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A simple approach to monitoring technical-tactical load in collaboration-opposition sports

Ignacio Alejandro Costa[1*]

[1]FASTA University, ARGENTINA

ABSTRACT

Background: In collaborative-opposition sports, managing training load is essential to ensure optimal planning and performance development. Among all components, the technical-tactical (TT) aspect is the foundation of the game. However, its high complexity makes it difficult to approach and quantify effectively. **Aim:** This narrative review aimed to critically analyze existing proposals for TT load management and to synthesize a new, improved alternative to support practitioners in collaborative-opposition sports. **Methods:** A general search was conducted using Google Scholar to identify the most widely cited non-technological approaches to TT load management. Only proposals that used templates without the aid of technology were included. A critical analysis was performed to examine the strengths and limitations of each identified model. The insights gained were then integrated to formulate a new and more functional proposal. **Results:** Three relevant proposals using non-technological templates were identified. Each was critically examined, with attention given to their practical contributions and inherent limitations. By integrating the positive aspects of each while addressing their weaknesses, a new TT load management model was developed. **Conclusion:** The synthesized proposal provides a simple yet ecologically valid tool for managing technical-tactical load in collaborative-opposition sports. Its ease of application and contextual relevance make it a valuable resource for coaches and practitioners seeking effective, accessible methods to support player development.

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INTRODUCTION

Careful monitoring of training load contributes to evidence-based decision-making to reduce the risk of injury and improve player performance. (Oliva Lozano, J.M., et al., 2024). Technological advances have significantly expanded the arsenal of tools available to sports scientists to monitor training load in recent years. (Oliva Lozano, J.M., et al., 2024). Tracking devices, such as global (GPS) and local (LPS) positioning systems and inertial devises, combined with physiological measurements, provide valuable information on performance demands during the game and in training. This data is usually used to plan workloads, try to reduce the risk of injuries, and adjust nutrition (Ferraz, A., et al., 2023).

However, there are not many ways to measure load without technology. At the same time, it must be considered that, in collaborative-opposition sociomotor sports, the physical aspect is just the foundation of specific skills' development, and it is the technical and tactical aspects that are implicit in every game action and condition the performance of the game.

Correspondent Author: Costa Ignacio Alejandro, FASTA University, Argentina, costa.ignacio@gmail.com
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In this way, a tactical action will inevitably be subject to the quality of the technical resources available to the athlete, concerning collaborative actions with his teammates and the opposition of the adversaries. Therefore, methodologically, we should think of a "technical-tactical" preparation, where both aspects are developed simultaneously, supported by an optimal level of physical condition. For José Hernández Moreno (1994), the technical-tactical actions faced by athletes on the playing field are complex, but could be synthesized as a combination of three basic aspects: a) The type of interaction between the subjects (cooperation, opposition, cooperation-opposition); b) The way they use the playing space (separately, or all together); c) The degree of uncertainty in the environment.

To exemplify this, ordering the sports from the lowest to the highest level of complexity, one could think of a tennis match (doubles), a volleyball match, and a basketball match.

However, the great complexity and variability of motor actions that can take place during cooperation and opposition make it difficult to monitor the magnitude of the game load, and even the technical-tactical training tasks, such as small-sided games, special situations (sidekicks, or stopped balls in soccer), and even shooting rounds in basketball.

Likewise, in this kind of sport, the time used for technical-tactical training is much greater than that dedicated to physical preparation. Since quantifying the total load magnitude is one of the greatest concerns of physical trainers, it becomes necessary to have practical tools that are easier to use to consider this technical-tactical training magnitude (Coque Hernández, I., 2018), and that is the problem that needs to be solved.

METHOD

Research Design

This study employed a narrative review design to systematically examine and critically evaluate various approaches for monitoring technical-tactical training load in collaborative-opposition sports. This design was selected to identify, compare, and integrate non-technological monitoring models while ensuring their validity and reliability. The narrative review approach facilitated the construction of a conceptual framework, analysis of practical application contexts, and synthesis of diverse findings into an applicable and ecologically valid proposal for routine training settings.

Participants

The participants in this review were not individual athletes, but conceptual units consisting of models, methods, and instruments documented in the scientific literature on technical-tactical load monitoring. Each model or method was treated as an analytical entity, examined theoretically and practically, considering its intended purpose, measurement mechanisms, key components, and the sport-specific context of its application.

Population and Methods of Sampling Instrumentation

The review's population comprised scientific publications addressing technical-tactical load monitoring in collaborative-opposition sports. Literature sampling followed a purposive approach, with inclusion criteria focusing on studies presenting template-based measurement procedures, perceived exertion scales (sRPE and OMNI-RPE), or task specificity indicators, supported by empirical evidence of validity and reliability (Haddad, M., et al., 2017; Inoue, A., et al., 2022). Searches were conducted through Google Scholar using relevant keywords. Identified instruments were analyzed for scale format, scoring method, measured dimensions, and psychometric properties. Validity was assessed regarding indicator alignment with the target construct, while reliability was examined through consistency of measurement across diverse training contexts (Kraft, J.A., et al., 2020; Inoue, A., et al., 2022).

Instrument

The main instrument analyzed and reformulated was the Subjective Technical-Tactical Load table (STTL) (Coque, I., 2008; Coque, I., 2009). This reviewed tool integrates two dimensions: (1) the technical-tactical dimension—comprising number of players, tactical load, degree of opposition, and emotional load—and (2) the conditional dimension, including volume, intensity, temporal density, and duration. Each indicator is assigned a score that may be estimated before training and adjusted after the session, thus enabling dynamic and precise load monitoring (Clemente, F.M., et al., 2023).

