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Capítulo 1: Análise e Performance

Pivot's participation in long-distance throws in elite handball

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Aim: Describe and correlate pivot's actions to long-distance throws efficiency. **Methods:** Data were collected by analyzing eight videos (quarterfinals, semi-finals and finals) of the 2017 Women's Handball World Championship. Two handball experts analyzed the games following a protocol to manually annotate data, which were tabulated for analysis. **Results:** In 303 long-distance shots, the 3:3 offensive system was more used than the 2:4 (76.9%; 23.1%), but in both throws effectiveness was similar (36.1%; 37.3%). Pivot's positioning in the court was center, right and left (34.6%; 23.7%; 17.2%). Efficiency was similar (35.2%; 32.2%) on the individual technical tactical actions (ITTA) performed - blocking (71) and displacement (87). No difference has been found in displacements ("DNG" direct no goal = 27.1%; "DG" direct goal = 21.4%) ("ING" indirect no goal = 71.2%; "IG" indirect goal = 78.6%), when verifying if ITTA were direct or indirect Blocks presented a difference (DNG = 76.1%; DG = 48%) and (ING = 23.9%; IG = 52%). In NG, direct blocking participations favored defense blocks, outward ball and goalkeeper defense (81.3%; 66.7%; 76.6%) when compared to displacements (35.7%; 20%; 19%). **Conclusion:** Among the possibilities for pivot's participation in long-distance throws, similar efficiencies have been found, except in the direct participation in blocking that did not favor scoring.

Keywords: Pivot; Long-distance Throw; Handball

Manual grip strength in male futsal amateur athletes playing in a Higher Education Institution

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Aim: Futsal is a widely practiced sport in Brazil, and there is an exaggerated demand for futsal schools. Thus, this research aimed to evaluate manual grip strength of amateur futsal athletes. **Methods:** This is a descriptive study with a transversal quantitative approach. The sample comprised 20 amateur athletes who practiced futsal in a Higher Education Institution in the city of Quixadá-CE, all males and with a mean age of ± 22.2 years. Data collection was performed using dynamometry. Athletes provided written informed consent to take part in this research. **Results:** Athletes' minimum manual grip strength of the IES was $\pm 19, 20$ and the maximum $\pm 45, 50$; the mean was $\pm 35, 69$ with a variation of $\pm 56, 45$. The findings when related to the manual grip strength of 18-year-old athletes presented lower values (41.5 ± 1.98 standard deviation) compared to 23-year-old athletes (45.55 ± 2.18 standard deviation). **Conclusion:** Amateur athletes aged 23 years presented higher manual grip strength compared to the other participants of the study, as well as there was little difference in relation to people aged under and over, and the mean variation of manual grip strength has shown quite expressive results.

Keywords: Amateur Athletes; Force; Manual Hold; Futsal.

Performance analysis of speed change of direction in futsal athletes: a comparison by playing position.

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Aim: Compare the difference of performance by position using the shuttle-run test in futsal female athletes. **Methods:** The sample comprised 12 University futsal female athletes with mean age of 22.8 ± 2.8 years, mean weight 59.5 ± 6.8 kg and height 1.61 ± 0.05 meters. The 12 athletes were submitted to a 9.14 meters shuttle-run test and the best of three attempts was selected. Participants were divided into three positions of game: Goalkeeper ($n = 4$), pivot ($n = 4$) and fixed ($n = 4$). Data were analyzed in the Graph Pad Prism 5.0 using descriptive statistics (mean and standard deviation) and inferential statistics (one-way Anova) adopting $p < 0.05$ significance level. **Results:** The average of the speed test with change of direction was $11.35 (\pm 0.53)$ seconds, the Fixed game position group has obtained the best result, $10.95 (\pm 0.49)$ seconds, followed by pivot and goalkeeper, with $11.53 (\pm 0.37)$ seconds and $11.57 (\pm 0.56)$ seconds, respectively. There was no statistically significant difference between the positions. **Conclusion:** Speed performance with change of direction did not differ between different positions in the women's futsal group analyzed, showing that these motor skills have been assessed in a similar way to all the players in their training.

Keywords: performance, shuttle run, futsal.

Relationship between the motives for sports practice and performance in the women's basketball category at the Regional stage of the school games of Ceará-JECs

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Aim: To analyze the relationship between the motives for sports practice and performance in the women's basketball category in the regional stage of The JEC's and identify a similarity between the main reasons for practice among the first placed **Methods:** Thirteen girls with a mean age of 15.07 years (± 0.72) from one public and two private schools better placed in the 15 to 17 years category, among the regions of Ceará have been evaluated. The Participation Motivation Questionnaire (PMQ), sports Practice of Guedes (2013) Brazilian version was used with young people aged 12 to 18 years, with an analysis of 8 reasons for practice (social recognition, group activity, fitness, emotion, competition, technical competence, affiliation and fun). Data were analyzed using descriptive statistics, mean and standard deviation **Results:** The most important reasons for sports practice were: 1st: technical competence, emotion and aptitude; 2nd: competition, aptitude and technical competence; 3rd: aptitude, emotion and technical competence. **Conclusion:** The three teams with the best sports performance in the competition addressed motives for practice that were related to sports performance, being important in the school sport aptitude, technical competence, competition and emotion. Women's basketball teams that participate in school competitions may be a key factor in developing the potential of young athletes in the sports field.

Keywords: Motivation; Sport; Athletes.

Characteristics and perceptions of Cearense swimmers regarding the type of test adopted: experience report

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Aim: This study aims to identify the type of test adopted by swimmers and its relationship with the physical type, characteristics, aspects and basic physical qualities. **Methods:** The test was performed by twenty-two swimmers between 13 and 60 years old, 51% traditional swimming practitioners and 49% open water practitioners, mostly 17 and 19-year-old athletes. **Results:** 54.5% men and 45.5% women with mean body weight 64kg and 1.78 height., training on average two daily hours and 68.2% frequently participate in competitions. The events that they most enjoy swimming are 400m freestyle, 200m freestyle, 50m breaststroke, 100m breaststroke and open water events. Participation in competitive swimming was mainly influenced by the swimmer's first teacher, then coaches and parents. As for the adopted swimming test, 90.9% indicated that they let them choose, 59.1% received explanations about their physical condition and if their biotype was indicated for the swimming test. Most changed their swimming tests as they got to know each other better. 72.7% had lower limb fatigue, followed by pressure to win. **Conclusion:** It was concluded that swimmers from Ceará are satisfied with the swimming tests adopted in competitions, are classified as mid-distance athletes, consider and value the freedom of dialogue, the training environment offered by coaches and also the relation between their biotype and the adopted swimming test.

Keywords: Swimming. Open waters. Adopted swimming test.

Methodology of the Arch of problematization methods in the motricity of artistic and rhythmic gymnastics children: Experience report

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Aim: Report the experience of applying the Maguerez Arch Method in children's motricity. **Methods:** Data used to describe the experience were obtained through the application of the Arch Method. The development of the steps of this method requires critical analysis and reflection of the study object and well-designed planning so that the results are achieved. **Results:** The development of the application stages of the Maguerez arch allowed the perception of the need to follow students' technical evolution through the observation worksheet and the importance of teaching gymnastics for young people and adolescents' motor training. **Conclusion:** An improvement was noted in the students' motor skills; however, a greater control and division of the groups is necessary for a better technical movement execution.

Keywords: Maguerez Arch; Gymnastics; Technical Evolution.

Incidence of goals between the first and the last placed teams in a football championship in Brazil 's northeast region - 2019

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Aim: To compare the mean and the moments of goal incidence between the first and the last placed –teams of the Bahia Football Championship-2019. **Methods:** A descriptive study was conducted with secondary data referring to the Bahia Football Championship-2019 available on the Federation's website and held between January 19 and April 21, 2019. Ten teams participated in the competition in simple rotation, single turn. Teams that finished the classification phase between the first three and the last three placed, totalling 39 matches were considered. **Results:** Teams that were in the first places in the qualifying phase achieved a total of 56 goals, with a 2.3 mean per game, and the last placed scored 30 goals, with a mean of 1.2 goals per game. The first three teams scored their predominant goals in the first 15 minutes, with a 0.45 (11) mean, and the last three with a 0.08 (02) mean in the same initial period. In the final 15 minutes of the first three games the first teams presented a 0.5 (13) mean, and the last three a 0.25 (06). **Conclusion:** In the Bahia Championship - 2019 the first placed teams scored a greater number of goals in the first fifteen minutes or in the final fifteen. These findings have proven that teams of greater success in this championship optimized their final scores at the beginning and at the end of the matches.

Keywords: Football. Incidence. Goals.

Overall impact at the time of the match in which goals occurred in the football championship of the northeast region - Brazil 2019 qualifying phase

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Aim: Present the average and incidence of goals among the teams of the Baiano Football Championship 2019. **Methods:** A descriptive study with secondary data referring to the Baiano Football Championship 2019, made available on the website of the Federation of Sport, held between January and April 2019. Participated in the competition 10 teams in simple rotation, single turn. All games held in the qualifying stage of the 2019 Bahia championship were analyzed, totaling 45 matches. **Results:** Teams scored throughout the qualifying phase 129 goals in 45 matches, with an average of 2.86 goals per match. In the initial 45 minutes 56 goals were scored, with 18 goals both between 0-15 and 15-30min., 20 goals between 30-45 min. The highest incidence of goals was in the second half with 73 goals, with a higher incidence between 60-75 min (27), 24 between 75-90min and 22 0-15min. **Conclusion:** It can be concluded that in the championship Bahia 2019, teams had their highest incidence of goals in the second half, in the intermediate phase between 60-75min. Likewise, team organization strategies can optimize results in the last 45 minutes of the matches.

Keywords: Football; Incidence; Goals.

Predictive factors analysis of female volleyball attack: the case of semi-finalist teams of female volleyball Superleague.

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Aim: The present study aimed to analyze the predictive factors of high-level female attack. **Methods:** The sample consisted of 768 attacks that occurred in the matches between the teams ranked 1st to 4th place in the 2016-2017 women's Superleague. The receptions that allowed the organized attack with all available attackers were considered and the variables analyzed were attack time, type of attack, number of blockers, touch on block and attack effect. Data was analyzed with the multinomial logistic regression. The dependent variable was the effect of the attack and the independent variables were the type of attack and the touch on the block, since the others were not associated with the effects of the attack. SPSS software version 20.0 was used. **Results:** Descriptive analysis showed that second-time attacks, double block, powerful attack, and not blocking attacks were more recurrent. The analysis of the predictive factors of the attack effect has shown that the powerful attack reduced the chances of defense (Odds Ratio Adjusted: 0.327) and that the touch on the block reduced the chances of the attack point occurring (Odds Ratio Adjusted: 0.440). **Conclusion:** From the results found it was evident that the need to attack with power to limit the opposing defensive system emerged. On the other hand, there was a need to structure the defense system, specifically the block, so that there is contact with the ball and, subsequently, the effectiveness of the attacking teams attack is reduced.

Keywords: Female volleyball, Game analysis, Predictive factors.

Contact actions in the first half of the game are the major causes of injury in men's futsal at school

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Aim: Analyze the actions and moments during the practice of futsal at school where athletes suffered injuries. **Methods:** The survey was composed of a 34-athlete sample (15.9 ± 1.0 years old) with more than five years of sports practice at school. Participants responded to a questionnaire containing five objective questions related to the prevalence and diagnosis of injuries, in-game moments and actions and possible practice dropouts. Data analysis has been conducted with the descriptive statistics in the Microsoft Office Excel® 2016 software. **Results:** From the surveyed athletes, 79.4% claimed to have suffered injuries and 47.1% obtained medical diagnosis. Sports actions related to "tackling" (41.2%) and "contest the ball across the body" (20.6%) were the ones that had the highest incidence of injury during the first half of the game, where 26.5% reported feeling the injury and about 20.6% of athletes were more than 28 days away because of the injury. **Conclusion:** Injuries primarily occurred due to the characteristics of frequent contact between players during the game and presented high gravity.

Keywords: Futsal; Performance; Injury

Relative age effect in FIFA World Cup editions, from 1930 to 2018.

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Aim: To investigate the existence of Relative Age Effect among the players who participated in the 21 editions of the Men's FIFA World Cup, between 1930 and 2018, and also among those whose teams won each edition of the tournament. **Methods:** The sample comprised 7914 players, from 79 teams, among which 2166 participated in 2 or more editions of the tournament. Data regarding players' birthdate were obtained through the FIFA (www.fifa.com) and O Gol (www.ogol.com.br) websites. The sample was grouped according to players' birth trimester: 1st) January, February, March; 2nd) April, May, June; 3rd) July, August, September; 4th) October, November, December. The chi-square (χ^2) test was performed to compare the proportions among the four trimesters. Statistical procedures were performed through the SPSS package. **Results:** Findings indicate a significantly higher proportion of players born within the first trimester ($n=2971$), when compared to those born in the second ($n=2342$; $\chi^2=74.467$; $p<0.001$), third ($n=2424$; $\chi^2=55.640$; $p<0.001$) and fourth ($n=2338$; $\chi^2=75.474$; $p<0.001$) trimesters. However, when only the winners of each edition are considered for analysis, no significant differences ($\chi^2=1.308$; $p=0.727$) were observed between the number of players born in each trimester. **Conclusion:** Overall, it is possible to confirm a Relative Age Effect in the FIFA World Cups, as we observed a higher number of players born in the first trimester, in comparison to the others. Nevertheless, when it comes to those teams who won each edition of the tournament, findings did not indicate the existence of this effect.

Keywords: Soccer, World Cup, Relative Age Effect.

Reasons for sports practice of futsal student-athletes participating in the Ceara School Games:

Comparison by subcategory and tactical position.

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Aim: Identify and compare the reasons for futsal practice by subcategory and tactical position. **Methods:** The sample consisted of 49 student girls of public school, regular practitioners of futsal, divided into two categories: 12 to 14 years ($n=19$), consisting of Goalkeeper (5%), Fixed (26%), Wing (37%), Pivot (21%) and Free (11%); 15 to 17 years ($n=30$) comprising Goalkeeper (13%), Fixed (17%), Wing (17%), Pivot (20%) and Free (33%). The motivational aspects for futsal practice were identified through the Participation Motive Questionnaire (PMQ), translated by Guedes (2013). Data analysis was performed using descriptive statistics: mean, standard deviation and relative frequency. **Results:** Results indicated that the most important motivational aspects for futsal practice by girls in category 12-14 were Group Activity, Affiliation and Technical Competence, while for 15-17 were Technical Competence and Competition. Goalkeepers, wings and pivots of 12-14 considered all the motivational factors analyzed as important, while the free and fixed goals differed from the others, considering Social Recognition, Emotion and Competition as the least important. In category 15-17, by position, all motivational factors analyzed were considered very important. **Conclusion:** Female teams that practice futsal in the public school differ in the most important reason for sports according to the category, highlighting Competition for 15-17 and Group Activity for 12-14, where it differed between positions. Thus, this can be important when outlining strategies for young girls to stay in the sport.

Keywords: Motivation, Athletes, Adolescents.

Motor performance of pubescent futsal athletes: horizontal jump test analysis

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Aim: Analyze the performance of pubescent futsal athletes in the horizontal jump test, at school environment. **Methods:** Thirteen futsal athletes participated in this study, 6 full-backs, 6 wing backs and 1 goalkeeper with mean age $14.5 \pm 0,66$ years, in their maturational peak, mean height $169 \pm 0,05$ cm, mean weight $60 \pm 11,05$ kg. Biological maturation was determined based on age at peak height velocity and motor performance was evaluated by the horizontal jump test described in the Manual of PROESP-BR (2016), which says that the participant must jump and land with both feet simultaneously. This test reflects the lower limb power, which is an important physical characteristic in futsal. **Results:** Athletes' motor performance in the horizontal jump test reached a mean distance $188 \pm 0,25$ cm. According to the classification established in the PROESP-BR manual, 38.4% (5) obtained a weak performance, 23% (3) achieved a reasonable performance, 15.3% (2) achieved a good performance and 23% (3) performed very well. **Conclusion:** Most of the athletes in this study reached satisfactory levels of motor performance related to lower limb power, which is important in futsal because it is related to the improvement of speed and the reaction ability, all characteristics needed in this sport.

Keywords: Motor Performance, Pubescent Futsal Athletes, Lower Limb Power.

Comparing technical performance between top and bottom teams in the 2019 Copa America Group Stage.

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Aim: To compare the technical profiles of the top and bottom teams in the 2019 Copa America Group Stage. **Methods:** We gathered data from 10 technical variables: percentage of ball possession, shots inside the box, shots outside the box, pass to the defensive zone, pass to the midfield zone, pass to the attacking zone (offensive actions), tackle, interception, block and saves from the goalkeeper (defensive actions). Data were obtained from WhoScored website (www.whoscored.com). For data analysis, teams were grouped in two categories. Group 1 included the top three, whereas Group 2 included the bottom three teams in the Group Stage of the tournament. The Shapiro-Wilk, t-test for independent measures and Mann-Whitney-U tests were performed for statistical analysis. **Results:** Percentage of ball possession (0.55 ± 0.14 vs 0.43 ± 0.97 ; $t=2.170$; $p=0.045$), pass to the attacking zone (180.22 ± 58.50 vs 94.11 ± 33.90 ; $t=3.820$; $p=0.002$), interception (8.11 ± 3.44 vs 11.77 ± 3.83 ; $t= -2.135$; $p=0.049$), block (8.00 ± 3.42 vs 12.22 ± 3.73 ; $t= -2.499$; $p=0.024$) and saves from the goalkeeper (2.00 ± 1.58 vs 3.77 ± 1.98 ; $U=63.500$; $p=0.040$) displayed significant differences between the groups, as the top teams performed a higher amount of offensive actions and less defensive actions. **Conclusion.** There are differences in the technical profile of the top and bottom teams in five of the variables analyzed. Also, findings suggest that displaying a higher number of offensive actions and lower number of defensive actions may be potentially beneficial to achieve success in this competition.

Keywords: Soccer, match statistics, performance indicators.

Space creation dynamics in different basketball small-sided games played in full court

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Aim: To compare the frequencies of space creation dynamics (SCD) (LAMAS et al., 2011), and types of offense in three basketball small-sided games (SSG) played in full court. **Methods:** Seventeen U-15 athletes from a club participated in the study. Athletes and their parents were informed about the research procedures and gave written consent to participate. Athletes were divided into six balanced teams. They played against each other three 4-minute basketball SSG, with 8 minutes of passive recovery in-between: standard (i.e., all formal rules except for time-outs and free throws– 3vs.3STAND), no-dribble (3vs.3NODRIB), and with a floater player (3vs.3FLOAT). SSG were filmed for further analysis. **Results:** descriptive analyses showed that 3vs.3NODRIB induced more offenses with no shot and the 3vs.3FLOAT induced less offenses with no shot compared to the 3vs.3STAND. The 3vs.3FLOAT presented more set offenses and less fast breaks compared to the other SSG. Both 3vs.3NODRIB and 3vs.3FLOAT reduced the space creation with ball dribbled and increased the space creation without the ball compared to 3vs.3STAND. Perimeter isolation, on ball, and out of ball screens presented a low frequency in all SSG. **Conclusion:** the no-dribble rule and the additional player changed SSG difficulty level. These SSG also increased group tactics and decreased individual tactics compared to standard rules. The low frequency of on ball screens and out of ball screens suggests athletes do not master these tactics. The low frequency of perimeter isolation may have been induced by the SSG area.

Keywords: Tactical behavior; Game-based training; Offensive tactics; Match analysis.

