “Preliminary research in the context of the topic studied” aimed at identifying the reference value regarding the space-time parameters recorded at the plantar level in unaffected football players, as well as highlighting the effects of kinetic methods in the recovery of the pubalgic syndrome.

Thus, in this part of my thesis, I selected two samples of subjects. The first sample consisted of 30 football players unaffected by the pubalgic

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3 Cheatham S.W., Kolber M.J., Shimamura K.K., (2016). *The Effectiveness of Nonoperative Rehabilitation Programs for Athletes Diagnosed With Osteitis Pubis*. Journal of Sport Rehabilitation, 25, 399-403
syndrome, while the second sample comprised 5 football players affected by the pubalgic syndrome. The 35 subjects were between 20-30 years old, weight between 60-90 kilograms, were between 170-190 cm tall, had plant size between 22.5-28.5 cm and had a minimum of 5 years of sporting activity.

The sample comprising 30 subjects was used in testing the first hypothesis of the preliminary research, namely that of carrying out a material analysis on the plantar level parameters which leads to establishing the reference values of the healthy football players regarding the plantar imprint and its pressures, while the second samples was used in testing the second hypothesis, i.e. applying a therapeutic protocol with kinetic methods leads to the improvement of the symptoms generated by the pubalgic syndrome (osteitis pubis) in football players.

All the 35 football players were subjected to posturological assessment, which provided data on their plantar imprint and plantar pressure (for the right and left foot) and the surface of their center of gravity. The second sample also followed a kinetic treatment protocol over a period of four weeks (twenty sessions). The kinetic treatment protocol included:

- massage (smoothing and friction);
- passive stretching, massage (smoothing and friction);
- muscular neuroproprioceptive facilitation techniques (relaxation-opposition);
- massage (smoothing and friction);
- passive stretching combined with muscular neuroproprioceptive facilitation techniques;
- ending the session with massage (vibrations).

The results of the preliminary research have allowed me to draw important conclusions on the reference value regarding the space-time parameters recorded at plantar level in football players and the effects of kinetic methods in the recovery of the pubalgic syndrome, conclusions which confirm the hypotheses of the preliminary research and provide direction for experimental research.

The third part of the thesis, entitled “Experimental research on the effects of kinetic methods in the recovery of the pubalgic syndrome in football players”, aims at optimizing the kinetic treatment protocol and at carrying out a therapeutic recovery plan to help athletes reenter competitional life as quickly as possible.

The purpose of the research is to highlight the effects of kinetic methods in the recovery of the pubalgic syndrome (osteitis pubis) and in the return of athletes to competitional activity as quickly as possible.

The experimental research, wherein my personal contribution to the development of the field lies, had the following objectives:
• carrying out a structured protocol aimed at the recovery of the pubalgic syndrome (osteitis pubis) through kinetic methods in football players;
• highlighting the efficiency of the recovery plan made and applied in this stage.

In order to carry out the experimental research, the following hypotheses have been verified:
• applying a therapeutic protocol with kinetic methods over a period of six weeks produces an improvement in the symptoms generated by the pubalgic syndrome (osteitis pubis);
• carrying out and applying a therapeutic recovery plan leads to the shortening of the time necessary to improve symptoms and to return to competitional life.

In order to organize and develop the experimental research, I considered it appropriate to establish the following tasks:
- establishing assessment methods;
- establishing the number of subjects and the duration of the research;
- establishing the initial and final assessment;
- establishing the treatment protocol;
- establishing the exercises intended for the return to competitional activity;
- establishing the manner of carrying out the data analysis and of interpreting the data;
- drafting the experimental research.

The following methods have been used to conduct the preliminary and experimental research: the bibliographic study and the historical method, the pedagogical observation method, the measurement and assessment method, the case study method, the statistical-mathematical method and the graphical method.

The sample of the experimental research comprised 6 football players diagnosed by the consultant physician with the pubalgic syndrome (osteitis pubis), aged between 20 and 30, male gender, body weight between 60-95 kilograms, 170-195 cm in height, plant size between 22.5 and 28.5, with minimum 5 years of sporting activity, and football players in leagues 1-4.

The research was conducted within the Pro Life Clinics SRL of Iași, on Anastasie Panu street, in collaboration with consultant and registrar physicians from this unit.