Procedures and Time Frame

The review process began with identifying relevant publications through keyword-based online searches. This was followed by article selection according to the established inclusion criteria. Selected studies underwent critical analysis to determine strengths, limitations, and opportunities for methodological integration. A conceptual synthesis was then developed, combining the advantages of existing methods into a simplified yet robust assessment framework. The framework was theoretically tested against various training scenarios in collaborative-opposition sports to confirm its feasibility and adaptability (Sansone, P., et al., 2020; Teoldo, I., et al., 2023).

Analysis Plan

The analysis consisted of two stages. First, a qualitative comparative assessment was conducted to contrast existing methods based on measurement scope, ease of implementation, validity, and reliability. Second, a synthesis phase was carried out to integrate the most effective components from each method into a unified model aligned with current scientific evidence (Teoldo, I., et al., 2023; Vallés Ortega, C., et al., 2017). The resulting instrument was designed to accurately monitor technical-tactical training load while remaining adaptable to different sports contexts, resource limitations, and the practical demands of coaches at varying competitive levels.

RESULT AND DISCUSSION

Result

The technological devices commonly used to measure training loads do not consider the complexity of the technical-tactical work mentioned above. When conducting this narrative review, to summarize a proposal that goes beyond the current ones, a general search on Google Scholar revealed only three ways that, using templates (without technology), could be used to measure technical-tactical load. Considering their simplicity of use, classified according to the number of aspects they include, the three most commonly used are critically analyzed below:

Subjective Rating of the Session Effort (sRPE)

It is a "holistic" parameter, integrating psycho-physiological aspects during exercise (Eston, R., 2012). Understanding the sensation of effort as the subjective intensity of tension, discomfort, and/or fatigue experienced during physical exercise (Robertson, R., & Noble, B.J., 1997), Carl Foster and collaborators (2001) propose to relate said sensation to the duration of the training session. Thus, the subject, within thirty minutes of the end of the workout session, indicates "How did your workout feel?", selecting a number on the sRPE scale (Table 1), which is multiplied by the training duration (in minutes), thus obtaining the training load (TL), in arbitrary units (AU).

For example, if the total duration was 90 minutes and the subject had perceived the training as a "very hard" effort, multiply the 90 minutes by 7 and the result would be 630 AU. It is worth clarifying that the authors present a discontinuous scale in the descriptors, allowing the subject to express intermediate points between them. For example, when a session was more than "hard" but less than "very hard", the value can be 6. The sRPE has proven to be a valid and reliable tool to quantify training intensity (Herman, L., et al., 2006; Haddad, M., et al., 2017), even independently of the type of exercise, sex, experience level, and age of the subjects. (Haddad, M., et al., 2017). However, despite its practicality, it has certain limitations; such as, that it requires a certain learning time to relate the sensation to the scale; that it provides information in deferred (so in-session adjustments will not be possible); and that being "subjective", although it could be used as a single form of assessment, it is advisable to combine it with other objective physiological parameters. (Herman, L., et al., 2006; Haddad, M., et al., 2017).

Table 1. Subjective Rating Scale of Perceived Exertion in the Session (sRPE).

Description	Rating
Maximal	10
-	9

Description	Rating
-	8
Very Hard	7
-	6
Hard	5
Somewhat Hard	4
Moderate	3
Easy	2
Very, Very Easy	1
Rest	0

Load Units

In a similar line to the previous proposal, Joan Soler Fortó (2006) considers relating the subjective sensation of perceived fatigue (OMNI-RPE) (Table 2), of each technical-tactical task, with its duration, and a certain index of specificity of the activities.

It is worth clarifying that OMNI-RPE should not be confused with sRPE. Although both start at a value of 0 and end at a maximum of 10 points; the OMNI-RPE has an average value of five points (between "something hard, 6" and something easy, 4" while in the sRPE assessment of "moderate" effort, it is number 3 (Table 1). It is precisely the sensations that reflect the degree of effort. Considering this, the load unit (LU) is obtained by multiplying the numerical value by the specificity, which refers to the global impact of said work.

Table 2. Subjective sensation of perceived exertion during exercise or task (OMNI-RPE).

Description	Rating
Extremely Hard	10
-	9
Hard	8
-	7
Somewhat Hard	6
-	5
Somewhat Easy	4
-	3
Easy	2
-	1
Extremely Easy	0

The types of tasks that it contemplates and the indices of the level of specificity, according to the similarity of the tasks with the physical-psycho-socio-emotional demands of the sport, are the following: a) Auxiliary (index: 1 – 2). It has no relation to the technical gesture. It is often used as active recovery (e.g., for a footballer, continuous running endurance work); b) General (index: 3 – 4). It has very little relation to the general context of sport, but it is the necessary basis to improve the athlete's physical condition. However, decision-making is null (e.g., for a footballer, on the field, without the ball, doing a high-intensity interval work, or repeated sprints); c) Directed (index: 5 – 6). The magnitude of the load and the structure of movements are more closely related to the sport. Still, the decision-making is non-specific concerning the real game (e.g.: in basketball: jumping to take a self-pass against the backboard, simulating a defensive rebound, passing the ball to a teammate and running at maximum speed to the high post in the opponent's court, to receive the ball and finish in a 1 vs 1 with controlled opposition); d) Special (index: 7 – 8). The game is the main element and although it presents small differences to the competition, the magnitude of load, the structure of the movements, and the decision-making are specific (e.g.: small side game in football: 4 vs 4 ball conservation "rondó", with 2 "floater" players in an area of 20 x 20 m); e) Competitive (index: 9 – 10). They present competitive content. It is the game itself, or real situations of opposition, where tactical principles and sub-principles are applied, related to the coach's model of play (e.g., in basketball: 4 vs 4 half field, with 14 seconds to shoot) (modified from: Costa, I., 2022; Soler Fortó, J., 2006).