Relationship between video feedback and the learning of strategic, technical and tactical issues in the opinion of college athletes.

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Aim: The aim of this study was to identify the perception of college athletes about video feedback in the learning of technical, tactical and strategic issues in handball. **Methods:** Sample consisted of 30 college athletes with an average age of 25.5 (\pm 5.3) years and with 11-year practice (\pm 7). Data were collected through an online questionnaire and treated through descriptive statistical analysis. **Results:** Results indicated that the players consider the most relevant to their learning: video feedback focused on tactical (93.3%); strategic (90%) and technical (60%). **Conclusion:** It is suggested that video feedbacks be based on tactical and strategic issues. This requires a vision that does not restrict the game by focusing only to one movement, but to seek a dynamic and interconnected analysis of actions to solve problematic situations.

Keywords: handball, game analysis, learning.

Effectiveness of time-out on the success in the next sideout in high-level women beach volleyball players

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Aim: The purpose of this study was to describe the effectiveness of time-out on point scoring in the next sideout in women beach volleyball players. **Methods:** Sixteen matches from 2016 Olympic Games (8 in the 16- Round, 4 in the Quarterfinals, 2 in the Semifinals and 2 in the finals) were analyzed by video recordings. The requests for time-out accounted for were made by corresponding manual signaling when the ball was out of play and prior to the serve whistle by the losing team of the rally. The effectiveness of the time-out at the next sideout was measured by winning the point in the first game complex –K1 (reception, set, and attack) after a serve. In the non-ending rally on K1, the outcome of the terminal actions of the succeeding sideout complexes (K2, K3, K4) was noted. Descriptive statistics were applied to obtain frequencies and percentages. **Results:** Of the 36 time-outs asked by the teams, 72.2% did not score in the next sideout and 60.5% did not score any of the rally phases. In this context, the attack actions that allow continuity for the opposing team (35%) and K2 block points (40%) were factors observed for sideout failure. **Conclusion:** Time-out did not contribute to the success of the tactical decisions and to the point in the next sideout in high-level women's beach volleyball.

Keywords: Performance analysis, Decision making, Olympic Games

Acute effect of post-activation potentiation on sprint performance and vertical jump in female futsal athletes

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Aim: The aim of this study was to evaluate the post-activation potentiation (PAP) effects of Drop Jump as a conditioning exercise on vertical jump and the 20m sprint performance in college futsal athletes. **Methods:** Nineteen female athletes (n = 19, age 21 ± 1.94 , body mass 56.50 ± 7.22 and fat percentage 20.84 ± 3.57) participated in the study. Athletes performed a 20m sprint performance test (Speed Test 6.0, Cefise photocell) and countermovement vertical jump on the jump platform (Elite Jump Systems). In the same session a PPA protocol was conducted, which consisted of three drop jumps coming out of a 30cm box. After a 3- minute interval they performed the tests again. **Results:** A significant difference was observed before and after the countermovement vertical jump (26.07 ± 3.92 and 28.48 ± 5.01 , $p = 0.0002$, $d = 0.52$). There were no significant differences in the 20m sprint. (3.37 ± 0.16 and 3.36 ± 0.18 , $p > 0.005$, $IC95 = -0.033 - 0.66$, $d = 0.058$). **Conclusion:** The conditioning exercise was able to stimulate the potentiation during the vertical jump in female futsal athletes.

Keywords: performance, post-activation potentiation, futsal, drop jump

Soccer as a Dynamical System: A Systematic Review

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Aim: In soccer, the behaviors displayed by the individuals cannot be understood in isolation, since the product of the interaction between the players is different from the sum of player's performance. Thus, the aim of this study was to systematically analyze exploratory research about soccer (association football) from the perspective of the dynamical systems theory, in the different scales of interaction: dyads (1 vs. 1), sub-groups (many vs. many) and teams (11 vs. 11). **Methods:** A systematic review was conducted following PRISMA guidelines. The following terms were used: "soccer" OR "football" AND "dynamic system" OR "dynamic systems" OR "dynamical system" OR "dynamical systems" OR "ecological dynamics". The search was performed in three databases (Web of Science, Scopus and EBSCO). Only full papers published in English were considered for analysis. Papers investigating other sports, reviews and conference papers or abstracts were excluded. **Results:** Studies investigating the interaction dynamics in soccer are relatively recent in literature. Also, from the 223 references initially found, only 29 papers (13%) were selected based on the inclusion and exclusion criteria. Four studies analyzed dynamic patterns in dyads, 15 in sub-groups and 10 in full teams. Most of the studies that investigated dyadic interactions analyzed control parameters. Analysis of sub-groups was mostly performed in controlled experiments. Analyses at team scale used a greater amount of order parameters, in comparison to the other scales. **Conclusion:** More variables and measures should be proposed to identify the dynamic idiosyncrasies of soccer in the different scales of interaction.

Keywords: Soccer, Dynamical Systems, Ecological Dynamics, Interactions.

Team Synergies in Soccer: A Preliminary Review

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Aim: In team sports, synergies refer to the way players interact with each other and with the team as a whole. Thus, hypothetically, team synergies should be a highly investigated topic in sports science literature, especially in soccer. Thus, the aim of this research was to perform a preliminary search of exploratory and/or experimental research addressing the identification and analysis of synergistic properties (i.e., dimensional compression, reciprocal compensation, division of labor and degeneracy) in soccer. **Methods:** A literature search with the following terms was conducted: "soccer" OR "football" AND "synergy" OR "synergies". The search was performed in the Web of Science (WoS) database. Only full papers published in English were considered for analysis. Papers investigating other sports, reviews and conference papers or abstracts were excluded. **Results:** The search returned 23 references, albeit only 3 were studies addressing the identification and analysis of synergistic properties of soccer teams. One of the papers identified synergistic characteristics of UEFA Champions League teams, through the utilization of social network metrics, as authors claimed that their purpose was to analyze the team's degeneracy. Another one investigated spatiotemporal asymmetry caused by players' change of direction. Finally, the third paper examined the effect of practice on amateur teams' dimensional compression and reciprocal compensation. **Conclusion:** Although being considered highly relevant for the understanding of the principles and rules that govern collective behavior, the study of synergistic properties in soccer is still limited. Also, it is possible that more studies have addressed this topic but utilized different terminologies.

Keywords: Soccer, Synergies, Synergistic Properties

Space creation dynamics in different basketball small-sided games played in half court

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Aim: To compare the frequencies of space creation dynamics (SCD), and types of offense in three different basketball small-sided games (SSG) played on half court. **Methods:** seventeen U-15 athletes from a club participated in the study. Athletes and their parents gave their written informed consent to participate. Athletes were divided by the coach into six balanced teams. They played against each other three basketball SSG in half court: standard (i.e., all formal rules except for time-outs and free throws– 3vs.3STAND), no-dribble (3vs.3NODRIB), and with a floater player (3vs.3FLOAT). SSG lasted 4 minutes, with 8 minutes of passive recovery in-between and were filmed for further analysis. **Results:** descriptive analyses showed that 3vs.3NODRIB induced more offenses with no shot and 3vs.3FLOAT less offenses with no shot compared to 3vs.3STAND. Both 3vs.3NODRIB and 3vs.3FLOAT reduced the space creation with ball dribbled and increased the number of space creation without the ball compared to 3vs.3STAND. Perimeter isolation, on ball, and out of ball screens presented a low frequency in all SSG. **Conclusion:** the no-dribble rule and the additional player changed the difficulty level of SSG. These SSG also promoted an increase in group tactics, with a decrease in individual tactics compared to standard rules. The low frequency of on ball and out of ball screens suggests that athletes do not master these tactics. The low frequency of perimeter isolation may have been induced by the SSG area.

Keywords: Tactical behavior; Game-based training; Offensive tactics; Match analysis.

Relationship between teaching methods and declarative learning in the opinion of college athletes

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Aim: Identify the perception of handball athletes on the teaching methods used and the learning of game elements provided. **Methods:** The sample consisted of 30 college athletes with an average age of 25.5 (\pm 5.3) years and with 11 (\pm 7) years of practice time. Data were collected through an online questionnaire and treated through descriptive statistical analysis. **Results:** Concerning tactical learning, athletes reported the teaching through game situations (63.33%) as the most helpful, followed by the teaching through games (36.67%). Athletes preferred the through games situations (70%) for problem solving learning, the teaching through games (16.67%) and the technique approach (13.33%). Regarding the learning of the specific technique, the technical approach (76.67%) was the most mentioned, followed by teaching through games (13.33%) and the situational one (10%). **Conclusion:** Results corroborate to the specific literature and may support coaches in their methodological choices.

Keywords: handball; teaching approaches; college sport.

Analysis of the technical indicators that can differentiate performance in the Brazilian Football Championship

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Aim: Identify the differences in the technical indicators between the four best and the four worst clubs placed in the Brazilian Football Championship in five seasons (2013-2017) and identify possible performance determinants.

Methods: Data were collected from the website www.whoscore.com and submitted to the Kruskal-Wallis Test on Matlab to verify the difference between the medians of each technical indicator of the first four (Group 1) and the four last (Group 2) placed, through the P value, considering $P = 1\%$. The difference in median was considered significant when P value result is less or equal 0.01. **Results:** Results demonstrated that there was a significant difference in the median on 14 of 39 indicators. Group 1 made more shots per game, wrong shots per game, opened play goals, through ball per game, short passes per game, shots from central zone, shots in 18 yards box and suffered more outside the box shots. While Group 2 clubs have suffered more goals from open play, long balls per game, short passes per game, cards received due to fouls and shots in 18 yards box, as well as making a biggest number of shots from outside the box. **Conclusion:** Clubs in Group 1 had created more chances of scoring goals, created more passes and suffered less chances of conceding goals compared to the clubs in Group 2

Keywords: Game Scout; Performance Scout; Brazilian Championship; Football.

Acceleration demand in different basketball small-sided games played in full court and half court

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Aim: To compare the acceleration demand of basketball small-sided games (SSG) with different rules. **Methods:** Seventeen U-15 athletes from a club participated in the study. Athletes and his parents were informed about the research procedures and gave a written consent to participate in the study. Athletes were divided by the coach in six balanced teams. These teams played against each other basketball SSG with six different rules, in both full and half court (total of 12 SSG formats): standard (i.e., all formal rules except for time-outs and free throws, which were excluded – 3vs.3STAND), no dribble (3vs.3NODRIB), and with a floater player (3vs.3FLOAT). The SSG lasted 4 minutes and were played with 8 minutes of passive recovery in-between. During the SSG, 100Hz triaxial accelerometers were positioned near athletes' chest, inside a pouch attached to a vest. Athletes' mean resultant acceleration in each SSG format was calculated using Microsoft Excel. **Results:** SSG in full court presented higher mean acceleration than SSG played in half court regardless of the rule ($p=0,01$, d values between 0,49 and 1,73, medium to large effects). The 3vs.3NODRIB presented a lower mean acceleration compared to 3vs.3STAND ($p=0,001$, $d=0,72$, medium-to-large effect) and 3vs.3FLOAT ($p=0,007$, $d=0,51$, medium effect) only in the full court. **Conclusion:** Full court can be used to increase the acceleration demand of 3vs.3 SSG compared to half court. The use of the "no dribble" rule decreases the acceleration demand only in the full court. The effect of different rules on the physical demand may be dependent on the court size.

Keywords: Physical demand; Accelerometer; Game-based training; Basketball; Small-sided games.

Network properties in soccer Small-Sided Games: influence of limitation on ball touches

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Aim: To compare the network properties of soccer players in small-sided games (SSG) with and without limiting the ball touches allowed per possession **Methods:** Thirty-six U-15 soccer players participated in the study. Athletes participated of two SSG formats: free-play and 2-touch limited play. SSGs comprised four bouts, lasting four minutes, with four minutes of recovery in-between, in a 3vs3 format (plus goalkeepers) in a 36 x 27 meters field with all rules of the formal game, except in the protocol with limit of touches in which the athlete who made more than two touches would lose the possession to the opposing team. Density and clustering coefficient were used to assess network properties. The test t was used to compare the two protocols. **Results:** The 2-touch format presented higher values of density (0.860 ± 0.22) and clustering coefficient (0.308 ± 0.45) ($p < 0.05$, effect size: large) than the free-play protocol density (0.730 ± 0.16) and clustering coefficient (0.137 ± 0.24). **Conclusion** Limiting the ball touches allowed per possession in SSG increased the cooperation between teammates.

Keywords: Soccer, Small-Sided Games, Performance.

Relationship between functional movement screen and physical performance in elite young soccer players.

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Aim: To observe the correlations between the individual functional movement screen (FMS) scores in the performance variables maximum and relative power and 10 and 30m sprint. **Methods:** Sample consisted of 61 U15, U17 and U20 young soccer athletes from a Brazilian elite club. Subjects performed all tests on the same day, in this order: 1) anthropometric measurements; 2) FMS; 3) Lower limb explosive power; 4) 10 and 30m sprint. FMS is an analysis tool based on the evaluation of patterns of fundamental movement. The evaluation scale of each movement pattern varies from 0 to 3. The maximum score could reach 21 points. Subjects were divided into 2 groups: 1) < 14 and 2) > 14 . To determinate muscular power was used the squat with the pneumatic resistance in the equipment (Air 300 Squat Keizer, USA). Relative power was calculated using the maximum power divided by each athlete's body weight. **Results:** In group 1, active straight leg raise was moderately associated with power maximum ($r = 0.48$; $p = 0,008$). In group 2, Trunk Stability Push-Up was moderately associated with sprint10m capacity ($r = -0,46$; $p = 0,007$) and power (power maximum $r = 0,39$; $p = 0,029$; power relative $r = 0,36$; $p = 0,045$), just like the In Line Lunge (power relative $r = -0,388$; $p = 0,028$; sprint10m capacity $r = -0.427$; $p = 0,015$). **Conclusion:** Trunk Stability push-up and the In-Line Lunge test evaluated in the FMS test proved to be a capacity that moderately influences performance variables in athletes with a score above 14 in FMS.

Keywords: soccer; functional movement screen; lower limb power

Can the continent of birth and the positional statutes affect the functional asymmetry of lower limbs and creativity of professional soccer players?

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Aim: Compare functional asymmetry and creativity of professional soccer players according to their positional statutes and their continent of birth. **Methods:** 35 professional soccer players from the final teams of CONCACAF Champions League and UEFA Champions League were analyzed during the semi and final matches of these championships. Four were from CONCACAF and two from UEFA. Athletes were analyzed during the matches by two protocols, a) system of assessment of the functional asymmetry of the lower limbs in football (SAFALL-FOOT) to calculate functional asymmetry between dominant and non-dominant lower limbs and b) creative behavior assessment in team sports (CBATS) to measure creative technical skills. All players were divided into their preference positional statutes (defenders, midfielders and forwards) and into their continent of birth (Europe, South America and North America). The statistics test used was ANOVA one-way comparing the groups for both variants and the significance level adopted was $p < .05$. **Results:** South American players showed more symmetry between lower limbs than North American (5.22 ± 1.78 ; $6.38 \pm .77$, respectively, $p = .015$) and when comparing both continents with Europe they did not present significant difference. Furthermore, forwards presented higher creative technical skills than defenders (2.41 ± 1.41 ; 1.04 ± 1.125 , respectively, $p = .01$). However, no significant difference was found comparing midfielders with forwards and defenders. **Conclusion:** South American players seem to use more both legs to perform technical skills during the game. Moreover, results showed that the positional statutes seem to influence players' creativity.

Keywords: Soccer; Creativity; Functional Asymmetry.

Evaluation of cardiorespiratory fitness of U-20 futsal athletes

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Aim: To analyze the cardiorespiratory fitness of futsal athletes of the BNB Clube of Fortaleza during the end of the transition period and the beginning of the competitive period. **Methods:** The sample comprised 18 male U-20 athletes from the futsal team, aged between 18 and 20 years. The research had three stages: the first consisted of collecting individual data through an anamnesis form. In the second stage was applied the questionnaire of readiness for physical fitness (Par-z&You), which measured BMI and the percentage of fat. In the third, the aerobic test and the 20m shuttle run test by Leger et al., were conducted. **Results:** Athletes' mean BMI remained normal as the value was $23.5 \pm 0.7 \text{ kg/m}^2$ in the transitional period and $23.1 \pm 0.7 \text{ kg/m}^2$ in the competitive period. A reduction in the percentage value of fat that in the transitional period was $12.6 \pm 2.4\%$ and in the competitive period was $11.2 \pm 2.0\%$ has also been identified. There were also significant improvements in the VO_2Max of the athletes, $43.10 \pm 2.8 \text{ ml/kg/min}$ at the end of the transition period and $48.10 \pm 3.6 \text{ ml/kg/min}$ at the beginning of the competitive period. **Conclusion:** Results were considered significant within the parameters of the sport training process, where the athletes were able to reach good stages in the competitive period and consequently improve their VO_2MAX .

Keywords: football; cardiorespiratory resistance; physical fitness

Tendencies of play to score goals in South America Libertadores Cup of football

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Aim: Analyze the game sequences that ended in goal in the Libertadores Cup. **Methods:** The observational methodology guidelines were followed. The sample comprised 636 attack sequences that ended in goal of a total of 250 matches of the Libertadores Cup 2016 and 2017. An ad hoc observational instrument was used and validated. Data quality was assessed by inter and intraobserver concordance with a Kappa value greater than 0.80. Descriptive analysis was performed using graph theory to model attack sequences. **Results:** Actions conducted on the left side of the court were 47.7% compared to 52.3% on the right. A greater number of passes ($p=0.01$) and conductions ($p=0.01$) were observed on the right zone of the pitch. It highlighted the use of depth by the right lane using pass actions, especially with passes to the goal area. Regarding the goal shots, a greater number of shots were recorded from the left (9.3%) than from the right (5.9%) out of the area in front of area line. No differences were found in the shots executed within the penalty area. **Conclusion:** In general, in the Libertadores Cup a balance has been observed between the execution of actions and zones of the pitch, although some tendencies that can be discussed and analyzed have been detected.

Keywords: Football, Patterns of play; Theory of Graphs

Improved statistical analysis to interpret performance in young athletes

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Aim: Young athletes' performance is multifactorial and its interpretation needs to consider different levels and sources of variation. This causes analytical problems that are often solved using traditional approaches (single-level analysis). In particular, a longitudinal analysis of performance needs to consider time-dependent variables, often attrition, missing data, and uneven measurement points occurrence. Single-level analysis, such as repeated measures ANOVA, has restrictive assumptions that do not hold. Multilevel modeling is the default analysis approach in several research areas, as a need in light of the awareness of the replication crisis in science. Here we illustrate the advantages and the potential of multilevel modeling to interpret (i) between athletes variation on a performance outcome, accounting for potential covariates; (ii) seasonal changes on a performance outcome in young athletes exposed to a competitive season, considering the competitive context (age group) as a higher level of clustering. **Methods:** We used Bayesian methods to estimate the multilevel models. **Results:** Our simulations illustrate the improved estimation using multilevel modeling compared to either maximally underfit or overfit with single-level modeling, even more with unbalanced samples within clusters, often the case in sport science studies. In this case, multilevel modeling explicitly dealing with differing uncertainty across these clusters, preventing that over-sampled clusters from overweighting misrepresent the inference. **Conclusion:** Considering interdisciplinary contexts in Sports Science, multilevel models are superior to old-fashioned single-level models and thus a default approach is needed. Researchers should better grasp the basic multilevel strategy, its assumptions and limits, even recognizing when it is not necessary.