The initial and final testing corresponding to the experimental research I have carried out included:
• **somatic development assessment**, by measuring: weight, height, plantar size;
• **stabilometric assessment** of body position through posturology;
• **space-time parameter assessment** through BTS programs and software;
• **assessment of the degree of mobility** of the coxofemoral joint through goniometry;
• **assessment of the pain** felt by the patient in different situations with the help of the pain scale **Visual Analog Scale**.

The applied intervention of the **kinetic treatment protocol** was carried out over a period of six weeks (37 sessions) lasting 50-70 minutes each. The protocol consisted in:

- **week 1 and 2:**
  - massage of the adductor muscles of the lower limbs;
  - passive stretching of the adductor muscles of the lower limbs;
  - massage of the adductor muscles of the lower limbs;
  - muscular neuroproprioceptive facilitation technique on the adductor muscles of the lower limbs;
  - massage of the adductor muscles of the lower limbs;
  - combination of passive stretching and the muscular neuroproprioceptive facilitation technique – techniques used: relaxation-opposition and passive stretching;
  - massage of the adductor muscles of the lower limbs.

- **week 3 (two sessions):**
  - massage of the pelvic muscles on the right side;
  - massage on the pubic symphysis and along the right pubic ramus;
  - massage of the pelvic muscles on the left side and massage on the pubic symphysis and along the left pubic ramus.

- **week 4-6:**
  - the protocol presented in week 1-2 was carried out on Mondays, Wednesdays and Fridays;
  - the protocol presented in week 3 was applied on Tuesdays and Thursdays.

The training plan aimed at the athletes’ reintegration into **competitional activity** was conceived for a period of two weeks and begins after completing the intervention plan on the osteitis pubis. The training plan comprised 6 sessions (2 in the first week and 4 in the second week) of training in the kinetic therapy center, under the permanent guidance and supervision of the kinetic therapist.

The training plan aimed at the athlete’s reintegration into competitive activity comprises:
- routine - lateral movement to the right, front, lateral movement to the left and back exercises with tempo variations;
• exercises performed with the elastic band on wall bars aimed at rebalancing the anterior muscles of the thigh and the iliopsoas (for both limbs);
• exercises dedicated to the deep muscles with the help of the balance board;
• exercises performed with the elastic band on wall bars aimed at rebalancing the adductor muscle of the lower limbs (for both limbs).

After comparing and processing the data obtained at the two (initial and final) assessments conducted within the experimental research, it could be concluded that:

**The hypothesis of the research** according to which applying a therapeutic protocol with kinetic techniques, over a period of six weeks, leads to the improvement of the symptoms generated by the pubalgic syndrome (osteitis pubis) has been validated.

Furthermore, the **hypothesis of the research** according to which carrying out and applying a therapeutic recovery plan will lead to the shortening of the time necessary to improve symptoms and to return to competitive activity has also been confirmed.

The confirmation of the hypotheses formulated within this research leads us to the following general conclusion:

**The use of a kinetic treatment protocol in the pubalgic syndrome (osteitis pubis) as well as of a training plan aimed at the football player’s reintegration into competitive activity leads to the recovery of the pubalgic syndrome (osteitis pubis) and to the return to professional sports as quickly as possible. This statement is supported by the results obtained from conducting the experimental research as well as by the confirmation of the research hypotheses.**

The first original contribution of this thesis is the creation of the reference value necessary in recognizing the differences produced in football players with the onset of the pubalgic syndrome (osteitis pubis).

The second original contribution comes in the form of the therapy protocol established in this research. None of the 279 articles consulted presented any kinetic therapy protocol.

The third original contribution is brought about by applying, for the first time, a therapy protocol in a pilot research and obtaining positive results aimed at improving the symptoms caused by the pubalgic syndrome in football players. The experimental research carried out has led to an improvement in the treatment protocol, thus leading not only to the improvement of symptoms generated by the pubalgic syndrome, but also to the rehabilitation of football players, reintegrating them into competitive life.

Finally, the fourth original contribution of this thesis is represented by developing a training plan intended for the reintegration into competitive
activity of the football players affected by the pubalgic syndrome (osteitis pubis).