To illustrate its practical application, in the case of performing a "Special" task, such as a game with few players, which, due to its complexity and similarity to competition, is assigned a value of 8 points (the possible range is between 7 and 8), this data is multiplied by the effort perceived by the player at the end (OMNI-RPE score). For example, if he says "hard," which is equivalent to 8 points, both numbers must be multiplied, and the value of that task would be 64 LU. Proceeding in the same way with each of the tasks performed in training, the data from all of them would be added together, and the total value of the session would thus be known.

Interestingly, this proposal attends to the subjective sensation of effort in each task, because it has been shown that mental fatigue and perceived effort increase in activities with high tactical demand, such as small side games (SSGs) (Sansone, P., et al.. 2020).

It is also important that it allows you to distinguish between the tasks that most closely resemble the demands of the game (concerning movements, decision-making, and demands on the magnitude of the load) and those that do not. This is not a minor detail, considering that greater specificity would imply less risk of injury, by undergoing actions different from those of play (Laursen, P., & Buchheit, M., 2019) to which subjects should be adapted. If over-use is avoided and optimal recovery is allowed.

However, this proposal presents difficulties similar to the previous one concerning subjectivity and the fact that the information is provided on a deferred basis (once the activity is finished). It even adds the discomfort of asking athletes the degree of perceived effort in each activity (no, only at the end, as with the sRPE). It even presents a certain subjectivity when defining the level of complexity between the two proposed values for each type of task.

The Subjective Technical-Tactical Load (STTL)

Attending in more detail to the specificity of the task, Ignacio Coque (2008), focused on basketball, proposes multiplying the sum of points according to certain aspects of the training, with the effective duration of each activity; that is, the net time, discounting interruptions due to the intervention of the coach. (Table 3). The aspects it considers are: a) The degree of opposition (Op): According to the numerical relationship between attackers and defenders. Giving a higher score when it is equal, and a lower one, as the attack is favored; b) Task density (De): Considers the pace at which the coach expects the players to perform the activity. Relating the movement time of players in activity, versus the recovery time; c) Heart rate (HR): In the case of having heart rate monitors, it establishes levels of intensity according to absolute values of beats per minute; d) Number of performers (Pl): It is the total number of players involved in the task. The greater the number of players, the higher the score; e) Competitive load (CL): Attends to the similarity of the psycho-emotional demand of the task with the real competition; f) Space (Sp): It determines the zones of the playing field where the task is developed; g) Tactical Charge (TL): Refers to the complexity of collaborative work with teammates. Related to the cognitive aspect, that is, decision-making.

Table 3. Subjective Technical-Tactical Load (STTL).

Value	Op	De	HR	Pl	CL	Sp	TL
0	Without	Walking or jogging slowly (e.g., free throws)	<110 BPM	1 – 2 10 – 20% total	No score or opposition	Static participants (e.g., free throws)	Individual
1	Sup/Inf on 3	Continuous low-intensity rhythm (can	110 – 130 BPM	3 – 4 20 – 35% of total	Opposition situations without scoring (the	¼ court	2 players

Value	Op	De	HR	Pl	CL	Sp	TL
		be sustained for a long time, e.g., warm-up round of throws)			opposition itself is a competitive load)		
2	Sup/Inf on 2	W/R 1:2; 1:4	130 – 150 BPM	5 – 6 35 – 55% of total	Individual technical gestures valuation (shooting, passing, dribbling)	½ court	3 players
3	Sup/Inf on 1	W/R 1:1; 1:0.5	150 – 170 BPM	7 - 8 - 9 55 – 80% of total	Small side games	¾ court	4 players
4	Equal	W/R 1:<0.5	>170 BPM	10 – 12 80 – 100% of total	Game 5 vs 5	Full court	5 players

(modified from: Coque, I., 2008; Coque, I., 2009; Coque Hernández, I., 2018). (Op: Opposition; sup/inf: superiority-inferiority; De: Density; W/R: work-rest; HR: Heart rate; BPM: beats per minute; Pl: Players; CL: Competition load; Sp: Space; TL: Tactical load).

As an example of its application, considering a small-sided game of 3-on-3 basketball, in half-court where the observed player, or the average of them, reaches a heart rate of 155 beats per minute, we obtain the following numbers: 4 points for the equality between attackers and defenders, plus 3 points for the work ratio (since they would play 3 minutes each team, resting for the same amount of time, so it would be 1:1), plus 3 points for an average heart rate between 150 and 170 beats per minute, plus 2 points for the total number of players involved, plus 3 points for being an SSG, plus 2 points for being in the half court, and finally 2 more points for there being only three attacking players. With a total of 19 points, we just have to multiply this value by the useful time of the task, which we imagine would be 3 minutes, giving us a load of 57 points for this task (19*3=57).

This table was originally designed for basketball, but it applies to other sociomotor sports; in fact, Gabriel Suárez and collaborators (2012) have proposed an adaptation for football.

It should be noted that, although it is possible to estimate the load of each activity in order to schedule sessions and infer their impact, after practice, it is always necessary to adjust to what actually happens during training, correcting work and rest times, but above all, directly measuring HR, which is the key control parameter in this proposal. Without this last piece of information, it is impossible to truly know the workload.