Keywords: Growth and maturation, repeated measures, multilevel modeling, Bayesian methods

Effect of basketball training on explosive strength and flexibility in youth athletes in a macrocycle

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Aim: To evaluate the impact of a periodized physical training (macrocycle) on the physical flexibility and explosive force in Pro-campus youth basketball athletes in Teresina / Piauí. **Methods:** Fifteen male athletes aged 14 to 16 years were selected and underwent a periodic 12-week physical training program. Training consisted of squat jump, sink with dumbbells and specific training for impulsion. A series of passive, active stretching and ankle mobility were used to assess flexibility. Data collection comprised the Bank of Wells to measure the degree of flexibility and the test “Sargent Jump Test (SJT) evaluated explosive strength. The Spearman method for paired measurements was used to estimate the changes that occurred in the pre and post training periods. **Results:** Flexibility during the 12 weeks varied from an average of 28.65 cm pre to 37.73 cm after training evaluation among the evaluated athletes, Furthermore, it showed a significant increase ($p < 0.05$) in all evaluated exercises. Explosive force averaged 41.03 cm pre to 48.84 post training evaluation among athletes, and there was no significant change from pre to post training period ($p > 0.05$). **Conclusion:** It has been considered that a specific method to develop flexibility during a macrocycle was fundamental in improving the performance of basketball students / athletes. However, the study recommends more suitable explosive strength training with alternative and effective methods for improving muscle strength.

Keywords: Explosive force; Flexibility; Macrocycle; Basketball

Differences in physical performance of the young soccer players in relation to player role

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Aim: To compare physical performance of young soccer players in relation to player's role. **Methods:** 40 young male soccer players under-15 participated in this study (age: 14.6 ± 0.5 years; height: 176.0 cm; weight: 63.7 kg). Players were divided into five player's roles: forward ($n = 10$), midfielder ($n = 13$), lateral-defender ($n = 6$), central-defender ($n = 5$) and goalkeeper ($n = 6$). Vertical Jump height (Countermovement Jump - CMJ), aerobic capacity (Yo-Yo Intermittent Recovery Test Level 1 – Yo-Yo test), linear velocity (10-20m sprint) and agility (Modified Illinois Change of Direction Agility test) were evaluated. Data were analyzed using generalized linear models and expressed in mean \pm standard deviation. **Results:** The results in Yo-yo test ($p = 0.001$) and 10m sprint ($p = 0.036$) presented interaction in player's role. Goalkeepers covered less distance in the YoYo test than midfielders and forwards (486.67 ± 2.57 vs. 1187.50 ± 478.68 ; $p = 0.001$ vs. 950.00 ± 240.91 ; $p = 0.009$). Also, goalkeepers were faster than midfielders in 10m sprint test (1.42 ± 0.06 vs. 1.63 ± 0.03 ; $p = 0.032$). Other players' role has not presented significant difference ($p > 0.05$). **Conclusion:** Goalkeepers presented less aerobic capacity than midfielders and forwards, however exhibited more acceleration speed than midfielders. Based on the results of our study, coaches and sports scientists must take into account players' position and roles during the game to prescribe specific training sessions to improve determinant performance components.

Keywords: Physical Fitness, Position, Performance.

Session-RPE in handball: does time interfere in results?

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Aim: The aims of the present study were: 1) To investigate if the assessment of perceived effort is associated with exercise intensity measured by physiological variables and; 2) If there is a difference between perceived effort assessed 10 and 30 minutes after handball training sessions. **Methods:** The sample consisted of 18 experienced (> 6 year) female team handball players ($15 \pm 3,2$ years). Participants performed four 120-minute team handball training sessions with identical exercises performed at different intensities (mild (40% FCreserve) and moderate (60% FCreserve) exercise intensity). During training sessions, heart rate, blood lactate concentrations and session rate of perceived effort (10 and 30 minutes following conclusion) were assessed. **Results:** Heart rate was significantly higher during moderate-intensity training (141 ± 9.2 vs 124 ± 10.6 bpm). The same was observed for blood lactate concentration (5.5 ± 1.2 vs 1.9 ± 0.4 mmol) and perceived effort ($4.5 \pm 1,04$ vs $3.0 \pm 0,7$). Session rate of perceived exertion was not significantly different when assessed 10 or 30 minutes after the end of the exercise session. **Conclusion:** Results suggest that session rate of perceived exertion is the same when assessed 10 or 30 minutes after the end of handball training sessions. This means that coaches do not need to wait for 30 minutes to assess perceived training intensity, which facilitates logistics.

Keywords: Training load; Team Handball; Rate of perceived effort.

Is Relative Age Effect determinant in the basketball career of youth players? An analysis of U15 to U17 Brazilian basketball selected players

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Aim: Observe the relationship of birth quartiles between basketball players selected in categories U15 who remained selected in U17 and those who did not. **Methods:** The sample comprised 2523 young basketball players participating in the national championships of state teams between 2004 and 2015, with 1013 (age: 15.4 ± 0.9 years; height : $1,81 \pm 0,9$ cm; weight: $71,5 \pm 12,7$ kg) athletes running the U15 and U17 championships and 1510 (age 15.4 ± 0.7 years, height: $1,84 \pm 0,9$ cm; weight: $80,6 \pm 12,7$ kg) athletes running only the U15. The information was obtained from the Brazilian Basketball Confederation (CBB) website (<http://www.cbb.com.br>). Each player's month of birth was categorized into quartiles: 1st quartile (Q1): January to March; 2nd quartile (Q2): April to June; 3rd quartile (Q3): July to September; 4th quartile (Q4): October to December. I To investigate Relative Age Effect we used the Chi-Square test (X2). To observe the explanatory relationship between the groups, the cross-reference table was used. **Results:** For athletes participating only in the U15 championships, we have Q1 608 (40.2%), Q2 440 (29.1%), Q3 273 (18.1%) and Q4 189 (12.6%) and for U15 athletes who played U17, we have Q1 402 (39.1%), Q2 284 (28.2%), Q3 186 (18.4%) and Q4 141 (13.3%), with significant effect $p=0,00$. No significant values were found when crossing the birth quartiles data between the evaluated groups $p=0,742$. **Conclusion:** There is Relative Age Effect in both groups, and the birth quartile is not a determinant factor in distinguishing U15 athletes who participate or not in U17.

Keywords: Sports selection, youth players, basketball.

Effect of consecutive days of competition in muscular strength, perception of stress-recovery in para-athletes of amputee football

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Aim: To characterize the effect of matches in consecutive days in the muscular strength and perception stress-recovery in amputee football players. **Methods:** 14 para-athletes of the Brazilian team participated in this study. Data were collected during the Amputee Football World Cup in a total of seven matches. Before and after each match the athletes performed three counter movement jumps (CMJ) to evaluate muscular strength in lower limbs. Besides, athletes were questioned about the perception of recovery according to the total quality recovery scale (TQR). The stress-recovery questionnaire (RESTQ Sport) was applied in the day before the trip (in the morning), after the qualifying round (in the morning) and in the morning after the last match played in the championship. The internal load was analyzed using the Session-Rating of Perceived Exertion (RPE)-method. **Results:** In relation to the total quality recovery scale (TQR) athletes indicated that they were “well recovered” (median = 17) from the matches. The mean of match load was $396,0 \pm 143,4$ arbitrary units. We found height reduction in CMJ after matches (-7,8% to -10,7%). Among consecutive matches, CMJ height was strengthened between 5,5% and 13,8%. **Conclusion:** We concluded that consecutive days of competition led to performance drop in the neuromuscular capacity in lower limbs just after matches. On the other hand, the neuromuscular capacity of jump and the balance of stress-recovery did not suffer detrimental alterations over the consecutive matches.

Keywords: Stress-Recovery; Internal Load; Performance

Goal scoring in Uruguay First Division Football: a methodological training approach

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Aim: To present a methodological approach for training the actions presented when scoring a goal in the First Division of Football in Uruguay. **Methods:** Sample included the 578 goals scored in the 233 games of the 2016 Uruguayan First Division league. Observational methodology procedures were followed. Sequential analyses were used. **Results:** The central lane was preferably used with a sequence of passes (9,1% of the actions). Most of the goals were scored inside the penalty area. The sequence of actions shot-rebound-shot-goal was highlighted. **Conclusion:** Goals in Uruguay were scored with an important influence of the sequence of actions shot-rebound-shot. This sequence was mostly preceded by passes on the central lane of the playing field. Training sessions should prepare offensive players to anticipate the presence of a rebound within the penalty area and score afterwards. This situation should have a previous sequence of passes (creation area) located in the central lane of the playing field. In order to offensive players perform accurately in that situation, tasks should include situations where i) rebounds must appear after a shot and should end in scoring a goal in the following shot and ii) rebounds are framed when they do not appear in the actions, followed by shots that might end in scoring a goal. On the other hand, defensive players should i) create a greater numerical superiority in the central lane ii) anticipate the possible zone where the rebound might go and position there iii) avoid rebounds.

Keywords: Uruguayan football; goals; training sessions; methodological approach.

Physical characterization of the blind football young player

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Aim: To characterize physically the blind football young player. **Methods:** Nine male visually impaired young players of the blind football (five -a-side football), aged 21 ± 5.9 yrs. and with at least a six-month experience in this modality took part of the study. Data collection was performed in two days with a 48- hour interval between days. Tests performed were Wingate test (WIN), Sprint testing 20m in a straight-line (V20m), with ball (VBol), and counter-movement jump (CMJ). **Results:** WIN showed the following results: absolute power = 770.7 ± 187.6 ; relative power = 11.1 ± 1.4 and fatigue index = $45.9 \pm 8.7\%$. The average height of CMJ was 30.9 ± 7.1 cm and the best jump 31.9 ± 8.5 cm. V20m and VBol were 5.05 ± 1.60 and 8.0 ± 3.1 seconds, respectively. **Conclusion:** We concluded that test results contribute to the knowledge of physical characteristics of football five-a-side young players. This will enable physical conditioning trainers and coaches to design the most suitable training programs to optimize physical abilities of visually impaired people.

Keywords: Paralympic Sports, Adaptive Sports, Disabled Sports

The attack in high-level volleyball from the perspective of Social Network Analysis: an exploratory study

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Aim: To test a new instrument of observation for the attack in high-level volleyball, considering the influence of sequence (characteristics of previous and subsequent actions). **Methods:** Analysis of a game of the Portuguese Women's 1st Division 2018/2019 (3 sets, 140 plays), considering all game complexes except the KIV, due to its low occurrence. An eigenvector centrality network with 371 nodes and 4954 edges was created. **Results:** In complex 0 (K0), we highlight block curtain in Z3, floating serve and serve from Z1. In KI, the highest centrality was for the ideal setting conditions (SCA), attack by the outside hitter (OH), attack without having received a perfect ball, and strong attack to the paragonal and the line. In KII, the previous behavior of the setter to play on wait or to accompany to Z4, with double cohesive block, SC divided into A and B, transition from attack by the OH, and the attacks directed to the paragonal and strong to an intermediate diagonal. In KIII, middle blocker (MB) playing on wait, opposition with double open block, SCB and attack in Z4 and Z2. In KV and KVI: SCA, with attack without having defended (same player), attack by the MB and the OH, seeking the strong attack on the line. **Conclusion.** The instrument reinforced the need for considering variables adjacent to the attack action, as well as the relevance of testing direct and indirect connections between game variables, as made possible by Eigenvector Centrality.

Keywords: Contextual Variables; Game Analysis; Social Network Analysis; Eigenvector Centrality; Attack; Volleyball.

Mame levels and declarative knowledge in young basketball players from Ceara state

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Aim: The central objective was to verify the level of understanding of play in basketball of young people aged from 12 to 16 years from an alternative approach to the teaching-learning-sports training. **Methods:** This is a cross-sectional study. The sample consisted of 16 students between 12 and 16 years of age, with a minimum of 1 year of practice, of the extension project Solidary Basketball, of the Federal University of Ceara. The GPAI (Game Performance Assessment Instrument) was used to evaluate performance behavior in the game. The first part of the assessment was conducted from a 2x2 basketball game, with only half court available. The second part of the evaluation was done from a formal basketball game (5x5). Students were assessed on their collective action, through a formal basketball game, without exclusion or adaptation of rules. The game was played between team A x team B, with both teams playing in the game system of 1.2.2. **Results:** According to the tactical knowledge of basketball and to experts' classification, five students obtained weak results, six obtained moderate results and five obtained effective results, demonstrating that the sample was quite heterogeneous. **Conclusion:** It is possible to use GPAI to evaluate the game level of basketball players, as well as other approaches to basketball education, leaving aside traditional methods and starting with alternative methods.

Keywords: Basketball; Alternative Approach; School Sports

Some career characteristics of athletes who played the New Basketball Brazil: A descriptive analysis.

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Aim: To describe some characteristics of athletes who have been enrolled in at least one of the New Basketball Brazil (NBB) edition played between 2008 and 2018 **Methods:** The sample consisted of 1008 athletes (age: 25.23 ± 5.8 ; height: 1.95 ± 0.09) enrolled in the NBB in at least one of its 11 editions. Of these, 69 (7%) were born before 1980, 190 (19%) between 1980 and 1984, 239 (24%) between 1985 and 1990, 293 (29%) between 1991 and 1995, 217 (22%) after 1995. Information was obtained from the Brazilian Basketball Confederation (CBB) and the Brazilian National Basketball League (LNB) **Results:** Of all NBB registered athletes, 172 (17%) played in the U-15 category, 249 (24%) in the U-17, 380 (37%) in the U-22. All these categories were analyzed between 2004-2018. It should also be noted that 775 (77%) athletes started in national competitions for a club or state in the southeastern region, of these 167 (16%) changed to other regions, 607 (60%) were born in the first half of the year. **Conclusion:** It was concluded that few athletes played the national youth championships in the analyzed period, approximately 40% played in the two first categories of the national youth Brazilian basketball. In addition, it was evident that most athletes competed in their first national championship associated with clubs or states in the southeastern region and were born in the first half of the year.

Keywords: Sports Career, Athletes Career, Basketball.

Coexistence of performance models at the highest level of performance: the case of elite women's volleyball

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Aim: In Match Analysis, the generalization of the identified patterns may induce the formulation of generic performance models, neglecting relevant variations for the benefit of core values. We used Social Network Analysis to obtain systemic relational mappings, establishing networks for each of the six finalists of the 2014 Volleyball World Grand Prix. **Methods:** We analyzed 15 games from the 2014 World Grand Prix finals. In the first moment, a descriptive data analysis was performed in the SPSS and later six networks of degree centrality (one for each team) were built using Gephi®. **Results:** Results support the coexistence of multiple differentiated performance models at high performance levels, considering multiple pathways to high performance and not supporting the usual practices of monolithic talent detection and selection models. The six teams played evenly with the setter in offensive and defensive zone, but there were aspects differentiating each team: Brazil and China had faster attack tempos, while Belgium did not make any attack by Zone 1. The most used serve was the Float for all teams, but Standing serve was more central in the Russian and Belgian teams, while jump server was more central in Belgium and China. Additionally, the need to standardize the metrics as a function of the number of ball possessions is suggested. Indeed, each team presented a very different network. **Conclusion:** Focusing on unique performance models can be misleading, as average values neglect normal variations in performance.

Keywords: Performance analysis. Systemic mapping of the game. Variability of performance.

The career of male basketball players in Brazil: A descriptive analysis of the period 2004-2018

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Aim: To describe the trajectory profile of Brazilian basketball athletes from U15 to New Basketball Brazil (NBB). **Methods:** 5241 basketball athletes of which 2538 started in U15 (age: 15.4 ± 0.7 ; height : 1.81 ± 0.9), 1482 in U17 (age: 16.6 ± 1.2 ; height : 1.84 ± 0.9), 680 at U22 (age: 17.9 ± 2.1 ; height: 1.89 ± 0.9) and 510 at NBB (age: 21.9 ± 6.1 ; height : 1.95 ± 0.9). A descriptive analysis of the years of competition, category, change of state/region and change of position was performed. Information was obtained from the Brazilian Basketball Confederation (CBB) and the Brazilian National Basketball League (LNB). **Results:** In the distribution of competition years, 58% competed in just one year, 25% between 2 and 3 years, 11% between 4 and 6 years and 6% over 7 years. Regarding the number of categories played, 70.1% played only 1 category, 22.4% 2 categories, 5.3% 3 categories and 2.1% 4 categories. Among the sample, 80.9% remained in the same team during their career and 19.1% switched, with 94.2% of the athletes keeping playing in the same region, 84% did not improve their results between the first and the last year, with 17.6% improving. Finally, 78.8% started and ended the same position and 21.2% migrated. **Conclusion:** It was concluded that few athletes played all youth categories until reaching the NBB. This may have been inferred from few years of practice at national level, with few clubs and regions changes.

Keywords: Sports Career, Athletes Career, Basketball.

Comparative study between the measurement of reaction time and response time estimated by the coaches of a female futsal university team

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Aim: To measure the reaction time of athletes from a university female futsal team. **Methods:** The study included 15 athletes selected by the coaches of the women's futsal team of the University of Fortaleza. The research was conducted in a sports gymnasium of the University of Fortaleza. To standardize data collection procedure, a wooden ramp was built to generate standardized ball acceleration. Athletes were positioned at a standard distance from the ball, behind a screen so as not to see the release of the ball and were alert to the appearance of the moving ball as they headed towards the ball to control it. The entire procedure was filmed in high definition. The frames were evaluated and the fractions of seconds for each athlete's reaction were determined. These results were classified and compared with the subjective classification reported by the coaches regarding the reaction time perceived in the athletes. **Results:** Great divergences were observed between the classification measured in the filming and the classification subjectively reported by the coaches, where only one of the fifteen athletes had the two classifications equal. **Conclusion:** Subjective assessment of reaction time, commonly performed by sports teams' technical committees, especially Futsal teams, is not effective in classifying athletes in relation to this motor skill that is critical in the game. A quantitative and objective method of measuring the reaction time in these athletes is essential for a correct and accurate assessment of this motor capacity.

Keywords: Futsal; Reaction Time; Motor capacity.

Study of training tasks in basketball according to grouping of tasks and stage

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Aim: The purpose of this study was to characterize the training tasks performed by two training basketball teams and analyze the differences in the tasks according to the Game Situation used (Without Opposition, Individual, Equal and Unequal Small Sided Game and Full Game) and the stage (U12 and U18). **Methods:** A total of 119 sessions (U12: 47 sessions; U18: 72 sessions) composed by 580 tasks (U12: 216 tasks; U18: 364 tasks) were analyzed. Tasks were categorized through the SIATE tool based on Pedagogical variables (Game Phase, Content Type and Training Means), External Load variables (Density of The task, % Simultaneous Performers, Court Space, Competitive Load and Cognitive Involvement), and Organizational variables (Total time of the task, Time of explanation, Type of participation and Useful time of practice). A descriptive analysis of the tasks and associations (Chi square and Cramer's V) were performed. Differences between groups were established using H Kruskal-Wallis (Game Situation) and U Mann Whitney (Stage). **Results:** Depending on the Game Situation, significant differences were found in all the variables except in the % Simultaneous Performers in the U12 category., Significant differences were found, depending on the category, mainly in the use of the Full Game and in the Type of Content. **Conclusion:** Coach design tasks with specific characteristics for each type of grouping are adjusted to each level of training.

Keywords: Basketball, stages, training task, game situation

Influence of match status in the external load during official amateur basketball games: A case study.

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Aim: Describe and compare competition external load dynamics of an amateur senior basketball team related to match status per quarter: (a) close games (<9 points); (b) balanced games (10-19 points); and (c) unbalanced games (>20 points). **Methods:** Eleven amateur senior basketball players were analyzed during 6 official competition matches (Primera Nacional, Extremadura) during the 2018/2019 season. The external load by player's load, total impacts at different intensities, steps and jumps; the internal load through heart rate telemetry and the competition performance indicators playing rhythm and performance index rating (PIR) were registered by WIMUTM inertial devices, GARMINTM heart rate (HR) bands and video analysis, respectively. Differential analysis by the Kruskal-Wallis test and effect size through partial epsilon squared (E_R^2) were performed. **Results:** Statistical differences were found in internal load, with greater demands in close and balanced games [$95-100\%HR_{MAX}$] with respect to unbalanced games ($p<.01$; $E_R^2=0.16$, *large*), while unbalanced presented greater demands at lower intensities [$<90\%HR_{MAX}$] ($p<.01$; $E_R^2=0.04$ -to- 0.14 , *small-to-large*). In external load, differences were found in player load, total impacts at all intensities, steps and jumps with greater demands in unbalanced games regarding close and balanced games ($p<.03$; $E_R^2=0.02$ -to- 0.07 , *small-to-moderate*), being the highest differences in total and impacts >8G. Greater playing rhythm and PIR were found in balanced games (balanced>close>unbalanced) with small effects. **Conclusion:** Match status influenced directly external and internal load and the competition performance indicators in basketball. Therefore, it is important to design these specific situations in game-based tasks to performance enhancement, simulating individualized training contexts targeting official games.

Keywords: Workload, Competition, Performance.

Analysis of the performance indicators according to the specific position in the Spanish Women's Professional Basketball League.

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Aim: To analyze performance indicators-related differences between winners and losers in the Spanish Women's Professional Basketball League according to the following playing positions: Point Guard, Shooting Guard, Small Forward, Power Forward and Center. **Methods:** The research design was empirical, descriptive and observational. 572 matches were analyzed, corresponding to 78 match-weeks of the league phase and 20 match-weeks of play-off throughout 2015/2016, 2016/2017 and 2017/2018 seasons. Performance indicators that facilitated competition organization were analyzed and collected on the official website. These performance indicators were normalized according to each basketballer's playing time. Non-parametric hypothesis contrast models were used for statistical analysis. **Results:** Significant differences were found between winning and losing players in all specific positions. Regardless of the specific position, the winning female players performed better values in the positive performance indicators, while the losing obtained higher values in the negative performance indicators. **Conclusion:** Victory was achieved when all female players were the most effective. The small forward and center were the most important players in collective success.

Keywords: Performance indicators, Female, Specific Position.

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Keywords: Performance indicators, Female, Specific Position.

Study of the Evolution of Physical Fitness in Female Basketball Players.

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Aim: This study aimed to analyze the physical fitness of female junior team players during three different moments of the same season. **Methods:** The design was empirical, with a quasi-experimental methodology and with longitudinal data. The specific basketball test battery SBAFIT was used to evaluate physical fitness. The sample was from a U18 women's team formed by 10 players competing in the national championship. Data was collected through inertial devices (WIMUTM, RealtrackSystems) and photoelectric cells (Chronojumps, Bosco Systems). The independent variable encompassed the moments of the season. The dependent variables analyzed were 14 (5 neuromuscular, 4 physiological, 2 subjective, 3 technical-tactics). Statistical section comprised a descriptive analysis, a test of repeated measures and Mauchly's test of sphericity. **Results:** Results show a little evolution of players' physical condition throughout the season. The Guards, Forwards and Center players obtained significant differences in some variables related to aerobic capacity (pvalue = .007), in travel speed (pvalue = .032) and in agility tests (pvalue = .016). **Conclusion:** Results show that team's training processes and physical fitness have not been the optimum since the differences in the values analyzed at different times are minimal. For all this, the training must undergo the necessary adaptations for the players to be in the best conditions during competition.

Keywords: Physical Fitness, Performance, Inertial Devices.

Internal and external loading differences between winning and losing teams in Football 5-a-side for blind people

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Aim: Analyze the internal and external load of the winning and losing teams in Football 5-a-side for the blind, as well as to know the existing differences. **Methods:** Four national 5-a-side Football teams that participated in an International Tournament held in Seville (Spain) in 2019 were analyzed. The study variables were: Total distance, Accelerations, Decelerations, Total Impacts, Impacts>8G, and Player load, all recorded with WIMU inertial devices and GARMIN heart rate (HR) bands **Results:** Statistical differences were found between the winners and losers. Regarding the internal and external load, the winning teams had greater physiological demands, covered a greater Total distance, a greater number of Total impacts, Impacts>8G, and Player Load during the game than the losing teams. However, the losing teams showed a greater number of accelerations and decelerations than the winning teams. **Conclusion:** Team's physical condition influenced the final result of the competition. Therefore, improve physical training in Football 5-a-side is essential for blind people.

Keywords: Football, Blind, Competition.

Acceleration and heart rate response during consecutive bouts of 5vs.5 basketball game play

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Aim: To compare the acceleration and heart rate response during six consecutive bouts of 5vs.5 game play. **Methods:** Twelve U-15 athletes from a club participated in the study. Data of only 8 athletes were included in the analysis. Athletes and their parents were informed about the research procedures and gave a written consent to participate in the study. Athletes were divided by the coach into two teams of 6 players each. These teams played against each other eight consecutive 5-minute bouts of 5vs.5 basketball game, with a 3-minute rest between bouts. No free throws or time-out were allowed. Only data from 6 consecutive bouts performed by players were included in the analysis. During the game, athletes wore heart rate monitors and 100Hz triaxial accelerometers were positioned near athletes' upper back, inside a pouch attached to a vest. Athletes' mean resultant acceleration in each game bout was calculated using Microsoft Excel. **Results:** The one-way ANOVA and Bonferroni's post hoc showed no significant differences between bouts for any of the variables investigated in this study. **Conclusion:** 30 minutes of 5vs.5 basketball play, played as six 5-minute bouts with 3 minutes of passive recovery in-between are insufficient to induce significant decreases in the physical response of U-15 athletes during training.

Keywords: Physical demand; Accelerometer; Game-based training; Basketball; Small-sided games.

Subjective perception of effort of soccer athletes after the use of isokinetic dynamometer

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Aim: Identify the Effective Subjective Perception of Soccer Players on the Isokinetic Dynamometer. **Methods:** Twenty-two professional soccer players participated in the study, the average age was 20.6 years, height 1.76 meters and body mass 70.9 kilograms. Subjective Effort Perception (PSE) was obtained through the Borg scale (6 to 20) at speeds of 60 and 300° per second in the dominant limb and non-dominant limb. **Results:** PSE 60° from dominant limb was 13.86 ± 2.51 and non-dominant limb presented 13.36 ± 2.83 . At the 300° speed of dominant limb exhibited $14.18, \pm 1.86$ and non-dominant limb has shown $14.09, \pm 1.68$. **Conclusion:** The average activity on the dynamometer indicated that the athletes pointed the activity through the Subjective Effort Perception, as relatively tiring (values between 13 and 14).

Keywords: Football, Isokinetic Dynamometry, Subjective Effort Perception.

Biomechanical analysis of the kinematic variables of the weight throw of an Olympic and Paralympic athlete

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Aim: Historically, the throwing of weights has been taking place since the Celtic peoples and the Scots. Over the years, this practice has become an Olympic sport of athletics, in which it consists of throwing a spherical weight as far as possible. The objective of the study was to analyze biomechanically the kinematic variables of the weight throw: Height, Initial Speed and Output Angle. **Methods:** These variables were compared in relation to an Olympic athlete and a Paralympic. Ten pitches were shot by each athlete with the straight technique (Parry O'Brian) on the athletics track at the Federal University of Ceará. At the end of each throw, the weight distances were checked in meter calibration. The weight used was standardized in four kilos. The program used for data analysis was the DARTFISH CONNECT and it measured descriptive statistics, described standard deviation, Linear correlation between the variables (H, V_0 , Θ) and the T-Test. **Results:** Findings have shown that speed was the variable that most influenced the greatest weight range. This higher speed is supposed to happen due to the fact that the Olympic athlete has performed all stages of the throw (preparation, sliding, throwing and recovery). On the other hand, the Paralympic athlete did not perform all phases. **Conclusion:** With the implementation of all phases, the Olympic athlete caused a greater accumulation of energy to be transferred to the implement and it hurled with more speed.

Keywords: Olympic athlete; Paralympic athlete; Biomechanical

Decision-making: declarational knowledge of university volleyball lifters

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Aim: To verify lifter's decision making on college volleyball teams. **Methods:** Twenty-one volleyball players(lifters) participated in the Brazilian University Games in 2018. Among the lifters, 7 (33.33%) were men and 14 (66.66%) women. The average practice as a lifter was approximately 8 years \pm 3.89 with a mean age of 22.62 \pm 2.77 years the combination of qualitative and quantitative approaches was used. In the qualitative approach was used an individual and semi-structured interview with reference to experiences. We have already applied in the quantitative approach the Lifter's Declarative Tactical Knowledge Test. Data were expressed by means of descriptive statistics of mean and standard deviation (SD), minimum and maximum, using the significance of $p < 0.05$ and a paired correlation between decision making and justification. **Results:** In decision - making, a maximum of 1400 points was obtained, averaging 1076.71 \pm 235.35, in justification the maximum obtained were 1319 points, an average of 941.32 \pm 242.81. **Conclusion:** Adult college lifters were able to make decisions and, more importantly, were able to justify them correctly by showing the declarative knowledge and expertise.

Keywords: Decision making, Volleyball, Performance

Strategic use of taking the goalkeeper out in Handball: a descriptive study of the Men's Euro 2018

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Aim: i) To describe the strategic use of taking the goalkeeper out (TGKO) for a field player, during the different phases of the tournament ii) to describe the consequences of TGKO. **Methods:** All matches played during the 2018 European men's championship were visualized (47 matches). A total of 754 offensive actions where the GK was taken out were registered. Observational methodology procedures were followed. **Results:** TGKO while having 1 player excluded was used the most in all 3 stages of the tournament. An average of 9,4 actions per game during group phase (GP), 9,3 actions during main round (MR) and 7,8 in final stages (FS), followed by the situations of 7 against 6 (3,9; 4,6 and 5,6 respectively). TGKO generating a 7 against 6 situations presented an increase from the GP to the FS of the championship. TGKO creating a 7 against 5 - situation was not used during FS. Receive no counterattack (RNC) was the consequence which appears the most when TGKO while having one player excluded (60,2 % in GP; 65,3 % in MR and 76,9 % in FS). Playing 7 against 6 had a decrease in the number of counter attacks received, from MR to FS (33,7 % in MR and 14,3 % in FS). **Conclusion:** TGKO when having 1 player excluded and to create a 7 against 6 situations was used in a consistent way during the championship. In the FS, teams received less counter attacks than in GP and MR.

Keywords: Goalkeeper out; 7 against 6; phase tournament; counterattack; men's handball.

Control and Monitoring of Internal Training Load in Competitive Phases of Young Basketball Players

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Aim: To compare through the Rate of Perceived Exertion (RPE) method 3 competitive stage sessions of an U17 basketball team. **Methods:** Eleven U17 basketball athletes who participated in 85% of the 39 training sessions with a 60- minute duration. Thirteen training weeks were investigated and were divided into three competitive stages: The first stage of four weeks, the second of five and the third of four, with two games at the end of each stage. The expected RPE for all sessions was seven. Sessions were 20% physical/technical and 80% technical/tactical, using the training methodology based on the game model. To monitor the Internal Training Load was used the session RPE method (RPE x Time). Total weekly training load (TWTL) was calculated as well as monotony and strain indices. Data was expressed as mean \pm standard deviation. To compare the stages, one-way ANOVA was used, with a significance level of 5%. **Results:** Mean TWTL were: 685 ± 131 in stage 1, 486 ± 129 in stage 2 and 617 ± 186 in stage 3, arbitrary units ($p = 1.75$); monotony was: 0.85 ± 0.05 (1st), 0.71 ± 0.1 (2nd) and 0.83 ± 0.1 (3rd); and strain was: 1000 ± 120 (1st), 717.4 ± 269.6 (2nd) and 897.7 ± 243.2 (3rd). No significant difference was found between the steps on TWTL ($p = 1.75$), monotony ($p = 1.35$) and strain (2.10). **Conclusion.:** Young basketball players do not have significant variations in the internal training load between competition phases.

Keywords: Workload, Youth Athletes, Competition

Is participation in the Brazilian national teams guaranteed to play the FIFA World Cup?

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Aim: To verify the relative age effect (RAE) on the trajectory of athletes of Brazilian Selection soccer team. **Methods:** The sample consisted of 306 male athletes participating in the FIFA U20 World Cup in the years : 1991, 1993, 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009, 2011, 2015 and the FIFA World Cup in the years 2002, 2006, 2010, 2014, 2018. Frequency and percentage were used for descriptive analysis. Each player's month of birth was categorized into quartiles: 1st quartile (Q1): January to March; 2nd quartile (Q2): April to June; 3rd quartile (Q3): July to September; 4th quartile (Q4): October to December. To investigate the presence of RAE we used the Chi-Square test (χ^2). To observe the explanatory relationship between the groups, the cross-reference table was used. Cartilage characterization according to each athlete's date of birth was also used. **Results:** Findings have shown that of the 306 athletes who participated in the FIFA U20 and FIFA World Cup, only 28 (9.2%) of the players played both competitions. In Q1 (8 / 2.6%), in Q2 (9 / 2.9%) and Q3 (9 / 2.9%), Q4 (2 / 0.7%). **Conclusion:** A quartile (Q4) footballer who played the FIFA U20 World Cup and the FIFA World Cup is less likely than the other Q1, Q2, Q3 to play both competitions.

Keywords: Relative age; Athletes; Football.

The Nutritional Status of Futsal U-13 Selection of a School in Fortaleza-CE

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Aim: The aim of this study was to identify the nutritional status of the students / athletes of the futsal selection of a public school in Fortaleza. **Methods:** The research used the quantitative approach with a descriptive analytical study of the investigative model. Research was conducted with 12 U-13 students from the futsal selection of a public school in Fortaleza. Data collection occurred since April 2019. Data were analyzed by the SSP for Windows version 13.0 statistics. Tests were weight and height. T WHO children's BMI (2007) chart was used. **Results:** It was observed that among the students participating in the research, the average weight was 37.05 Kg, with a standard deviation of 2.30, while height was 1.42 m, with standard deviation of 0.11. Regarding BMI, the average was 18.35, with 1.23 standard deviation. We noticed that the students were classified in the normal weight range, heading for overweight according to the WHO. **Conclusion:** School selection students have a nutritional status within the WHO normality, as well as the values either can serve as a parameter for the planning of training and improve the performance of those positioned higher in WHO 's chart.

Keywords: Nutritional Status, Futsal and School Selection.

Changes in heart rate variability of U17 and Senior Brazilian beach volleyball players in a tournament

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Aim: To monitor changes in heart rate variability and internal load following a beach volleyball tournament in high-level U17 and Senior players **Methods:** Seventeen beach volleyball players from different categories: U17 (15 to 16 years: n = 08) and Senior (19 to 41 years: n = 09) participated in this study. Players performed national and/or international beach volleyball competitions. The resting heart rate variability (transformed in LnRMSSD) was recorded over 5 minutes, in four moments: N1 (pre-matches night); M1 (pre-matches morning); N2 (post-matches night); and M2 (post-matches morning). Internal match load was assessed, and accumulated match-loads were used for analysis. To compare percentage change ($\Delta\%$) of the different moments, a repeated-measures ANOVA test was performed. Pearson test analyzed the correlation between variables. **Results:** Senior players presented higher values of LnRMSSD in four moments when compared with U17 players ($p = 0.006$). Athletes of both groups presented a reduction in LnRMSSD during the night of competition (U17: N1 vs. N2 = $3,60 \pm 0,42$ vs. $3,03 \pm 0,29$; $\Delta = -16\%$ and Senior: $4,11 \pm 0,72$ vs. $3,74 \pm 0,63$; $\Delta = -9\%$), whereas only the Senior players presented autonomic perturbations in the morning (M1 vs M2 = $4,02 \pm 0,47$ vs. $3,81 \pm 0,48$; $\Delta = -5\%$). Accumulated match-loads ($7233,93 \pm 2211,35$ a.u.) were negatively correlated with $\Delta\text{LnRMSSD}$ ($r = -0.54$; $p = 0.037$). **Conclusion.** The LnRMSSD index presented changes in U17 and Senior BV players, suggesting that maintaining high vagally-related HRV indices seems relevant during a BV championship.

Keywords: Autonomic cardiac, internal load, Performance.

Capítulo 2: Cognição e Ação

Pendular Model of Tactical-Technical Training improves the decision-making of volleyball athletes

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Aim: Verify the influence of the application of the Pendular Model of Tactical-Technical Training (PMTTT) in the decision-making (DM) of U-18 male volleyball players. **Methods:** Participated 23 U-18 Brazilian male volleyball players of the Federal District Selection. As a dependent variable, we analyzed pre and post-intervention DM. The PMTTT was used to assess the independent variable. At the pre-intervention moment, DM was assessed through the Declarative Tactical Knowledge Test in Volleyball (DKTK:Vb). The test analyzed 24 scenes of volleyball high level games divided into four situations (Extreming attack – EA – six scenes; Central attack – CA – six scenes; Setting – SE – six scenes; and Blocking – BL – six scenes). At the moment of the intervention, 24 training sessions were performed using the PMTTT. At the post-intervention moment, DM was again evaluated with the randomized order of DKTK:Vb scenes. Student's t-test for paired samples was applied to pre and post-intervention DM analysis. The effect size analysis was also performed. **Results:** Athletes presented significant differences in DM, with better results in the post when compared to the pre-intervention (EA - $p=0,044$; CA - $p=0,043$; SE - $p=0,001$; and BL - $p=0,001$). In addition, SE and BL situations have shown a too large effect size. **Conclusion:** PMTTT has shown to be effective in improving DM in U-18 male volleyball players.

Keywords: Volleyball, Teaching-Learning-Training, Cognition, Tactical, Technical.

Mental fatigue induced by playing video-game impairs the passing decision-making performance in soccer players.

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Aim: This study aimed to investigate the acute effect of playing video-game on the passing decision-making performance in soccer players **Methods:** Twenty-five ($n=25$) professional soccer players (mean \pm SD: age 23.4 ± 2.8 years) participated in this cross-over investigation. Athletes played a full-length soccer training match (two 45 min halves) after two experimental conditions (Control vs. Video-game) with a randomized order. The Game Performance Assessment Instrument (GPAI) was used for the passing decision-making analysis (video analysis). Stroop task was performed before and after the experimental condition as intervention check. The Shapiro Wilk test evaluated data distribution and the Mauchlys' test assessed sphericity. Repeated measures ANOVA compared the passing decision making **Results:** The number of passes ($F(2, 23) = 1.97, p = .31$), perceived recovery level ($F(2, 23) = 2.34, p = .26$, and internal load ($F(1, 3) = 1.28, p = .47$) were similar between the control and video-game conditions. Accuracy (%) ($F(2,23) = 47.3; p = 0.001$) and response time (ms) ($F(2,23) = 32.5; p = 0.02$) were compromised after 30 minutes of playing video-game compared to control condition. The GPAI analysis showed impaired passing decision-making performance after 30-min playing video-game compared with the control condition ($p= 0.01$; $ES = 0.5$) **Conclusion:** Prolonged time spent playing video-game may be considered a mediating factor in passing decision-making performance in male professional soccer athletes throughout a full-length training match. Thus, athletes should avoid this task before a soccer match.