The importance of this proposal lies in the fact that it takes into account the three aspects that, in the opinion of José Hernández Moreno (1994), characterize collaborative-opposition sociomotor sports. However, even though intensity is taken into account, the proposed control parameter is questionable.

On the one hand, because in the typical activities of these sports, priority should not be given to aspects related to HR response (Schneider, C., et al., 2018), but rather to accelerations (positive and negative), the number of jumps, the duration and number of ball possessions, or time of possession. Conversely, HR requires an average of two minutes (±1) of constant and submaximal effort to stabilize (Billat, V., 2002), which does not occur in this type of sport. Moreover, in the table, absolute values are presented, so the individuality of the cardiovascular response is not respected. (Costa, I., 2022). It also requires devices for precise measurement in each athlete involved in the task. Regarding density, it is confusing that, although at some points it indicates the relationship between work time and pauses, in other cases, it refers to motor actions, such as different modes of displacement and even intensity. It is also worth noting that, unlike the previous proposal, the sensation of the degree of effort perceived by the subjects is not considered.

The Integrative Technical-Tactical Load (ITTL) proposal and its rationale

To have a simple tool to monitor the load of technical-tactical work, which is superior to previous proposals, and addresses those points that characterize the training tasks of this type of sport, it is recommended, firstly, for practical purposes, to distinguish two dimensions. Recognizing, however, as Felipe Clemente and collaborators (2021) suggest, they form a whole that is more complex than the simple sum of its parts.

One dimension refers to the technical-tactical aspect, which includes psycho-emotional issues related to competing and the complexity of decision-making in situations of opposition and collaboration.

The other dimension will be focused on the components of the magnitude of the training load, which is directly related to the conditioning aspect.

The technical-tactical dimension would consider

Number of players (or spatial density): The number of players involved simultaneously in the task will be considered; that is, the density of the working space. The maximum value will be given by the number of players each sport allows on the field. For example, if it is soccer, the total maximum will be 22 players, in the case of basketball, the maximum will be 10. As Ignacio Coque argues, the more players there are in the work area, the greater the complexity, given their interaction.

While on the one hand, the physical demand (expressed by the distance traveled and high-intensity efforts) is lower the more players there are per team (Moreira Praça G., et al. 2015), on the other hand, the tactical demand of collaborative work is much higher, which increases the perception of effort of athletes, which is significantly associated with mental fatigue. (Klusemann, M.J., et al., 2012; Sansone P, et al., 2020).

Tactical load: This point addresses the ability to respond collaboratively. Therefore, it is directly related to the number of players (from the total number of players on the team) who interact in the decision-making for the task resolution. Understanding that it will be a perceptive-cognitive process for athletes to comprehend the situation they face, and jointly develop an efficient and effective response at a given time. It is a point of great relevance to the sports performance of a team, since it has been shown that professional players are distinguished from training players by having a greater amount and speed of decision-making, both in situ (official match) and in vitro (controlled test) situations, either in offensive or defensive actions, with and without ball possession. (Teoldo, I., et al. 2023).

Opposition degree: Considering the objective of the task (whether it is to develop the offense, defense or transitions), the relationship between the number of players that confront each other in one and the other team is considered, being more demanding when the quantity is equal (Halouani, J., et al., 2014); or even when there is a small disadvantage (<20 %). Conversely, situations of numerical superiority (adding a player to one of the teams) reduce physical demands (such as the number of accelerations, the distance covered at high intensity, and the total distance). (Praça, G.M., et al., 2015).

Emotional load: An Aspect is directly focused on the similarity of the task's psycho-emotional demands to those of real competition. The degree of tension or emotional stress needed to achieve a performance result and overcome the opposition is put into play here, from the simplest in an individual way to the most complex with group interaction. It is clear that facing and trying to overcome an opponent increases stress. Still, even at the individual level, there is evidence of improvements in competitive basketball shooting when players set more stressful performance goals during training (such as a targeted score), as opposed to those who only train without any demands. (Neumann, D., & Hohnke, E., 2018).

The conditional dimension would include

Volume: Given the impossibility of having tracking devices that measure the distance traveled (in addition to other kinematic parameters), the volume will be considered by the area where the task is developed, dividing the playing field into zones. When programming activities, especially in SSGs, there is a relationship between volume and the degree of effort, so that the larger the space where the activity is developed (up to the maximum regulatory dimensions of the playing field), the greater the physical demand of the players involved, expressed not only by RPE (Klusemann, M.J., et al. 2012), but also by certain physiological parameters, such as increased lactate and HR. (Halouani, J., et al., 2014, Clemente, F.M. et al., 2023). It is even a strategy often proposed to induce a higher frequency of high-intensity efforts. (Biedermann, M., et al., 2023). Also, there seems to be a relationship between offensive tactical complexity when the playing area is increased and a higher technical demand when it is reduced (Clemente, F.M., et al., 2023).

Intensity: which would be given by the subjective sensation of effort (OMNI-RPE), for its holistic value, already mentioned (Eston, R., 2012), and the possibility of being used regardless of the type of exercise performed. (Foster, C., et al., 2001). It is a simple and valuable tool for coaches and sports scientists to monitor the internal response to training load. (Impellizzeri, F.M., et al., 2004). This OMNI-RPE, adjusted to the score in the table (Table 4), could even be considered by the coach (cRPE), when designing and programming the tasks, considering the degree of effort he/she expects the athletes to achieve later during the activity. In this way, before the session, an estimate of the magnitude of the load of the entire training can be made. This should then be adjusted to what happens during the development of each activity, as he perceives the effort reflected by the players when performing them.

In this way, the continuity of the tasks is favored, avoiding pauses to consult each player about his sensation (as proposed by Joan Soler Fortó), which would affect the temporal density of the training sessions. It has been shown that the coach's perception of the effort made by the player is valid data to measure the intensity (Kraft, J.A., et al., 2020; Inoue, A., et al., 2022), especially in medium and high efforts. (Inoue, A., et al., 2022). There is even a strong correlation with the training load proposed by Sally Edwars, where HR and RPE are related. (Kraft, J.A., et al., 2020; Edward, S., 1993). However, it must be recognized that this may not coincide completely with what the players report; perhaps partly due to an overestimation by the coach of the athletes' pre-training recovery levels. (Kraft, J.A., et al., 2020). Therefore, it would be advisable to have additional data, such as consulting the level of the quality of recovery of athletes before the start of training; and also at the end of the session, within the first 30 minutes, to record the subjective feeling of total effort, perceived by them (sRPE); which would allow the coach to adjust the magnitudes of load of the sessions. (Haddad, M., et al., 2017).

Density (temporal): Here, we consider the temporal relationship between the duration of players' effective work and the pauses of each task, reduced to the unit, regardless of whether these pauses are for the coach's explanation, organization, switch positions, or recovery breaks. It is interesting to note that this data allows for the relating of different types of training in the SSGs (continuous, interval, or by repetitions) at the same given intensity and even for the proposal of specific work according to the time-motion of the sport. Density even seems to have a high correlation with the effort perceived by the players. (Vallés Ortega, C., et al., 2017).

Duration: It would be the total work time of each task, only discounting recovery breaks, not those for explanations or corrections. Thus, the total minutes of each task will be multiplied by the sum of each of the points of the aspects mentioned above, to obtain the overall value of the load, as in Ignacio Coque's proposal. The importance of paying attention to the total duration of the work lies in the fact that, although in a certain way the explanations or corrections of the activities imply a break from the physical effort of the exercise, they would not necessarily be so on an intellectual level, as they demand a degree of attention to understand the task. It has been shown that mental fatigue induced by training exercises affects the perception of effort (Sansone, P., et al., 2020).

Table 4. Integrative Technical-Tactical Load (ITTL)

Score	Technical-Tactical Dimension				Conditional Dimension		
	Total players	Tactical load	Opposition degree	Emotional load	Volume	Intensity	Density
0	<20%	<20%	w/o opposition	w/o score & opposition	Almost w/o displacement	Very light 1 – 2	>1:3
1	20 – 40%	20 – 40%	Superiority ~75%	w/ opposition; w/o score	¼ court	Light 3 – 4	1:2 – 1:3

2	40 – 60%	40 – 60%	Superiority ~50%	w/ score; w/o opposition	½ court	Somewhat hard 5 – 6	1:1 – 1:2
3	60 – 80%	60 – 80%	Superiority ~25%	w/score & opposition	¾ court	Hard 7 – 8	1:1 – 1:0.5
4	80 – 100%	80 – 100%	Equality or barely inferior <20%	Real competition	Full court	Very hard 9 – 10	1:<0.5

The sum of points in each activity should be multiplied by the duration (the same as in Ignacio Coque's proposal), and thus, the integrative technical-tactical load score is obtained. Finally, considering that some training tasks could be exclusively oriented towards the development of technique, while others to the technical-tactical with and without opposition, to perform a more specific follow-up and that the priority of the work in one orientation does not overlap with the score of another, it would be necessary to differentiate the score according to the orientation of each task, similar to what Soler Fortó proposed. In this way, activities should be differentiated according to three objectives. One when the task is exclusively "technical", without interaction with teammates or opponents (such as ball handling and shooting), another "technical-tactical", when two or more players interact (without opposition), and a third "technical-tactical with opposition", when two or more players performing the task face one or more opponents. (Appendix 1).

Discussion

Implication

The technical-tactical training task design is complex, but common sense would indicate they should be as close as possible to real competition situations. These can be known from concrete time-motion, and match-analysis data. Thus, the conditional demand of this type of task would be subordinated to the specific technical-tactical demands, where the underlying aspect on which the efficiency and effectiveness of the motor actions will depend will be the ability to "make decisions", which refers to the presence of a complex perceptual-cognitive process before the execution. In this sense, the activities involving sport-specific movements and SSGs are the tasks that allow specific stimuli to be proposed, developing the technical-tactical aspect (Hammami, A., et al., 2018; Laursen, P., & Buchheit, M., 2019), and at the same time generating large improvements in team sports-related fitness, (such as VO2max, speed, agility, jumping, and repeated sprint performance). (Arslan, E., et al., 2022; Hammami, A., et al., 2018; Hill-Haas, S.V., et la., 2011; Song, T., et al., 2023). Indeed, improvements appear to be independent of the athletes' level of play. (Hammami, A., et al., 2018).

Given the time constraints of team sports, in addition to the greater game-based specificity and enjoyment, training based on SSGs can be used as both an alternative and complementary form of traditional physical preparation during team sports sessions. (Hammami, A., et al., 2018). In addition, they would present a lower risk of injury due to non-game stresses. (Laursen, P., & Buchheit, M., 2019). However, as a counterpart, it must be recognized that there would be some risk of injury not only by contact but also by overuse and repeating movement patterns. It could even be an insufficient physical stimulus for some players with a very good fitness level. (Laursen, P., & Buchheit, M., 2019; Wei, L. & Zheng, Y., 2024).