Keywords: Team sports; Athletes; Sports psychology

Declarative and procedural tactical knowledge in young basketball players throughout a competitive season

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Aim: Identify the level of the declarative and procedural tactical knowledge of female basketball athletes, considering the categories and ranking of teams throughout a competitive season. **Methods:** This is an observational descriptive study, with ex-post-facto character design. The sample consisted of 67 female athletes from the state of Mato Grosso, aged between 12 and 17 years ($14,60 \pm 1.25$), participants of the 2018 state season. Instruments chosen were the tests of Knowledge tactical declarative and procedural for basketball, proposed by Morales et al. (2017) and Morales et al. (2018). **Results:** Findings indicate significant differences between the declarative tactical knowledge in comparison with the competitive categories and team's classification in the season. The time of practice was not a determinant factor for the development of declarative and procedural tactical knowledge, which also did not present a relationship between them. **Conclusion:** Higher categories presented better declarative tactical knowledge scores than the lower categories and finalists presented higher declarative tactical knowledge values than the other teams.

Keywords: Tactical knowledge; Basketball; Sports competition.

Analysis of the declarative tactical knowledge on the system 2.2 in school futsal in U-15 and U-17 categories

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Aim: Verify the Declarative tactical knowledge level on the futsal tactical system 2.2 in school adolescent practitioners of futsal. **Methods:** The survey was conducted in three private schools in the city of Fortaleza, Ceará, with a sample of 29 male athletes, aged between 14 and 17 years. The instrument used for data collection was the Balzano and Oliveira Protocol (2013). The evaluation criterion, presented by Greco (1995), that classifies the answers regarding judgment and justification in a scale from 0 to 5 points was used for data analysis. Microsoft Office Excel 2016® software was used to present relative frequency. **Results:** It has been noticed that in the declarative knowledge of the tactical systems, 75% of U-15 athletes knew the 2.2 system, while there were 92.3% U-17 athletes who understood it. **Conclusion:** The 2.2 system was widely known by U-17 athletes. However, in spite of being a basic system for futsal sports initiation, some under-15 athletes presented difficulties in the knowledge of this system and it is important to improve the cognitive aspect related to the tactical aspect in training.

Keywords: Cognition; Tactic; Futsal.

The effect of smartphones on decision-making in soccer players: a crossover and randomized study

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Aim: The aim of this study was to analyze the effect of the use of social media on smartphones on the passing decision-making performance in professional soccer athletes. **Methods:** Participants were 25 male professional soccer athletes (mean \pm SD: age 23.4 ± 2.8 years). Participants performed two randomized conditions, control (CON) and smartphone (SMA). Before and after each experimental condition, the Stroop Task assessed mental fatigue score. Then, the athletes performed a simulated soccer match. A CANON® camera recorded the matches for further analysis on passing decision-making performance. The Shapiro Wilk test evaluated data distribution and the Mauchlys' test assessed sphericity. Repeated measures ANOVA compared the passing decision making. **Results:** The number of passes ($F(2, 23) = 1.97, p = .31$), perceived recovery level ($F(2, 23) = 2.34, p = .26$), hydration state ($F(2, 23) = 2.09, p = .33$), lactate ($F(1, 3) = 2.68, p = .23$), internal load ($F(1, 3) = 1.28, p = .47$), temperature ($F(1, 3) = 1.50, p = .41$), and relative humidity in air ($F(1, 3) = 1.21, p = .44$) were similar between the CON and SMA conditions. A group effect was identified ($p < .01$) showing impairment on passing decision-making performance for the SMA ($p = .01, ES = 0.5$) condition. **Conclusion:** We concluded that the use of social networks on smartphones and/or playing video games right before official soccer matches might impair the passing decision-making performance in professional soccer athletes.

Keywords: Sports Psychology, Team Sports, Mental Fatigue.

Relationship between tactical knowledge and visual search strategies of young soccer players from different age levels

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Aim: To analyze how declarative (DTK) and procedural (PTK) tactical knowledge influence visual search strategies (VSS) adopted by young soccer players from different age levels. **Methods:** Fifty-three young soccer players from U13 ($n=17$); U15 ($n=18$) and U17 ($n=18$) age levels participated in the study. FUT-SAT was used for PTK assessment. DTK and VSS were assessed through video simulation tests from a third-person perspective, using Mobile Eye Tracking-XG. The number and duration of fixations were the measures considered for VSS assessment. For statistical analysis, the sample was grouped according to age level and players' PTK and DTK level. Shapiro-Wilk test and t-test for independent samples were used. **Results:** Findings suggest that PTK influences players' VSS, whereas players with higher PTK employed more fixations ($t_{(51)}=-9.667, p<0.001, r=0.86$) regardless of age level. With respect to fixation duration, differences were observed only for U15 ($t_{(51)}=-8.474, <0.001, r=0.94$) and U17 ($t_{(51)}=-18.540, <0.001, r=0.99$) age levels. On the other hand, no influence of DTK on visual search strategies was found (number of fixations: $t_{(51)}=-1.235, p=0.223, r=0.17$ and fixation duration $t_{(51)}=1.525, p=0.133, r=0.20$). **Conclusion:** Findings indicated that players' VSS from different age levels were influenced only by the amount of PTK, where higher PTK players performed more short duration fixation.

Keywords: Cognition; Tactics; Soccer; Evaluation.

Effects of two high-intensity interval training protocols on cognitive performance in futsal athletes: a pilot study.

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Aim: To investigate the influence of two High Intensity Interval Training (HIIT) protocols on the Inhibitory Control (IC) in female futsal athletes. **Methods:** Six female athletes participated in the study ($20,1 \pm 3,1$ years; $58,6 \pm 5,2$ kg; $1,60 \pm 5,0$ m; $22,8 \pm 1,9$ kg/m²). The color test of Stroop (Stroop Test) was used to verify IC. Volunteers performed, on different days and random order four sessions: one to perform the maximum speed on the treadmill; two to perform low volume HIIT protocols and one control condition (sedentary). **Results:** There were no significant differences in psychophysiological variables in heart rate (HR) (HR HIIT30" = $168,3 \pm 18,8$ vs HR HIIT60" = $178,5 \pm 14,4$; $P = 0,103$) or subjective exertion perception (RPE) (RPE HIIT30" = $15,3 \pm 2,8$ vs RPE HIIT60" = $14,1 \pm 14,4$; $P = 0,135$). No significant difference was found in time and condition in reaction time (RT), percentage of correctness and error between conditions ($P > 0,05$). The comparison of delta pairs [post - pre] of RT (RT control = $-20,4 \pm 67,5$ vs RT HIIT30" = $-123,1 \pm 88,9$ vs RT HIIT60" = $-82,6 \pm 83,3$; $F(2, 5) = 3,40$, $P < 0,075$, $n_2p = 0,405$); %hits (%hits control = $1,1 \pm 2,7$ vs %hits HIIT30" = $0,8 \pm 4,1$ vs %hits HIIT60" = $1,1 \pm 1,7$; $F(2, 5) = 0,014$, $P < 0,986$, $n_2p = 0,003$) e %errors (%errors control = $-1,1 \pm 2,7$ vs % errors HIIT30" = $-0,8 \pm 4,1$ vs % errors HIIT60" = $-1,1 \pm 1,7$; $F(2, 5) = 0,014$, $P > 0,986$, $n_2p = 0,003$) showed no significant difference between the conditions. **Conclusion:** The acute effect of HIIT30" and HIIT60" did not directly influence IC in female futsal athletes.

Keywords: Futsal; Sport; Cognition.

A comparison of the quality and time of decision-making in tactical actions between male and female soccer players

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Aim: Compare the quality and time of decision-making in tactical actions between male and female soccer players. **Methods:** The sample comprised of 67 college soccer players (male=41; female=26) with an average age of 22.0 (SD=3.1) years for males and 20.9 (SD=1.4) for females. We used the TacticUP® video test, which is an online platform that assess players' decision-making based on the core tactical principles of soccer and the test is composed by offensive and defensive video sequences of 11vs11 soccer situations. Participants should choose the most appropriate solution for each video sequence. The scores are divided into offensives: penetration, offensive coverage, width and length with the ball, width and length without the ball, depth mobility, offensive unity; defensives: delay, defensive coverage, recover balance, defensive balance, concentration, defensive unity; and general scores: total offensive, total defensive and total (which is the average score). **Results:** In the quality of decision-making males were better in width and length with and without the ball, concentration, total defensive and total compared to females ($p < 0,05$), whereas the females outperformed the males in offensive coverage and offensive unity ($p < 0,05$). In regard to the time of decision-making males were quicker in penetration, offensive coverage, width and length without the ball, depth mobility, offensive unity, concentration, total offensive and total defensive compared to females ($p < 0,05$). The effect sizes varied between medium effects (Cohen's $d > 0,5$) to large effects (Cohen's $d > 0,8$) **Conclusion.** In general, male soccer players make better and quicker decisions compared to female soccer players in this sample.

Keywords: decision making, declarative tactical knowledge, decision time, tactical skill, video-based test, tactical awareness.

Exploring the theoretical frameworks of tactics and decision-making in soccer: implications for teaching, learning, assessment and training

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Aim: This literature review aimed to explore the theoretical framework related to tactics and decision-making in soccer. **Methods:** Seventy-six articles (2001 to 2018) were selected amongst results in the following databases: PubMed/NCBI, Institute for Scientific Information (ISI) Web of Knowledge, SciELO, SPORTDiscus via EBSCOhost, and Ariane (uLaval). After a detailed analysis of each study, a categorization system was implemented, contemplating action in the play, tactics, decision-making and the teaching-learning-training process. **Results:** The review helped identifying 4 particularities of decision-making in the game context: (i) the first decision made is the one decision (“Take the first”); (ii) players use Simplified perception (“Simple Heuristics”); (iii) decisions are not completely reflected (“Pre-reflected”); and (iv) players summarily evaluate what they perceive. The sum of all these particularities portrayed the functioning of decision-making from the individual’s standpoint but has also presented a significant challenge for players to play intelligently. **Conclusion:** Main conclusions suggest that players must experiment various situations and contexts of play from competition to training to which coaches should add comprehensive challenges and activities to reflect their actions. Such a combination significantly contributes to the building of knowledge and experience, but also stays in line with the characteristics of the tasks of playing and making decisions. The analysis of tactical behavior and the verbalization of the action can also help coaches direct their interventions towards the players as they guide them to solve situations of play.

Keywords: dynamic system; cognitive approach; intelligence; team sports; sports sciences.

Capítulo 3: Ensino e Aprendizagem

The practice of sport psychology with people with disabilities

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Aim: This study aims to present the practice of Sport Psychology with PWD and its importance in sports, wheelchair basketball, para-table tennis, wheelchair tennis. The growth of visibility and investment in sports practiced by athletes with disabilities has been leading Psychologists to work in this field. The lack of scientific material related to sports for PWD makes the production of the present study relevant to the professionals and students who intend to work in this scope, hence allowing a biopsychosocial reflection. **Methods:** The initial focus was placed on the building of bonds with the athletes and the technical committee by attending trainings and external competitions, supporting and collecting data through observation and listening. The practice of the Sport Psychologist was explained to overcome stigmas. Questionnaires were applied to gather demands that have already been established. **Results:** Positive results were obtained regarding improvement in skills which are relevant to each of the sports associated both with leisure and high performance, improvement in group relationships, reduction of internal conflicts, increase of athletes' motivation, decrease of fouls during training and achievement of established goals. **Conclusion:** This study concluded that the practice of Sport Psychology through bonds, techniques and theoretical basis assists the performance and development of PWD in various demands within the biopsychosocial field in sports focused both on leisure and high performance.

Keywords: Sport Psychology. People with Disabilities. Inclusion.

Teaching sports to adults and to the elderly: what does the literature bring about it?

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Aim: This study aimed to examine what the Brazilian literature has been producing about the teaching sports for adults and the elderly. Participation sport has as goal the wellness of its participants and could be associated with recreation and free time, which are widely practiced by adults and seniors in different spaces (clubs, parks, private institutions) and requires a special look about how to teach different sports. **Methods:** The study was developed according to the following steps: analysis of journals of all Qualis strata, seeking for those that expressed in their focus and scope the possibility of publishing works in the area of interest. The selected journals were examined based on keywords "sport and the elderly", "sport and adult", "sport, pedagogy and the elderly" and "sport, pedagogy and adult". **Results:** After reading them, 474 articles were selected, those which currently addressed the themes found in the keywords and each one of them was read in full. From this reading, they were grouped into categories, namely: pedagogy (8 articles), education (62), motivation (34), health (155) and others (215). **Conclusion:** From this survey it was possible to notice that, when it comes to the public in question, the investigations have been privileging the study of themes related to the effects of practice or what makes people look for them, and little is said about issues related to teaching for people at this particular stage of life.

Keywords: Keywords: pedagogy of sport; elderly; adult.

Sport Education Model - A Basketball pilot study.

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Aim: to increase the adherence, frequency and basketball tactical aspects of adults' recreational basketball players through the Sport Education Model (SEM). **Methods:** Sample comprised 13 subjects (13 men, 28 ± 1 years). The pilot study lasted 8 weeks, with 2 classes per week, with 80 minutes each. The SEM methodology was introduced during the week 1 and all participants organized themselves autonomously in three teams equating the skill levels. During the first week all teams assigned for roles to each member of each team: captain, referee, pollster, statistician, organization, coach and reporter/media. After that, a tournament was performed to start the initial evaluation. After the tournament all teams were divided and began the training independently organized by each captain. A second evaluation (tournament) was conducted in the week four and the final event was done in the week 8 where all participants played at least a period of basketball match. **Results:** Analyses were conducted by the researcher and the students together. It was possible to verify the evolution from a disorganized tactical position to an organized tactical defense and offence actions from week 1 to week 8. In addition, there was an increase of the total points in the match. Also, it was possible to verify, by self-reporting and observation method, a better communication among all team members. **Conclusion:** Sport Educational Model has shown to be effective on frequency and adherence, since there was only one drop out student during the 8 weeks.

Keywords: basketball; sports education model; adult; recreational.

The place and the meaning of sports in the narratives from experiences of physical education teachers in the integrated technical courses of the Federal Institute of Espírito Santo.

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Aim: To analyze the place and the meaning of sports in narratives from experiences of physical education teachers of the integrated technical education from different units of the Federal Institute of Espírito Santo. **Methods:** Narrative interviews were conducted with seven teachers from different campuses of the Espírito Santo Federal Institute. From the interviews one of the axes of analysis was configured: sports. **Results:** The most frequent experiences are in sports area, a fact that remains relevant in the institution's integrated technical education, both in terms of choices and in the hierarchical process of physical education contents, according to the importance attributed to it and also in relation to the projects developed in teaching, research and extension. The trajectories related to sports experiences are the most significant in the career. However, the pedagogical treatment differs among teachers, who have been showing an interest in working sports in a perspective that exceeds the teaching technical rationality. Analyses point to the understanding that sports occupy a prominent place in the narratives due to the prestige of sports achievements in the school games, the professional training marked by the hegemonic presence of sports and the experience with sports along life. **Conclusion:** The most significant professional experiences of physical education teachers in the technical education integrated in Ifes are in the context of sports. Integration between high school and vocational education remains a major challenge for the Federal Institute of Espírito Santo.

Keywords: Technical education, physical Education, sports.

Application of a volleyball teaching unit based on step-game-approach – experience in a public school.

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Aim: The present study aimed to analyze the impact of a teaching unit on Volleyball based on the Step-Game-Approach (SGA) in students of a public school in the state of Ceara. **Methods:** Eight students (16.6±0.91 years old) participated in the study, attending the first and second year of a public high school in Fortaleza-CE. Data were collected in three tests: i) the pre-test, conducted before the beginning of the teaching unit; ii) post-test, conducted after the end of the teaching unit; iii) retention test, performed 15 days after the post-test. All tests consist of a videotape analysis of a 10-minute 2vs2 volleyball game. **Results:** The descriptive statistics was initially used, with the mean and the respective standard deviations. Subsequently, comparisons among pre-test, post-test and retention test were calculated using magnitude based on inference, standardized mean differences and respective confidence intervals (90%). Results showed that there was an improvement in all indexes from pre-test to post-test and that these indices were maintained in the retention test. **Conclusion:** This study reinforces the need to implement teaching approaches at schools, aiming to provide students with effective learning methods that seek the development of all technical and tactical skills of volleyball.

Keywords: Volleyball; SGA; School; Physical Education; Sport

Strategies to increase girls' participation in sports: an analysis of guiding documents.

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Aim: We aimed to describe and analyze initiatives that seek to nurture guiding strategies that aid teachers in the inclusion of girls into the practice of sports. **Methods:** Content analysis of 6 documents aimed at increasing the participation of women in sports. **Results:** All the documents, which provided both first-hand accounts and practical propositions, addressed inequalities in the access to physical activities between boys and girls. They raised aspects such as: the effect of physical activity in girls' lives; strategies that contribute to more inclusive classes in sports both within school and extracurricular; and even the impact of women's presence as leaders in sports. Propositions included: suggestions towards breaking stereotypes of boys and girls; the raising of awareness /reflection of the above topics to the questions of gender in sports; innovative activity planning; equal allotting of spaces and resources; refusal of sexist and homophobic language and behavior; planning guidelines of classes/projects to raise girls' participation; exposure in the communities and female presence in management and training. **Conclusion:** As a form of sport collectivization, documents indicated the importance of the development of strategies that gives girls the opportunity to practice sports, thus gaining knowledge and appreciation of such activities, in addition to encouraging the presence of women in the pursuit of leadership roles.

Keywords: Gender; Sports; Documents; girls.

Global network metrics as an indicator of training task adaptation to players' skills level

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Aim: This study aimed to investigate if players' skills level influences team's interpersonal coordination in tasks with different difficulty levels. **Methods:** Twenty-four U17 male football players (n=24, mean age=16.89±0.11 years) participated in this study. The System of Tactical Assessment in Football (FUT-SAT) was used to identify players' tactical efficiency level and indicate players' skills level. Then, they were organized into three groups according to their tactical efficiency: Higher tactical efficiency level (Group 01), Intermediate tactical efficiency level (Group 02) and Lower tactical efficiency level (Group 03). Group 01 and Group 03 performed three High difficulty Small-Sided and Conditioned Games (HD-SSCG) and three Low Small-Sided and Conditioned Games (LD-SSCG). Teams interpersonal coordination was analyzed based on global network metrics, density (D) and clustering coefficient (CC). Two-Way ANOVA and multiple Mann-Whitney tests were applied to identify the main differences between groups and games. **Results:** We found that Group 01 presented higher D and CC at HD-SSCG (p<0.001) and CC (p=0.006) at LD-SSCG. **Conclusion:** We concluded that when task difficulty level is appropriate, teams are stimulated to play more collectively. These results provide important information on which indicators can be used by practitioners to identify whether task difficulty level is appropriate to players' skills level.

Keywords: Football, Nonlinear Pedagogy, Game-based approach

Fútbol Callejero is more than soccer: a look for the educational processes

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Aim: The main objective of this research is to identify and understand the educational processes that emerge from the social practice of the mediation of the Fútbol Callejero. **Methods:** This study was conducted based on qualitative research, which does not focus on generalizations. The path taken by this study, both in data collection and analysis, had a phenomenological inspiration, more specifically concerning the identified phenomenon. For data collection, which was conducted in March 2019, we used interviews with six mediators who attended or are attending training meetings on the Fútbol Callejero methodology. **Results:** The analysis of the interviews resulted in two categories: a) "Fútbol Callejero (...) is awesome"; b) "Through these formations I saw that I was getting better". **Conclusion:** These results have shown that it was possible to identify some educational processes that emerged in the social practice of the Fútbol Callejero. These categories came into view from the interviews with the mediators and showed us the potentiality that soccer has as an educational agent and that we can look differently at it and considerate that there is more than one soccer and different ways of playing it.