Also, it should be considered the great flexibility in designing game situations, which present the SSGs, modifying the rules (number of passes, adding a floater player, etc.), can make the task more or less demanding at the conditional level, even with a high technical-tactical demand, and decision-making (Halouani, J., et al., 2014), which implies a great difficulty for the control of the workload. However, these last two points could be solved with the use of the proposed table since it considers many of the aspects that condition these works. Thus, this instrument allows for recording and quantifying the technical-tactical training load from a new perspective, which has great ecological value. The latter is understood as the possibility of adapting to issues typical of a natural environment of praxis (the field), which is not ideal in a laboratory, where most variables that could alter the results are manipulated.

As limitations, it must first be acknowledged that the proposed template reflects a certain degree of subjectivity on the part of the coach when collecting data. Therefore, it is suggested that the same person always records the information using the same criteria. Secondly, the aforementioned technical and tactical complexity make it impossible to use this proposal in exclusively physical training sessions, in which other variables must be taken into account.

It should also be noted that the wide variety of technical and tactical work that can be created requires much more research to relate the values obtained with this proposal to the possible adaptive effects and recovery times. However, this opens up future lines of research in which not only other load and recovery control methods are added, but also control templates de developed on devices such as tablets or mobile phones for easier and more detailed recording and analysis.

As this proposal is a general reference to the team's workload, it is recommended that, whenever possible during competitive exercises, additional information be added, for example, the duration and/or number of ball possessions, the number of errors (such as technical errors, turnovers, or bad decisions), attempts, and points scored, among others. At the same time, it should be noted that individual variability in workload is not being considered. This would justify the coach considering other tools in parallel. For example, the subjective feeling of exertion at the end of the session (sRPE) would be a holistic equalizer of the magnitude of the total workload of each player's session.

Even the next day, the recovery status of each player could be asked for using a questionnaire such as the Total Quality of Recovery (TQR), proposed by Kenttä and Hassmén (1998).
At the same time, more information can be broken down by the data collected on the orientation of each task, such as the effective time spent working on each one (without breaks of any kind) and the average intensity relative to the duration. Thus, obtaining a more precise control of how the duration and intensity is distributed according to how the technique is prioritized, or the technique-tactic with and without opposition. It should be noted that further research will be necessary to test this proposal in different age groups, sports, and performance levels to understand its scope and determine whether any changes would be necessary.

Appendix 1. Data Collection and Results Report Form

Data collection

#	Goal	Notes	Technical-Tactical dimension				Conditional dimension			Score Sum	Dur (min)	ITTL (AU)	Additional information	
			TP	TL	OD	EL	Vol	Int	Den				ED	PD
1	Te	1 drill												
2	TT	1 drill												
3	TT	2 drill												
4	To	1 drill												
5	...	...												
6	...	...												

Results report

		Te	TT	To	Total Session
ITTL (AU)					
Duration	**AD**				
	ED				
	PD				
RD					
AI					
				Avg. sRPE	

Te: technical; TT: technical-tactical; To: technical-tactical with opposition; TP: Total players; TL: Tactical load; OD: Opposition degree; EL: Emotional load; Vol: Volume; Int: Intensity; Den: Density: Dur: Duration (in minutes); AU: Arbitrary units; ED: Efective duration (in minutes); PD: Pause duration (in minutes); RD: Relative density (percentage of ED per AD; AI: Average work intensity (cRPE); Avg. sRPE: Average players session Rate Perceived Exertion.

Research Contribution

This study advances the current understanding of training load monitoring in collaborative-opposition sports by integrating multiple non-technological approaches into a unified, adaptable framework. Unlike previous models that tended to isolate either conditional or technical-tactical aspects, the proposed model systematically incorporates both dimensions—technical-tactical parameters such as player numbers, tactical load, opposition degree, and emotional load, alongside conditional indicators including volume, intensity, density, and duration. This comprehensive perspective addresses a significant methodological gap, ensuring that workload monitoring reflects the inherent complexity of sport-specific demands. Furthermore, by prioritizing ecological validity, the framework enhances its applicability in real training environments, where contextual factors and dynamic interactions cannot be fully replicated in controlled laboratory conditions. The framework also lays the groundwork for multidisciplinary collaboration, enabling coaches, sport scientists, and analysts to better understand athlete performance more holistically. As such, it provides a practical tool for day-to-day training management and establishes a theoretical basis for future empirical studies aimed at refining and validating integrative load monitoring systems.

Limitations

While the integrative model offers a comprehensive structure, its current form is based primarily on theoretical synthesis rather than empirical validation. The inherent subjectivity in coach-based scoring may introduce variability in measurement, and the model does not fully account for individual physiological differences. Additionally, the diversity of technical-tactical drills across sports may limit the direct transferability of certain scoring parameters without sport-specific adjustments.

Suggestions

Future research should focus on validating the proposed framework through longitudinal and sport-specific studies, incorporating objective performance data alongside subjective assessments. Digital tools or mobile applications should be developed to facilitate real-time data entry and analysis, reducing potential scoring inconsistencies. Furthermore, collaboration between coaches, sports scientists, and data analysts could enhance this model's accuracy, usability, and adoption in elite and developmental training environments.

CONCLUSION

In summary, a proposal has been synthesized to monitor the technical-tactical load of training in collaborative-opposition sports that integrates the positive aspects of others previously presented in the literature and adjusts certain points in light of current scientific evidence, to be used on a daily basis as a valuable, easy-to-apply ecological tool for both physical trainers and coaches, and which could even complement more objective data collected by instruments like tracking and inertial devices.