Keywords: Educational Processes, Phenomenology, Street Soccer.

Teaching models for team sports: a systematic review

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Aim: We performed a systematic review about pedagogical interventions that used teaching models for team sports. The review comprised the past 20 years and the databases Web of Science, Scielo, and PubMed. **Methods:** The terms “team games” and “team sports” were associated with “teaching models sports”, “teaching-learning-training”, “pedagogical intervention”, “tactical-technical performance”, “cognitive processes”, and “small games”, in Portuguese, English, and Spanish. The search returned 445 records. Of these, 140 were fully reviewed, and after screening against set criteria, 45 manuscripts were selected to compose the sample. The topics analyzed were: (1) year of publication; (2) language of publication; (3) sport modality; (4) sample level; (5) intervention duration; (6) teaching model; and (7) dependent variables. **Results:** Descriptive analysis showed that the year 2016 obtained the largest frequency (20%) of publications; most of the studies were published in English (73.33%); soccer and basketball (24.44% and 15.56%, respectively) comprised the largest number of works; the majority of studies (62.22%) investigated schoolchildren; the intervention duration of the teaching programs were between 5 and 54 sessions and were mostly based on tactical models; the main variables analyzed were: declarative tactical knowledge, procedural tactical knowledge, tactical-technical performance, and motivation. **Conclusion:** This study provides information on the field of teaching models for team sports, allowing the identification of issues for future research and also assisting professionals in the teaching-learning-training process of sports.

Keywords: Teaching models; Team sports; Pedagogical interventions.

Changes in the ecological context generate changes in the tactical-technical behavior of the attack in novice volleyball players.

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Aim: The present study aimed to analyze the changes in the ecological context that generate changes in the tactical-technical behavior of the attack in novice volleyball players. **Methods:** The sample consisted of observing 16 games of 16 athletes with mean age 12.2 ± 0.5 years and 1.2 ± 0.8 years of practice in three different court sizes: 3.0m x 3.0m, 4.0m x 4.0m and 4.6m x 4.6m. The instrument adopted was created by Collet et al. (2011). Games were filmed from the top perspective, allowing the entire court to be viewed, including the demarcation lines. Descriptive analysis was performed, and the game situations were compared by Anova one way, as well as the chi-square (χ^2) for categorical variables. Significance value adopted was $p < 0.05$ and reliability was obtained after the reanalysis of 15% of the actions, exceeding the reference value of 10%. **Results:** Results showed that, in the attack, waiting to perform the attack pass occurred more often in the 4.0m x 4.0m ($p < 0.05$) court size compared to the others. Also, contacting the ball with the elbow in extension and above and in front of the head most frequently occurred in the 4.0m x 4.0m compared to the 4.6m x 4.6m court size. There was no difference in decision making and attack effectiveness according to the game situation. **Conclusion:** Environmental restrictions influenced the tactical-technical behaviors of volleyball learners, and different ecological contexts provide opportunities inherent to the specific game environment.

Keywords: Volleyball; Reduced games; Technical-tactical actions.

Table football for gender equality in football: report of a project in public schools

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Aim: Describe and analyze an extension project aimed at giving visibility to the 2019 Women's Football World Cup through a circuit of table football tournaments in state schools. **Methods:** This is a qualitative exploratory research that had as instrument for data collection the participant observation and the narratives of children and young people from the nine schools participating in the Copa ProFut Circuit at schools. **Results:** The project had a pedagogical character as it aimed to foster the rescue of the table football game and problematize the lack of visibility of women's football from the representation of the World Cup. It used photos of the participating players printed on the worn buttons. There were about 220 students (in a balanced proportion of boys and girls) from the final years of elementary school of state public schools in the city of São Carlos-SP. Participants revealed great interest and curiosity for both the practice of table football and the Women's Football World Cup. **Conclusion:** Based in the results it is possible to conclude that table football as a cultural artefact linked to the values of a hegemonic masculinity, when invested with a representation of women's football, assumes the role of an important pedagogical agent to problematize gender inequalities present in the Brazilian football scenario.

Keywords: Table football, gender equality, women's football

Analysis of a didactic unit with Fútbol Callejero and its implications on gender relations in Physical Education classes

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Aim: Considering the emergence of Fútbol Callejero as an alternative for popular education, especially in Latin American countries, the present study, through action research assumptions, aims to analyze and describe gender relations during the practice of Fútbol Callejero in the classes of a 9th grade elementary school. **Methods:** From the methodological point of view, it is an action research that had as instrument data collection of participant observation, the conversation wheel and the subsequent description in the class diaries. Thirty-seven students from the 9th grade of an elementary school of a state school in Araraquara-SP, 19 boys and 18 girls, participated in this study. **Results:** Previous to data collection analysis, we had noticed a greater role of girls during classes, greater participation during games, and the appropriation of extra school spaces that before the project were completely monopolized by boys. It is also important to highlight that the class involved in the project was the only one to participate in the school's Burned interclass games with a mixed team. **Conclusion:** We consider that the Callejera methodology is an important pedagogical alternative to problematize the gender inequalities of sports practice in the school context.

Keywords: Fútbol Callejero, Gender, School Physical Education.

Tactical-technical performance in female college players: applications of the Teaching Games for Understanding (TGfU) and the technique-centered traditional approach

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Aim: To verify the impact of the Teaching Games for Understanding (TGfU) and the technique-centered traditional approach on tactical-technical performance of female college players. **Methods:** Twenty-two female college players, beginners in volleyball (mean age 21.54 years), participated in the study. These players were randomly allocated into two groups of 11 participants: G1 and G2. The experimental design consisted of pretest, intervention, and posttest. During the intervention period, G1 and G2 attended twelve practice sessions structured according to the TGfU model and to the technique-centered traditional method, respectively. A 6vs.6 formal game (all official rules included), played as two 25-point sets with no tie-break was played before and after the intervention period. The games were filmed for further analysis of players' technical-tactical performance, using the Instrument of Assessment of Technical-tactical Performance in Volleyball (IAD-VB). Differences of technical-tactical performance were analyzed using both dependent and independent t-tests within and between groups, respectively. **Results:** The paired t-test showed a significant difference between pre and posttest only for G1 ($t = -2,663$; $df = 13$; $p = 0,020$). The independent t-test showed no differences between groups. **Conclusion:** The TGfU model used over 12 weeks significantly increased the technical-tactical performance of female college players beginners in volleyball.

Keywords: Volleyball, technical-tactical performance, teaching models.

Effect of contents systematization on the playing ability at school

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Aim: Team sports are used as an important tool for the teaching-learning process in school physical education. They enable the acquisition and refining of motor capacities and skills which encourage their practice for health, leisure and other goals. Therefore, it is necessary to understand the coordination with ball as a guiding element for planning and developing playing ability. Therefore, we aimed to analyze the effect of systematized classes (experimental group – EG) and not systematized classes (control group – CG) on the coordination with ball. **Methods:** We applied the Ball Coordination Test (TECOBOL) in 106 students aged $11,75 \pm 0,570$ years to analyze throwing, kicking, dribbling and driving the ball skills, in conditions of pressure that are typical of the games. Between pre and post-tests, 18 classes were taught by the researchers (EG) and the regular school teacher (CG). **Results:** We found differences ($p < 0,05$) and large effect between pre and post-test in the EG for kicking and driving skills. CG showed no difference between pre and post-tests for all the skills tested, and a negative effect for kicking and driving skills. **Conclusion:** Systematized classes led to large effect in the level of coordination with the ball, and possibly in the ability of comprehension of the game. This was presumably due to the systematization of the contents for the development of the playing ability, which was built with theoretical support.

Keywords: Coordination with ball, playing ability, childhood, systematization, skills.

Contents of teaching sportive games at school

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Aim: Physical education at school favors motor experiences that develop behaviors for an active lifestyle. Systematized planning implements the teaching-learning process of the most current contents of physical education classes, the sportive games. The absence of both, planning for playing ability and new methodologies, impair one's motor development and the use of tactical intelligence. Accordingly, this research aimed to analyze the contents of development of playing ability in the school classes of sportive games. **Methods:** We observed, recorded in field diary, and analyzed the contents of 18 physical education classes for children aged 11 and 12 years. **Results:** In six classes (33,33%) the content that was planned to be developed, namely volleyball, was not performed. In eleven classes (61,11%) the content consisted of teaching the technical fundamentals without interaction with the tactical situation, characterizing the analytic method and the sportive approach, which stem from traditional methodologies. In one single class there was what could be directed to the development of tactical intelligence, with the contents of board games, but there was no association or targeting of this content. It was raining at that specific day. **Conclusion:** The methods that ensure the development of tactics before technique have not taken part of the context yet, hence impairing the teaching-learning process of sportive games and their effects in motor expertise, therefore reducing the practice of sportive games to leisure, health, and perhaps, detection of talents.

Keywords: school physical education, playing ability, new methodologies, planning, systematization

The implementation of the Game-Step Approach Model for teaching and learning volleyball: perceptions of secondary school students

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Aim: The present study examined students' perceptions about the teaching and learning of volleyball through the implementation of the Game-Step Approach Model (GSAM). **Methods:** Participants were an early-career teacher (age 25) and 25 students (15 female and 10 male) of the 12th grade. Data collection was conducted during the 2017/2018 school year through semi-structured focus group interviews and data was analyzed through thematic analysis and inductive procedures. **Results:** Results showed students' perceptions of advantages and disadvantages of the use of learning steps in the GSAM. The advantages mentioned by students included: a sense of fairer competition, the opportunity to in-depth practice of tactical skills, to meet students' learning needs and share knowledge through mutual help interactions, the development of positive relationships and teacher's effective adaptation of pedagogical strategies. The highlighted disadvantages included: students' inability to help their lower-skilled teammates improve their game-play and to learn from observation of higher-skilled peers, non-appreciation of game-play activities within a persistent team format, dissatisfaction about the ability matching format during competition events. Students reported that the whole-class development of proficient 6x6 game-play was unachievable due to the marked disparity in students' initial ability level and the insufficient length of the teaching unit. **Conclusion:** This study reinforces the importance of adapting learning tasks to students' individual capacities and the need for students to work with peers with the same and different ability level. To reach a higher game level, it is important to enlarge the time devoted to Physical Education.

Keywords: Volleyball; Game-Step Approach Model; Learning Steps; High School; Physical Education.

Essential competence in team sports: Analysis of players' tactical performance in different sports

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Aim: This study aimed to investigate the relation between players tactical performance in different team sports. **Methods:** Sixteen undergraduate students participated in this study. They played Gk+4vs4+Gk small-sided games in football (40m length and 20m width) and in handball (40m length and 20 width). Players' tactical performance was evaluated through Performance assessment in team sports (TSAP). This assessment tool analyzes these indicators: conquering the ball (CB); receiving the ball (RB); playing a neutral ball (NB); losing the ball (LB); playing an offensive ball (OB) and executing a successful shot (SS). Performance score was calculated through the equation: $(\text{efficiency index} \times 10) + (\text{volume of play}/2)$. The Pearson Correlation was used to analyze the relation between players' tactical performance in both games (football and handball). **Results:** It was possible to observe a substantial relation ($r=0.67$) between players' tactical performance in both games. **Conclusion:** Based on these results, we can highlight the possibility of conceiving a teaching process in team sports, having as reference the development of the essential competence (relation with the ball, structure of the game space and communication in the action), that may contribute to the development of players' performance in different sports through a diverse sports initiation. **Keywords:** Essential Competence, Team sports, Tactical Performance

Could the development of players' tactical knowledge be a basis of their autonomy tactical skill? – An action-research throughout a competitive volleyball season

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Aim: Within unpredictable and dynamic environments, such as team sports, players' tactical knowledge (TK) and autonomy skills are vital resources to resolve tactical game-problems. However, the study of these skills arises mostly isolated on literature, mainly from quantitative methods, which consequently provide a narrow perspective of the importance of such skills to decision-making in team sports. Therefore, following an action-research design, this study aimed to examine the development of players' TK and autonomy on tactical decision-making throughout a competitive season. **Methods:** Fifteen female volleyball players participated in this study. The first author assumed the dual role of coach-researcher. Data were collected through field notes, coach's reflexive diary and semi-structured focus-group players' interviews. Globally, three action-research cycles were completed. A thematic analysis was used to analyze data. **Results:** Results showed that players progress from a start point where merely describe the knowledge about the opponents' tactical behaviors and were extremely problem-solving dependent of coach instructions, to an end point where they were able to interpret the most relevant constraints, acting intentionally and ponder by themselves which could be the best tactical decision. Interestingly, at the end of season, players reported that before developing tactical autonomy, felt the need to enhance their tactical understandings. Here, the manipulation of representative task constraints and questioning strategies played an important role. **Conclusion:** The enhancement of players' TK portrayed a basis to develop autonomy skills. We recommend the building of representative and meaningful learning-tasks, that stimulate players' exploration of tactical solutions by themselves. **Keywords:** player development; qualitative research; sports pedagogy; volleyball

The effects of floaters on players' tactical performance in Small-Sided and Conditioned Games

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Aim: This study aimed to investigate if players' tactical performance is affected by the presence of floaters in soccer Small-Sided and Conditioned Games. **Methods:** Twelve football players participated in two 3vs3 configuration Small-Sided and Conditioned Games (SSCG), under two conditions: i) without the presence of floaters; ii) with the presence of floaters (3vs3+1). We used a pitch with 30m length and 19.5m width and these SSCG had 10 minutes of duration. We used Performance assessment in team sports (TSAP), composed by these indicators: conquering the ball (CB); receiving the ball (RB); playing a neutral ball (NB); losing the ball (LB); playing an offensive ball (OB); and executing a successful shot (SS). Efficiency index, volume of play and performance score were used to evaluate players' tactical performance. The Wilcoxon test was used to compare players' performance between both SSCG conditions. **Results:** We observed that players presented higher volume of play ($p=0.012$) and performance score ($p=0.009$) in SSCG without floaters. **Conclusion:** We concluded that practitioners must carefully manipulate key constraints to provide players representative training tasks in an attempt to enhance players' performance.

Keywords: Football, Small-sided and Conditioned Games, Tactical performance

Impact of Sport Education and Direct Instruction Models on students' self-confidence development in sport activities

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Aim: The purpose of this study was to analyze students' perceptions on the development of their self-confidence, after having participated in Physical Education (PE) classes in which they experienced the Sport Education Model (SEM) and the Direct Instruction Model (DIM). **Methods:** A total of 430 Portuguese students aged between 14 and 21 years from 18 classes participated in this study and completed the self-confidence items of the Portuguese version (Vasconcelos-Raposo, 1995) of the CSAI-2 (Martens, Burton, Vealey, Bump & Smith, 1990). Nine classes (214 students) had 18 lessons with DIM and the remaining nine classes (216 students) had 18 lessons with SEM. One-way ANOVA and repeated measures ANOVA were used for data analysis. **Results:** The results showed that the experience in both teaching models in PE classes increased significantly the perception of self-confidence perceived by the students, although with greater impact in the model of student-centered approach. **Conclusion:** The results suggest that the value of critical pedagogies provides students with a central space in the teaching-learning process. Using more informal and implicit teaching strategies has helped to improve perceptions of self-confidence.

Keywords: Teaching Models; Physical Education; Critical Pedagogies; Psychological Skills.

Handball at school: teaching of defensive contents

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Aim: to identify the defensive contents and teaching approaches adopted by school team handball coaches. **Methods:** Eleven school team (U-14 and U-17 teams) coaches from a city in the State of São Paulo were interviewed, and the discourses were analyzed based on the Collective Subject Discourse method. **Results:** The main individual contents identified were: marking, base position, coverage and spatial occupation. The main group defensive contents were: match up changes, mutual cover and defensive systems. Coaches used the game situation approach as a priority, followed by the technique approach and teaching through games (for individual contents) and teaching through games and technique approach (for group contents). Although it is about contents from the same phase of the game, there is a preference for different teaching approaches. **Conclusion:** The choice of the technique approach for teaching individual defensive content seems inconsistent, mainly because it is related to decision making. These findings may contribute to the teaching of handball in school teams and with reflections for the teaching of the different specific contents.

Keywords: Sport Pedagogy; Youth sports; Handball; School teams; Defense.

Teaching sports from the critical supervisor approach

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Aim: To verify the contribution of the applicability of the Critical-Overcoming approach to the development of sports in the Sports and Social Development Program - PDES. **Method:** We used a descriptive research of exploratory nature, which took into consideration the applicability of the Critical-Overcoming approach in Physical Education classes, through the planning of classes in PDES. The implementation of the didactic-pedagogical production of the activities occurred through the development of sports such as futsal, handball, basketball, volleyball and soccer with students aged from 12 to 15 years. Instruments used to collect information were observation in the practical participation of the activities, questionnaire with pertinent questions to the contents and final evaluation at the end of the class where students orally described what the class had provided them. **Results:** After verifying the Critical-Overcoming approach in the program classes, we noticed the contributions that it provided for a better contents teaching-learning, especially in students' critical sense and the actions that involve them. Accordingly, three significant changes were highlighted compared to the beginning of the program: 1st- learning of collective sports, 2nd- affection and 3rd -behavior. **Conclusion:** To understand the various contributions that the critical-overcoming approach provided to the students' teaching and learning in the program, that the practice of sports activities with planning in this approach has shown efficacy and relevance in teaching-learning, as well as, the strengthening of student's citizenship formation, besides the critical and reflexive practice provided through the collective sports.

Keywords: Overcoming Critic. Teaching-Learning. and Sport.

Physical Education Teacher Education programs based on constructivist and critical pedagogies: Pre-service teachers views of the threshold between knowing how to be and being a constructivist-oriented teacher

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Aim: The contemporary wide adoption of constructivist-oriented (or student-centered) practices by the Physical Education Teacher Education (PETE) programs requires the implementation of transformative and critical pedagogies to best respond to Pre-service Teachers' (PSTs) renewed training needs. However, there is still a marked shortage of research that examines the pedagogical processes used by university teacher educators during the preparation of PSTs for implementing student-centered approaches (SCA) at schools. Accordingly, this study aimed to understand the perceptions of PSTs after being instructed through the use of constructivist SCA designs with two team sports units within PETE program. **Methods:** Participants were twenty-five PSTs, their two teacher educators (volleyball and handball) and an ethnographer. Data collection included participant observation, focus group interviews and a field diary. Data were analyzed in the light of critical pedagogy theory: dialogic relation between teaching and learning, understand the context, immersion into culture. **Results:** Findings showed that PSTs 'feared' the transition from the role of SCAs learners during their course to the role of SCAs teachers in the subsequent school practicum training. PSTs also anticipated the inability to adapt their teaching practices to new contexts and sport content and to teach SCA in ways other than those specifically learned during the course. **Conclusion:** This study suggests that pedagogical practices of PETE programs should be centered on developing deep understanding, versatile teaching skills and autonomous decision-making processes that best prepare PSTs to implement SCA in varied contexts.

Keywords: Student-centered approaches; Physical Education; Pre-service Teachers; PETE program

Basketball teaching strategy for children and adolescents

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Aim: To describe the teaching strategy of basketball lessons based on the understanding methodology applied to children and adolescents in a social project of the Institute of Physical Education and Sports of the Federal University of Ceará. **Methods:** Data collection was performed by the direct observation and the written records of the basketball lessons of the project. Classes were recorded based on the lesson plans, which described the objectives of each lesson. **Results:** Results are presented in both absolute and percentage values. There were 37 basketball lessons from August 2018 to May 2019. There were 25 lessons (n = 69.5%) during the first semester, of which 12 had emphasis on offense (n = 48%), 7 on defense. (n = 28%), 3 on both fundamentals (n = 12%) and 3 emphasized body mastery and ball handling (n = 12%). There were 12 classes (n = 30.5%) during the 2nd semester, of which 4 highlighted offense (36.4%), 4 draw attention to defense (36.4%), 1 had emphasis on both fundamentals (9.1 %) and 3 focused on body domain and ball handling (27.3%). **Conclusion:** It was necessary to have a greater emphasis in the lessons that focused on the offensive fundamentals of the game (passing, shooting) during the first semester. During the second semester, students had greater familiarity with the previously presented techniques, and it was possible to have a greater balance between the teaching of both attack and defense.

Keywords: Basketball, Children and Adolescents, Teaching Strategy.

Decision making changes in penalties and offsides with the use of VAR in Brasileirão 2019.

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Aim: The aim of this study was to verify how the introduction of Video Assistant Referee - VAR in elite soccer in Brazil influenced the decision making of refereeing. **Methods:** The sample consisted of situations of penalty and offside with VAR in the first 168 matches played in Brasileirão Serie A. Variables recorded for analysis were: number of correct offsides, amount of correct penalties and average amount of VAR use time. The information was made available by the Brazilian Football Confederation – CBF, which uses its own data collection system. Descriptive frequency statistics was used to identify events during games. **Results:** There were 27 correct impediments (hit ratio: 93.5%) and 32 correct penalties (hit index: 92.55%); of these, 25 were awarded after review and 7 penalties cleared after review. Besides, findings have shown a decrease in VAR use time in Brasileirão 2019 (1min 54sec) in relation to the use of VAR in Copa América 2019 (2min 35sec) and in the finals of the 2019 State Championships (6min). **Conclusion:** These data highlight the help provided by the VAR to arbitration in support of consultations during the game, especially in situations with limited responses. Referees need more experience with the VAR so that they can improve equipment handling and their affordance, which can increase the speed and quality of analysis of these situations that might directly affect the score of a game.

Keywords: Decision Making, Referee, Affordance, Soccer, Review

Golf materials making: a sport approach strategy

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Aim: Report a class experience with student-made golf materials. **Methods:** During the class of Alternative Sports Modalities I, which is offered by the graduation course in physical education of the State University of Ceara, the professor proposed that the students, using their creativity, could make the materials of a pre sport golf game named mini golf. The students had to make the golf clubs, balls and mini golf targets, to the next class where a simulation of a sport match would take place. They made what was requested using recyclable materials that are present in their daily lives, such as broomsticks, newspapers and magazines, roll-on deodorant balls, and others. In class, the professor divided the class into two teams and proposed that they created a mini golf course using broomsticks and cones to delimit the space. One team played the game on the field built by the other, using exclusively their own clubs, balls and targets. **Results:** Making the materials allowed the students to experience a sport that is not common in the Brazilian culture and thus, they had a closer approach to the sport and could understand the dynamics of the game. As golf-related sporting materials are expensive, promoting the sport can be difficult, but in this context, making the materials had no cost. Most students were engaged in the class. **Conclusion:** The making of sports materials by students promotes an approach of sports and contributes to meaningful learning.

Keywords: Golf; Approach; Sport; Making; Materials.

The empowerment of girls in invasion sports games: impact of active teaching methodologies on gender relations

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Aim: This research is based on the implementation of a didactic unit of invasion sports games and aims to analyze the impact of active teaching methodologies on gender relations and female empowerment in Physical Education classes.

Methods: It is an action research based on the implementation of a didactic unit of invasion sports. Data collection instruments consisted of participants' observation, game videotaping and conversation circles, recorded in class diaries. Participants were the teacher-researcher and a group of students from the 6th grade of the elementary school of a municipal public school in Ribeirão Preto-SP. **Results:** The didactic unit comprised 17 classes (11 meetings). Besides the teaching methodology of the games, which emphasized the tactical demands of invasion sports, other methodologies were used aiming to problematize discriminatory attitudes between boys and girls in classes and in society, such as: simulated jury, Callejera Methodology and Generified Football. Participants highlighted male domination in the games and the sexist classification of sports and social roles as the most recurrent conflicts to their daily experiences inside and outside school. **Conclusion:** We consider that the teaching of sports games guided by active methodologies in a co-educational perspective has proved to be a powerful pedagogical strategy to cope with the removal or annulment of most girls in mixed sports practices. The improvement in the playing condition fostered a more active participation of the students in the classes that began to signal scenes of empowerment in situations of gender inequality.

Keywords: Invasion sports games; active methodologies; gender relations

The teaching and learning processes embedded in sports from a transdisciplinary perspective

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Aim: Describe the transdisciplinary themes which arise in both teaching and learning processes regarding sports contents in school physical education contexts. **Methods:** This qualitative research has been organized upon the review of the two latest Brazilian national curriculum proposals – known as parameters and common basis. We have considered all contents broadly related to sports in both curriculum proposals, not only as technical or tactical issues. Also, we have targeted social justice critical concerns, such as ethics, (un)equity, racism, and gender, among other issues. Hence, this research derives from an intervention based on transdisciplinary themes that emerged during participatory planning in school physical education. **Results:** Themes were associated with violence, gender, motility, soccer, and combative sports. However, the intervention emphasized the meaning of some concepts already learned by the students, therefore breaking shallow assumptions and myths. We have noticed that many students participated more during the learning process, as well as their questioning and criticism arose more frequently towards the teaching process. Such self-criticism and reflexive standpoint – regarding their practices and school physical education classes – were strictly connected to sports meaningful learning. **Conclusion.** The transdisciplinary approach to sports teaching has enhanced students' criticality and, on the other hand, has contributed to spread new and complex perspectives to the learning process. The ephemeral senses of sports games were confronted and placed beyond restricted procedural learning, qualitatively shifting each student's individuality and developing it with more complexity.

Keywords: sports; transdisciplinary approach; school physical education; curriculum; teaching games for understanding.

Capítulo 4: Formação de Treinadores

Coaches' pedagogical intervention in kids' soccer school: a pilot study

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Aim: Compare coaches' pedagogical intervention during U9 and U13 sessions in kids' soccer school. **Methods:** Three coaches (23±1 years old) were observed in two different training sessions (1-hour each) at State University of Rio de Janeiro. Sample comprised 30 kids, 15 from U9 (7-9 years old) and 15 from U13 (10-13 years old). They were divided into three groups and coaches were responsible for a different age group in each session. In the first day, Coach 1 instructed U9 (n=8), Coach 2 U9 (n=7), and Coach 3 U13 (n=15). In the second day Coach 1 U13 (n=8), Coach 2 U13 (n=7), and Coach 3 U9 (n=15). Training sessions were recorded by video and audio, then analyzed by the protocol analysis of the pedagogical intervention on the soccer coach content. This instrument classifies the pedagogical intervention into five categories: content: technical, tactical, psychological, energetic-functional and rules; form: verbal, visual, and kinaesthetic; direction: individual, subgroup, and team; objective: encouragement, descriptive, prescriptive, question and evaluative; and moment: in action and out of action. Mean, standard deviation and occurrence percentage were used for descriptive statistics. Shapiro-Wilk test indicated a parametric sample. Paired Samples T-Test was used to compare coaches' pedagogical intervention ($p < .05$). **Results:** Coaches presented more encouragement intervention in U9 than in U13 (.28±.09 and .14±.11, respectively; $p = .03$). In addition, they needed to explain more the rules during the U9 sessions (U9=.04±.005, U13=.0; $p = .006$). **Conclusion:** Coaches need to encourage and explain rules to younger kids more than to older kids.

Keywords: Coach; Pedagogy; Soccer.

Conceptions and Leadership Principles of High-Performance Brazilian Soccer Coaches

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Aim: To analyze the conceptions and leadership principles of high-performance coaches in Brazilian soccer. **Methods:** Participants were 5 coaches who participated in 2018 in the first division of the professional national championship. Coaches also have achieved state and international titles and professional experience in foreign teams. The semi-structured interviews (total duration = 313 minutes) were fully transcribed (118 pages) and the statements were validated by the interviewees. Thematic analysis and interpretative validity were used for data analysis. **Results:** High-performance coaches highlighted some competencies (leadership, communication, emotional balance, adaptive and reflexive capacity), principles/values (honesty, coherence, discipline, humility and loyalty) and professional knowledge to define the leadership conceptions. The principles of leadership included leadership strategies (team management, co-responsibility and assertive communication), the practice of principles/values through oral, behavioral and environmental communication, as well as the practice of specific and general knowledge. Sport results were the assessment reference of the work. **Conclusion:** High - performance coaches exposed mastery of procedural knowledge about leadership conceptions and principles. Evaluation seemed to be used based on disconnected criteria from their own leadership philosophy. Evidence revealed leadership principles instinctively performed and based on tacit knowledge, thus reproducing unconscious actions. Therefore, an adoption of the three-phase leadership model (philosophy, practice, evaluation) is recommended enabling coaches to systematize their leadership philosophies and practices, before establishing possible leadership criteria.

Keywords: Coach; Leadership; High Performance; Soccer.

Reflection from training in handball: coach's speech

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Aim: Identify the aspects considered relevant by handball coaches for reflection on professional practice **Methods:** Six handball coaches of male teams from a major league in the State of São Paulo were interviewed, with mean age 33.8 (± 6.9) years, academic background of 7.8 (± 3.7) years and professional experience of 7.7 (± 7.0) years. A qualitative approach was adopted, through semi-structured interviews in which the guiding questions were: “Do you reflect on your team training?”; “If so, what aspects do you observe?”; “How do you use this kind of information for the future team planning?”. Speeches were analyzed by thematic analysis (rich construction of the obtained themes, inductive analysis, latent themes and constructionist epistemology). **Results:** All coaches have stated that they reflect on their training. Five emerging themes from the six interviews were identified: 1) Specificity of each team (by age groups); 2) Conversation with players; 3) Match analysis; 4) Training session reports; 5) Adequacy of training activities. **Conclusion:** Although there is a reflective process, no searches for sources of knowledge outside the daily experiences with the teams were observed.

Keywords: Coach, Reflection, Handball.

Coaching and self-development of a college Basketball team: a report of experience

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Aim: The aim of the study was to provide athletes with self-knowledge and development and was conducted with a female college basketball team with twelve athletes since 2017 to the present, in the city of Fortaleza. **Methods:** The 40-minute duration sessions were conducted once per week in an appropriate classroom and the applied tools focused on individual and collective difficulties where changes and solutions were outlined. Team's goal was the classification for the Brazilian University Games - JUBs 2019. A very good technical index was identified, but in some competitions the team showed lack of confidence and physical condition. **Results:** A great union between the athletes and the coach was perceived and also the necessity for the self-development of the team, an intensification in the training of throws and individual works, a more intense physical preparation with a physical conditioning trainer, training in the gym, the recognition that some athletes should consult a nutritionist and group dynamics. It was concluded that the team reached the goal by being Ceara champion, runner-up at the northeast conference of the JUBs, qualifying for the final phase of the competition to be held in October 2019. **Conclusion:** Athletes considered coaching as an important methodology to achieve great results, and became aware that self-knowledge, self-development and the close relationship among the team, the basketball coach and tutor coach provided the process of change, thus allowing to meet the goal.

Keywords: College Basketball. Female Team. JUBs. Coaching.

Added values to initial education on sports teaching

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Aim: Sports practice previous to graduation provides the knowledge and values about teaching-learning methods, which influence the decisions of one's praxis as sports teacher. To identify beliefs regarding the methods experienced in the practice of team sports by the entering undergraduate in Physical Education, and to analyze the impact of the course "methodology of sports teaching" in those beliefs. **Methods:** At the end of the first graduation semester, 38 students answered the questionnaire designed for the study. **Results:** All the subjects experienced sports practices previous to the entry in the university, with 26% having practiced sports games for at least one year, three times a week. To the question "Which methods can you recognize as experienced in your sports practice previous to the entry in the graduation of Physical Education?" 76,31% claimed to recognize the traditional methods; 10,54% experienced methods that addressed near those proposed in the new methodologies of teaching team sports based in incidental learning, and 13,15% did not answer the question. There was association of the "ball rolls" to the global method. Furthermore, 100% of the students stated having added values regarding the ways of teaching sports games after the course. **Conclusion:** Beliefs while beginning the graduation are based on traditional methods. There is a positive effect after courses that establishes integrative strategies of already existing values, with the aim of adding new knowledge about the teaching-learning process of sports games.

Keywords: beliefs, sports games, physical education, methodology of sports teaching, graduation.

Team sports influence the choice of a Physical Education degree

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Aim: The diffusion of sports as a social phenomenon and the search for health in our present society point towards new trends of sports practice and instigate its ranges. Sports teacher/coach decision in directing the sports practice to different goals (e.g. health, leisure, competition or esthetic) may influence practitioners' choice of profession. **Aim:** To identify the influencing factors of team sports practice in the choice of a Physical Education degree. **Methods:** At the beginning of the first semester of the course, 82 students answered the questionnaire designed for the present investigation. **Results:** From the students who answered the questionnaire, 59 took part in team sports and 19 in other practices. Separately or in combination, 31 engaged in sports practice with the purpose of leisure, 31 in health, and only 16 aimed competition. Furthermore, participants indicated as influential factors for choosing Physical Education: The Sport itself (64,63%), the teacher/coach (24,39%) and other people (12,19%). **Conclusion:** For the population investigated, sports in general and the practice of team sports directed for leisure by the teacher/coach appeared to be the most influential factors for choosing the degree in Physical Education.

Keywords: beliefs, team sports, Physical Education, methodology of sports teaching, influences

Mentoring of sports technicians at graduation in physical education

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Aim: To report mentoring actions in the discipline "teaching of basketball" in undergraduates' physical education.

Methods: This is an experience report conducted in the monitoring of undergraduates' physical education and sports from February to July 2019. The undergraduates' degree in physical education promotes thematic axes, which are related to the knowledge of: a) the human being and the society; b) science and technology; c) the human body and health. The specific area of physical education encompasses pedagogical didactic knowledge and knowledge of the specific culture of physical education and sport. Subjects of sports teaching were developed with lectures, seminars, theoretical and practical classes and assessments. **Results:** The initiation to teaching is important in academic education as it enables the deepening in the area by having to review content, impart information, opportunities to prepare classes, teaching materials and teach classes. The knowledge acquired from the mentor teacher renews the vocation of being a teacher. Encourages to go beyond the limits, seeking innovations in methodology and pedagogical practices. **Conclusion:** The transfer of content and life experiences is a strategy in the formation of future sports coaches in physical education undergraduates. It is essential to have the opportunity to mirror oneself more knowledgeable and feel more confident knowing that someone has to trust and ask for help. Finally, it contributes to overcome personal barriers and contexts, as well as leaving the comfort zone to not only be one more, but to make the difference in the area.

Keywords: Mentoring, training, physical education, sport, basketball.

Can composting reflection be achieved by student coaches'?

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Aim: To investigate how student coaches can achieve composting reflection. **Methods:** Were used methods that included focus group interviews, reflexive diaries and participant observation for data collection. **Results:** The findings revealed that the descriptive stage was fundamental to understand the dilemmas of practice in a general perspective, but it should only be the first step of the reflection process that should move from comparative reflection until achieve composting reflection. Despite the student coaches understand the inclusion of concepts such as self-reflection, self-awareness and critical thinking they were reluctant to do it about their own weaknesses. In the same way, the student coaches that reached composting reflection mentioned that the self, the others and the context should be always articulated, because such dynamic and comprehensive process help them to reach a deeper analysis on reflection process. **Conclusion.** The development of these concepts throughout the internship experience could contribute to achieving composting reflection in student coaches.

Keywords: student coaches, internship, reflection.

Team sports and the expectation of professional performance

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Aim: Sport is one of the main contents of Physical Education at school and team sports are the most experienced manifestation in this context. School experience and the lifelong sports practice appear to influence the wish to become a coach or a teacher of Physical Education, as well as the expectation regarding the professional field after the initial education. Hence, we aimed to verify whether the experience with sports at school influences the continued practice of team sports and to analyze whether these experiences influence the expectation of the professional field as a teacher or a coach. **Methods:** At the beginning of the first and second semesters of the Physical Education degree, 71 students answered the questionnaire designed for the purpose of the study. **Results:** 63 (38%) subjects stated that their first experience with sports was at school. From them, 88, (73%) affirmed to have had sportive experiences outside school as well, being that 65, (03%) practiced team sports and 39,63% other modalities. From those who engaged in team sports, 46, (34%) intended to be acting professionally in sports training, 31, (76%) as a teacher at school, and 29,26% expected to work in the fitness market. **Conclusion:** School is the preferred place of sportive approach for future practitioners of Physical Education and favors the ongoing practice of team sports. Sportive experiences are directly related to the expectations of these future practitioners regarding the field where they intend to act professionally.

Keywords: sports practice; initial education; sports games; school sports; Physical Education

Capítulo 5: Multiprofissionalidade e Transdisciplinaridade

Rescue domino pedagogical game

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Aim: Drowning is a tragedy that could be prevented with minor actions. Prompt care could make the difference between a person's life and death. If every citizen had proper guidance on the "Art of Saving Lives" the number of drownings in Brazil and worldwide could be minimized. An effective prevention involves everyone, and it can be started indoors and spread by schools, the media, hence becoming a major chain of prevention. **Methods:** The game starts with the choice of players, either individually or in pairs. Each player receives six or seven stones according to participants' number; the rest of the stones are left to buy in case the opponent does not have the current stone. Whoever draws from the chain piece before starting the first game restarts the game; the winner starts the second game with any stone. From the beginning, each player, in a clockwise order, places a piece that should fit into one of the "ends" of the chain already formed; if someone has no piece to put, goes to "assemble" and "buy" until they get a piece that fits in. If there is no such piece, the player misses the turn to the next player. Who gets rid of all the pieces wins? If no fitting pieces are left, wins who has the fewest number of lifeguard pieces. **Results:** Who gets rid of all the pieces wins. **Conclusion:** Given the aspects observed, elementary school children are in the target group.

Keywords: Drowning; Aquatic Rescue; Game.

Comparing physical fitness and quality of life in children and adolescents attending a sport initiation project

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Aim: Compare physical fitness and quality of life in children and adolescents who are obese and normal weight attending in a sport initiation project. **Methods:** Students are participants in a sport project at the UNIFOR. A total of 50 male and female children (aged between 10 to 12 years), were evaluated using the following assessments: flexibility test (sit and reach), strength and muscular endurance test (sit-ups), aerobic test (9 minutes' walk or run) and a quality-of-life questionnaire. **Results:** Obese children had a lower physical fitness compared to children who were at a normal weight. Flexibility percentage difference was -9.25%; -24,9% was the strength and muscular endurance percentage difference; -6,2% and -6,9% were the aerobic capacity and quality-of-life percentage differences, respectively. **Conclusion:** Children who were classified as obese had either a compromised physical fitness and quality of life.

Keywords: physical activity; quality of life; obesity.