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AUTHOR CONTRIBUTION STATEMENT

IAC conceptualization; methodology; literature search; data synthesis; writing—original draft; writing—review and editing. The author has read and approved the final version of the manuscript.

AI DISCLOSURE STATEMENT

ChatGPT (OpenAI) was used exclusively for language refinement and document organization. The author developed all substantive content, including conceptual design, selection and interpretation of sources, and final conclusions, independently. The manuscript was carefully reviewed and edited by the author, who assumes full responsibility for its accuracy and integrity. No AI tools were used to produce data, conduct analyses, or generate scientific interpretations.

CONFLICTS OF INTEREST

The author declares no known financial, institutional, or personal relationships that could have influenced the conception, execution, analysis, or publication of this manuscript.

REFERENCES

Arslan, E., Kilit, B., Clemente, F.M., Murawska-Ciałowicz, E., Soylu, Y., Sogut, M., Akca, F., Gokkaya, M., & Silva, A.F. (2022). Effects of Small-Sided Games Training versus High-Intensity Interval Training approaches in young basketball players. Int J Environ Res Public Health; 19,2931. https://doi.org/10.3390/ijerph19052931

Biedermann, M., Leduc, C., Merieux, J.S. & Cassirame J. (2023). Match vs. Small-Sided Games: A comparison of the Worst-Case Scenario in elite youth soccer player. SPSR, September; (200),v1.

Billat, V. (2002). Fisiología y metodología del entrenamiento: de la teoría a la práctica. Barcelona: Paidotribo.

Clemente, F.M., Afonso, J. & Sarmento H. (2021). Small-sided games: An umbrella review of systematic reviews and meta-analyses. PLoS ONE; 16(2),e0247067. https://doi.org/10.1371/journal.pone.0247067

Clemente, F.M., Moreira Praça, G., Aquino, R., Castillo, D., Raya-González, J., Rico-González, M., Afonso, J., Sarmento, H., Silva, A.F., Silva, R. & Ramirez-Campillo, R. (2023). Effects of pitch size on soccer players' physiological, physical, technical, and tactical responses during small-sided games: A meta-analytical comparison. Biol Sport; 40(1),111-147. https://doi.org/10.5114/biolsport.2023.110748

Coque Hernández, I. (2018). El conocimiento de la carga de trabajo del entrenamiento técnico-táctico en baloncesto: Utilización de este concepto para la planificación de un campeonato. Expomotricidad. Retrieved from https://revistas.udea.edu.co/index.php/expomotricidad/article/view/331916

Coque, I. (2008). Valoración subjetiva de la carga del entrenamiento técnico-táctico Una aplicación practica I. Clinic Revista técnica de baloncesto; 21(81),39-43.

Coque, I. (2009). Valoración subjetiva de la carga del entrenamiento técnico-táctico. Una aplicación táctica II. Clinic Revista técnica de baloncesto; 22(82),43-45.

Costa, I. (2022). Preparación física para el fitness y el deporte de rendimiento. Una mirada revisionista. Mar del Plata: Universidad FASTA. Facultad de Ciencias de la Educación.

Edwards, S. (1993). The heart rate monitor book. Sacramento, CA: Fleet Feet Press.

Eston R. (2012). Use of ratings of perceived exertion in sports. Int J Sports Physiol Perform; 7:175-182. https://doi.org/10.1123/ijspp.7.2.175

Ferraz, A., Duarte-Mendes, P., Sarmento, H., Valente-Dos-Santos, J. & Travassos, B. (2023). Tracking devices and physical performance analysis in team sports: a comprehensive framework for research-trends and future directions. Front Sports Act Living; 5:1284086. https://doi.org/10.3389/fspor.2023.1284086

Foster, C., Florhaug, J.A., Frankiln, J., Gottschall, L., Hrovatin, L.A., Parker, S., Doleshal, P. & Dodge, C. (2001). A new approach to monitoring exercise training. J Strength Cond Res; 15:109-115. https://doi.org/10.1519/00124278-200102000-00019

Haddad, M., Stylianides, G., Djaoui, L., Dellal, A., & Chamari, K. (2017). Session-RPE method for training load monitoring: Validity, ecological usefulness, and influencing factors. Front Neurosci, 11, 612. https://doi.org/10.3389/fnins.2017.00612

Halouani, J., Chtourou, H., Gabbett, T., Chaouachi, A., & Chamari, K. (2014). Small-sided games in team sports training. J Strength Cond Res; 28(12),3594-3618. https://doi.org/10.1519/JSC.0000000000000564
Hammami, A., Gabbett, T. J., Slimani, M., & Bouhlel, E. (2018). Does small-sided games training improve physical fitness and team-sport-specific skills? A systematic review and meta-analysis. J Sports Med Phys Fit; 58(10),1446-1455. https://doi.org/10.23736/S0022-4707.17.07420-5
Herman, L., Foster, C., Maher, M.A., Mikat, R.P., & Porcari, J.P. (2006). Validity and reliability of the session RPE method for monitoring exercise training intensity. S Afr J Sports Med; 18(1),14-17. https://doi.org/10.17159/2078-516X/2006/v18i1a247
Hernández Moreno, J. (1994). Fundamentos del deporte. Análisis de las estructuras del juego deportivo. Barcelona: Inde.
Hill-Haas, S.V., Dawson, B., Impellizzeri, F.I. & Coutts, A.C. (2011). Physiology of Small-Sided Games training in football A systematic review. Sports Med; 41(3),199-220. https://doi.org/10.2165/11539740-000000000-00000
Impellizzeri, F.M., Rampinini, E., Coutts, A.J., Sassi, A.,& Marcora, S.M. (2004). Med Sci Sports Exerc; 36(6),1042-1047. https://doi.org/10.1249/01.MSS.0000128199.23901.2F
Inoue, A., Dos Santos Bunn, P., do Carmo, E. C., Lattari, E., & da Silva, E. B. (2022). Internal training load perceived by athletes and planned by coaches: A systematic review and meta-analysis. Sports medicine - open; 8(1), 35. https://doi.org/10.1186/s40798-022-00420-3
Kenttä, G., & Hassmén, P. (1998). Overtraining and recovery. A conceptual model. Sports medicine (Auckland, N.Z.); 26(1),1-16. https://doi.org/10.2165/00007256-199826010-00001
Klusemann, M.J., Pyne, D.B., Foster C. & Drinkwater, E.J. (2012). Optimising technical skills and physical loading in small-sided basketball games. J Sports Sci; 30:14, 1463-1471, https://doi.org/10.1080/02640414.2012.712714
Kraft, J.A., Laurent, M.L., Green, J.M., Helm, J., Roberts, C., & Holt, S. (2020). Examination of coach and player perceptions of recovery and exertion. J Strength Cond Res; 34(5),1383-1391. https://doi.org/10.1519/JSC.0000000000002538
Laursen, P., & Buchheit, M. (2019). Science and application of high-intensity interval training: Solutions to the programming puzzle. Champaign, IL: Human Kinetics. https://doi.org/10.5040/9781492595830
Moreira Praça G., de Oliveira Custódio, I.J., & Greco, P.J. (2015). Numerical superiority changes the physical demands of soccer players during small-sided games. Rev Bras Cineantropom Desempenho Hum; 17(3),269-279. https://doi.org/10.5007/1980-0037.2015v17n3p269
Neumann, D., & Hohnke, E. (2018). Practice using performance goals enhances basketball free throw accuracy when tested under competition in elite players. JHSE; 13(2),296-304. https://doi.org/10.14198/jhse.2018.132.05
Oliva Lozano, J.M., Muyor, J.M., Pino-Ortega, J., & Ardigò, L.P. (2024). Methods for monitoring training load. In J. M. Oliva Lozano & L. P. Ardigò (Eds.), Training load in professional soccer: Guide to monitoring performance. Springer. https://doi.org/10.1007/978-3-031-52087-7
Praça, G.M., Junio, I.C., Custodio, O., & Greco, P.J. (2015). Numerical superiority changes the physical demands of soccer players during small-sided games. Rev Bras Cineant Desempenho Hum; https://doi.org/10.5007/1980-0037.2015v17n3p269
Robertson, R., & Noble, B.J. (1997). Perception of physical exertion: Methods, mediators and applications. Exerc Sport Sci Rev; 25:407-452. PMID: 9213100 https://doi.org/10.1249/00003677-199700250-00017
Rodríguez Olivera, A.D., González Carballido, L.G., & Rivera Arturo, D.A. (2023). Considerations on technical-tactical preparation in sport. PODIUM Journal; 18(1),e1134.
Sansone, P., Tessitore, A., Lukonaitiene, I., Paulauskas, H., Tschan, H., & Conte, D. (2020). Technical-tactical profile, perceived exertion, mental demands, and enjoyment of different tactical tasks and training regimes in basketball small-sided games. Biology of Sport, 37(1), 15-23. https://doi.org/10.5114/biolsport.2020.89937
Schneider, C., Hanakam, F., Wiewelhove, T., Döweling, A., Kellmann, M., Meyer, T., Pfeiffer, M., & Ferrauti, A. (2018). Heart rate monitoring in team sports: A conceptual framework for contextualizing heart rate measures for training and recovery prescription. Front Physiol; 9:639. https://doi.org/10.3389/fphys.2018.00639

Solé Fortó, J. (2006). Planificación del entrenamiento deportivo. Libro de ejercicios. Barcelona: SicropatSport.
Song T., Jilikeha, & Deng, Y. (2023). Physiological and biochemical adaptations to a sport-specific sprint interval training in male basketball athletes. J Sports Sci Med; 22,605-613. https://doi.org/10.52082/jssm.2023.605
Suárez, G., Urbano, R., Molano, F.J., Belén, A., y Suárez-Arrones, L. (2012). Control de la carga técnico-táctica en el fútbol: Propuesta de parametrización. IV Congreso Internacional de Ciencias del Deporte y la Educación Física. (VIII Seminario Nacional de Nutrición, Medicina y Rendimiento Deportivo). Pontevedra, España, 10-12 Mayo.
Teoldo, I., Mezzadri, E., Cardoso, F. & Machado, G. (2023). Speed of decision-making as a key element for professional and academy soccer players' performances. Retos; 50:1195-1203. https://doi.org/10.47197/retos.v50.100355
Vallés Ortega, C., Fernández-Ozcorta, E.J., y Fierro Suero, S. (2017). Relación entre la complejidad técnico-táctica en la sesión de entrenamiento y la carga interna en baloncesto femenino. SPORT TK-EuroAmerican Journal of Sport Sciences; vol. 6 (Suppl.) 163-168. https://doi.org/10.6018/sportk
Wei, L. & Zheng, Y. (2024). Can trainability constrain physical fitness adaptations to small-sided games and high-intensity interval training in young male basketball players? A prospective cohort study. Front Physiol; 15:1491347. https://doi.org/10.3389/fphys.2024.1491347