Athletics improves health and quality of life of teens with overweight and obesity

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Aim: To analyze the application of a physical exercise program in athletics to approach overweight and obese adolescents. **Methods:** A randomized clinical trial was conducted with 31 students aged between 13 and 18 years from the Antônio de Almeida Lustosa High School, with a Body Mass Index (BMI) above 25 kg / m² and z score $\geq +1$. In the 12- week intervention, we used athletics, runs, jumps and throws. Intervention Group (IG) did moderate and intensity exercises for fifty minutes, twice a week, and Control Group (CG) did physical education classes at school. The effect of the pre and post intervention variables was verified through ANCOVA and the study was approved by UNIFOR Ethics Research Committee 2,217,002 and was registered in the Brazilian Registry of Clinical Trials (ReBEC): RBR-4qb6y7. **Results:** There was a significant effect ($p \leq 0.05$) on health-related quality of life and an improvement in school performance. Regarding health, this was observed in Abdominal Circumference (AC), Waist Height Ratio (WHtR), in glycosylated hemoglobin (HbA1C) and in thyroid stimulating hormones (TSH). It was also observed a reduction of BMI in IG by 1.01Kg / m² ($p = 0.053$) while CG increased 260g / m². **Conclusion:** Athletics, when compared to school physical education classes, was able to improve important markers that serve to prevent or treat health problems due to overweight and obesity in adolescents.

Keywords: Overweight; Physical Exercise; Athletics.

Social skills and the sports context: A national literature review

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Aim: To investigate the influences of social skills in the Brazilian sports context, through a literature review of the scientific production of national journals. **Methods:** CAPES/MEC, SCIELO and PEPSIC databases were used for data collection, selecting only articles in Portuguese language produced between 2009-2019. The descriptors used were: social skills, self-knowledge, self-concept, empathy, self-efficacy, social competence, sport, athlete, team games. Approximately 170 articles were found in total, 44 contained the descriptors in the title and/or abstract and/or keywords, thus they were selected to have their abstracts read. It was noticed that of these 44 articles, only 15 addressed repercussions of social factors within the sports context and, therefore, gained greater focus in this review. **Results:** Social skills are discussed only indirectly in the papers found. Results address social interactions as a factor of vast influence on sport, being a relevant motivator for the sport practice by the athletes, determinant in the feeling of belonging in groups and quality of life, impactful on the sportive performance and ultimately especially important when it comes to team sports. However, few productions were found that directly addressed the relationship between social skills and the sports context. **Conclusion:** Much remains to be explored in the study of this theme and, considering its relevance, greater attention and in deepening is suggested, so that it is possible to think and implement appropriate and efficient interventions in this context.

Keywords: Social skills; Sports Psychology; Athletes.

The importance of the Psychology of Learning subject in the education of Physical Education professionals

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Aim: To analyze the importance of the Psychology of Learning subject for the education of Physical Education course students. **Methods:** This is a quantitative cross-sectional study, using an online questionnaire created in Google Forms, disseminated through social networks for students of Physical Education at the Federal University of Ceará. Data were analyzed via email, using descriptive statistics and response frequency. **Results:** With a total of 32 answered questionnaires, 20 from graduation and 12 from bachelor's degree, distributed through different semesters, it was found that in the question related to the evaluation of the subject about professional contribution, 6.3% found little contribution, 50% a good contribution, 43.8% an excellent contribution. Most students agreed that they could relate this subject content to other core subjects in the curriculum. This relation was pointed primarily to subjects such as Motor Development, Motor Learning and Human Development Psychology. While referring to the class credit hours (2 hours per week) 50% of respondents considered that to be insufficient, 40.6% sufficient and 9.4% excessive. Respondents stated that this subject content can be utilized in their current performance and in general, when asked, it was noted a huge importance of the subject in the education of a qualified professional, with respect to the individuals' subjectivity and encourage them to practice with various strategies. **Conclusion:** The Psychology of Human Learning subject is considered, by most academics, important in education and professional performance, adding diverse knowledge.

Keywords: Education, Physical Education, Psychology, Learning.

Field journal on socio-cultural understanding of sports games and its contribution for physical education undergraduate students' professional education

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Aim: Investigate the importance of the field journal in the socio-anthropological analysis of Sports and Physical Education professional education. **Methods:** An activity of constructing an anthropological field journal was applied to a group of Physical Education undergraduate students. Therefore, 10 students and the class professor have been interviewed about the contribution of such a tool to the Socio-anthropological analysis in Sports and Physical Education professional education. After the data gathering process, we performed Theme/category-based content analysis of the interviews and on six field journals elaborated by the interviewed students. **Results:** Through data analysis it was possible to identify five main categories that described the content addressed by the interviews and from the field journals investigated: 1. Social anthropological standpoint towards sport and profession; 2. Investigation of reality as it is per se; 3. Expansion beyond classroom teaching; 4. Challenges from the field journal activity; 5. Taking advantage of the activity. These themes have described the effectiveness and importance of using the field journal as a tool to understand Sports and professional intervention in Physical Education for the students and the professor who performed the activity. **Conclusion:** The field journal tool proved to be effective for the development and exercise of the ethnological glance on the socio-cultural phenomena of Sports, besides serving as a contribution towards the students' education as future Physical Education professionals.

Keywords: sports; socio-anthropology; physical education; transdisciplinarity

World Beach Sports - WBS Brazil, Fortaleza the World Capital of Beach Sports

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Aim: Popular initiative ideas can generate effective public policies. WBS is more than a brand, it is a legacy for society and an inspiration for sports and public managers, as well as for the academic community. **Methods:** Fortaleza was the scene of more than 30 sports in August and September. In its first edition, it also brought lectures about the economic sports ecosystem, the care of the natural biome, inclusive sports, technological sports. The Municipal and State Legislative Houses encouraged the creation of laws that reserved August and September in the official calendar for sports. WBS registered the brand Fortaleza World Capital of Beach Sports and with unrestricted adherence of Sports Federations, athletes and practitioners, created a unique atmosphere of transdisciplinarity and multiprofessionality in the scenario. **Results:** 6,000 athletes, 30 sports, over 10,000 people in this atmosphere entitled: Fortaleza, the World Capital of Beach Sports. A productive chain including sports, commerce, services, local tourism was created. The transdisciplinarity and multiprofessionality in the Sports Games made it possible to relate scientific and technological advances, understand socio-environmental, socio-cultural transformations and establish a compromise between government, population and having sports as a development tool. **Conclusion:** Sport Games uniting tribes and concepts. In this scenario the public power decides to legislate, thus emerging a positive atmosphere capable of overcoming violence, discrimination, depression and sedentarism.

Keywords: Sport Games Atmosphere

The Shoulder of the Overhead Athlete: A Bibliometric Analysis

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Aim: To provide a bibliometric analysis on the shoulder of the overhead athlete. **Methods:** We conducted a systematic search of the Web of Science Core Collection citation index on October 05, 2019, on publications published between 2009-2019. All the records that contained “shoulder” OR “upper body” AND “athletes” OR “volleyball” OR “baseball” OR “polo water” OR “handball” OR “softball” OR “tennis” OR “lacrosse” OR “overhead athletes” OR “overhead sports” in the title were compiled. The subsequent bibliometric analysis considered the following variables: research theme, country distribution, institutions, author and journal productivity. **Results:** We found 324 papers, which were the most cited in 2018 (21%). Biomechanics was the theme most studied (54%), followed by Injury Risk Factors (14%) and Surgery (12%). Most of this research was produced in the United States (60%), Belgium (8%) and Brazil (8%). The organizations that most published were: The Oslo Sports Trauma Research Center (6%), the Federal University of São Paulo (6%) and Champion Sports Medicine (4%). The most cited authors were Kevin Wilk (11%), Yin-Hsin Hsu (8%) and Ellen Shanley (6%). The journal that most published was the American Journal of Sports Medicine (34%) and Journal of Athletic Training (8%). **Conclusion:** We found that investigations were mostly concentrated in the United States, but Norway had the institution with the most publications among the 50 most cited studies, the Oslo Sports Trauma Research Center. Biomechanics was the subject most studied and the American Journal of Sports Medicine was the journal that published the most.

Keywords: shoulder, athletes, bibliometric, Web of Science, citation analysis.

The History of the Ceará Volleyball since 1941 to 1945

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Aim: To record through historical newspaper clippings the history of volleyball in the state of Ceará since 1941 to 1945. **Methods:** We conducted a data collection through photos and microphotography of newspapers from the State of Ceará (Unitário, O Povo, Gazeta de Notícias), since 1941 to 1945, in which all possible reports on volleyball were selected. **Results:** Through the analysis of the newspapers it could be seen that the public clubs and institutions that promoted the sports practice were: School-University associations (Escola ginásio Lourenço Filho, Escola Normal, Cs Odontologia), Sports Clubs (Náutico Atlético Clube e Maguari Esporte Clube) and military clubs (Núcleo de Preparação para Oficiais da Reserva – NPOR, 29º Batalhão dos Caçadores), among others. Regarding gender, there were male and female championships. In 1941, the Ceará volleyball league was founded and a year after its foundation the first university volleyball championship (Initium tournament) was organized as a structure, volleyball was an important sport, as it was practiced in schools and beaches focusing on leisure. Moreover, it was also unstructured, since there was no central body or rules that would group and encourage professionalism. **Conclusion:** From what was proposed, it is concluded that the history of volleyball is fascinating and mobilized large groups of Ceará society.

Keywords: Volleyball, History, Ceará.

The History of the Ceará Volleyball since 1951 to 1955

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Aim: To record through historical newspaper clippings the history of volleyball in the state of Ceará since 1951 to 1955. **Methods:** The research is classified as a descriptive study. Data were collected through photos and microphotography of newspapers from the State of Ceará (Unitario, O Povo, Gazeta de Noticias), since 1951 to 1955, in which all possible reports and comments on volleyball were selected. **Results:** Analyzes have shown that Ceará volleyball had as practitioners a university (Agronomia, Medicina), schools (Colégio Lourenço Filho, Colégio São José) and sports (Náutico Atlético Clube, Maguari Esporte Clube) teams. In 1954 the Ceará championship comprised only males, and that same year appropriate measures were taken to hold a Ceará women's volleyball championship. During this period, Ceará volleyball had been gaining ground on the national scene and in 1953 the Cearenses played their first national volleyball event in Porto Alegre, and the following year again participated in the national event in São Paulo. **Conclusion:** The history of volleyball is important because it allows us to understand the beginning of this practice with large groups of fans.

Keywords: Volleyball, Ceará, Historical Clipping.

The History of Cearense Volleyball since 1936 to 1940.

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Aim: The research aimed to record and expose historical facts related to Cearense Volleyball news since the years 1936 to 1940. **Methods:** A documentary analysis was performed through the registration of photographs of the Gazeta, O Povo and Unitário newspapers. **Results:** Photographs were found through the records of Clube Jangada, Colégio Liceu and Instituto Lourenço Filho with the constant organization of competitions. Among the personalities, Jose Jereissati was a sub commander of the “Batalhão Escolar Ginásio São João” of the Colégio Liceu do Ceará and was characterized as a “dear playmaker cearense”. At the Clube dos Príncipes had a solemnity in honor of Deocleciano Costa and in the same event would be inaugurated and presented the "cancha" of the volleyball child. At the same time, the Instituto Lourenço Filho won the Colégio7 de Setembro and the Escola Normal overcame the Liceu do Ceará, whose matches related to the tournament promoted by the last one. Finally, a newsletter was found presenting the history and characteristics of volleyball. **Conclusion:** We can conclude that despite the sporting prestige turned to football since this period and the political moment of dictatorship lived between 1937 and 1945, Ceará volleyball was already solidly developed to take the visibility that it has today in the Ceará state.

Keywords: History, Volleyball, Sports.

Weekly training sessions and functional security of sports of the universities on the 2014 Brazilian university games

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Aim: Identify the bond and workload of the sports technicians in high education institutions (HEI), participating on the 2014 Brazilian university games. **Methods:** Field research corresponding to a descriptive and exploratory study from the transversal kind that emphasizes quantitative drawing. Sample comprised 63 sports coaches. The majority of the participants were interviewed after the technical congress of the competition. The other participants were interviewed during the matches. A semi structured questionnaire was used, and data was compiled through a descriptive analysis on excel program, model 2016. **Results:** Regarding the labor situation, results showed that 52% of the technicians worked in private HEIs and the others (48%) in public HEIs. Only 20% were tenderers, 30% in the Labor Law Consolidation Scheme - LLCS and over 50% were service providers. Regarding length of professional practice, there were no significant differences between those who worked less than 02 years (30%), between 02 and 05 years (33%) and more than 05 years (36%). Data have shown in the number of weekly hours of training, up to 04 hours (39%), between 04 and 08 hours (36%) and more than 08 hours (23%). **Conclusion:** Sport in HEI has showed that it deserves reorganization by its managers, due to the respect to the professionals and that it requires adjusted workload conditions for them to train with their competition teams, that is, to evolve from the amateurism implanted in the university sport to become a professional model.

Keywords: University Sports; Sports technicians; Sport management.

The history of Ceará volleyball since 1956 to 1960

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Aim: To record through historical newspaper clippings the history of volleyball in the state of Ceará since 1956 to 1960. **Methods:** This study is a research with descriptive data. Data were collected through photos and microphotographs of newspapers from the State of Ceará (Unitário, O POVO, Gazeta de Notícias and Tribuna do Ceará) since 1956 to 1960. All volleyball-related reports were selected and analyzed. **Results:** Through the analysis we could see a great participation of the Ceará volleyball federation in respect to the number of tournaments held in the state and outside of it with the participation of the Ceará national team. In 1957, the Ceará delegation went to Pernambuco to participate in the Brazilian Volleyball Championship but did not perform well. In that same year took place the 1st Women's Volleyball Championship in Ceará, where only four teams participated (Maguari, AAB., Comercial and Clube General Sampaio). At that same time there was investment in the youth team of Ceará. **Conclusion:** Data allowed us to consider that at that time volleyball was amateur and that the federation and the clubs contributed for this sport to gain its current representativeness.

Keywords: history, volleyball, Ceará, newspapers

Analysis of basic psychological abilities and self-esteem in young triathletes

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Aim: To evaluate the basic psychological needs and self-esteem in young practitioners of triathlon of the Athlete Citizen Project in the city of Fortaleza, Ceara. **Methods:** This is a cross-sectional study. The sample was designed in a non-randomly representative manner. Forty athletes, aged 12 to 17 years of both sexes participated in the research. Two inventories were used: one for Self-esteem and the other for Perception of Satisfaction of Basic Psychological Needs, both for practitioners of physical activity and / or sports. **Results:** The average among the answers was used to obtain results, with a 1 to 5 scale to classify them, being 1 - very bad, 2 - bad, 3 - good, 4 - very good and 5 - great. **Conclusion:** Sport is an excellent practice for athletes to develop socio-emotional skills as well as basic psychological needs. It was observed that among the triathlon athletes, these needs and average self-esteem are at a good level. However, these aspects need to be worked within the sport, in view of the positive role that the development of these competences play in the basic questions of being in the individual as a whole.

Keywords: Athletes; Youngs; Self-esteem; Psychological needs; Triathlon.

Evaluation of participation of beginning Rhythmic Gymnastics Athletes in the Ester Vieira competition 2019

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Aim: The purpose of this present study was to reflect on the participation and performance of six beginner rhythmic gymnasts in the elements of body and facial expression in the Ester Vieira competition 2019 **Methods:** Six gymnasts ($9,6 \pm 0,8$ years) participated in the competition. Elements evaluated in this study were body and facial expression. We evaluated the grades that each athlete received using the descriptive statistics method. **Results:** The four grade categories of body expression and facial expression elements (0,10; 0,50; 0,80; 1,00) have shown that all the six beginner gymnasts received a minimum grade. **Conclusion:** Beginner rhythmic gymnasts could not develop expressiveness in early competitions. Rhythmic Gymnastics is a Sport with multifaceted characteristics where the expressiveness and sensitivity are overcoming by the established technique.

Keywords: Rhythmic Gymnastics; Body Expression; Facial Expression; Performance Sport

The 50 most cited articles in small sided games in soccer. A bibliometric analysis

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Aim: To perform a systematic analysis of the citation indices in the Web of Science Core Collection to identify the 50 most cited articles related to small sided games in soccer. **Methods:** In October 1, 2019, we selected the top 50 most cited articles between 2009 and 2019 from the Web of Science Core Collection. The keywords “small sided games”, “small sided football games”, “small sided soccer games” and “conditioned games” related to the term “soccer” were used. **Results:** Of the 110 articles found, only the 50 most cited were selected. The countries with the highest number of citations were Spain and Portugal (22.0% each). Basque Country University (Spain) was the most outstanding academic institution (12.0%). The Journal of Strength and Conditioning Research was the most cited journal (27.23%), while the most mentioned researcher was Alexandre Dellal. The year with the most citations was 2014. **Conclusion:** The above studies were important for the development of research in small sided games in soccer.

Keywords: Bibliometric analysis. Small sided soccer games. Conditioned games. Systematic review.

The 20 most relevant authors in the publication of Futsal articles: A bibliometric study

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Aim: The following bibliometric analysis was conducted to verify the impacts of the articles published in the last ten years in Futsal sports. We aimed to perform a systematic analysis on the Web of Science Core Collection to identify the main authors, institutions that have published the most, the most cited articles, countries where the most used publications became known and languages with the theme "Futsal". **Methods:** In October 4, 2019, we selected the article filter, with the title option and delimited the publications between 2009 and 2019 in the Web of Science Core Collection. The keywords 'Futsal', 'Indoor Soccer', 'Indoor Football' were used. **Results:** Of the 343 articles we found Nakamura Fábio as the main author, containing 20 publications, with 5.831%. The University of São Paulo with 30 articles was the most outstanding, with 8.746% of the publications. Among 1545 citations, with an annual average of 140.45 the article: Match demands of Professional Futsal: A case study, published in the Journal of Science and Medicine Sport, Volume 12, 4 edition, pages: 490-494 published: JUL 2009, was the most cited with 107 citations, average of 9.73 per year. Brazil, with 198 articles published, was the country that produced the most, with 57.726%. 179 of the 343 articles were submitted in English, representing 52.187%. In addition, the year 2016 was highlighted with 59 publications, 17.201%. **Conclusion:** The publications cited above contributed to the development of research in Futsal.

Keywords: Futsal, Indoor Soccer, Indoor Football

Impact of music on the responses of rating of perceived exertion in high-intensity interval exercise: A Pilot Study

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Aim: To evaluate the impact of music on the responses about Rating of Perceived Exertion (RPE) in a High Intensity Interval Exercise (HIIE) protocol on the treadmill. **Methods:** 14 active college students and/or athletes, over 18 years of age and of both sexes, were randomly drawn to start HIIT with preferred music (PM), non-preferred music (NPM) and no music (NM). All participants went through all situations/exhibitions. Before starting the sessions, a survey was made to measure preferred and non-preferred music data during physical exercise. A maximum effort test was performed to measure the maximum speed on the treadmill. All participants were familiar with the study protocol. The RPE (6-20) was used during the study on 10 x 60s working sessions at 90% of the maximum treadmill speed interspersed with a 60s passive recovery, with a maximum duration at HIIT of 20 min at each PM, NPM and NM exposure. **Results:** R Findings met the normality and sphericity criteria. One-way ANOVA with repeated measures [F (2, 26) = 9.703; p<0.005], followed by Sidak post-hoc showed that HIIE with PM generated lower RPE than with NPM and NM, with the mean (95% CI) respectively 10.36 (8.67, 12.05); 12.71 (11.79, 13.63) and 13.24 (12.03, 14.44). **Conclusion:** Preferred music promoted a lower subjective perception of exertion, which consequently makes HIIT on the treadmill more tolerable and probably a more efficient form of training.

Keywords: Music; Exercise; Interval High Training.