

# PHYSICAL LITERACY AND ACTIVE BREAKS IN SCHOOL THAT PROMOTE HEALTH: GUIDELINES FOR TEACHER TRAINING

## PHYSICAL LITERACY E PAUSE ATTIVE NELLE SCUOLE CHE PROMUOVONO SALUTE: LINEE GUIDA PER LA FORMAZIONE DEGLI INSEGNANTI



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### ABSTRACT

In the National context there is a worrying increase in sedentary behaviors among school-age children. Physical Literacy becomes particularly significant. Active breaks can serve as an effective educational strategy to promote health. However, the effectiveness of such interventions relies on teachers' competence. Specific training in methodologies for teaching physical activity needed to enable teachers to plan inclusive and interdisciplinary interventions.

Nel contesto Nazionale emerge una preoccupante crescita dei comportamenti sedentari tra gli studenti. La Physical Literacy assume un ruolo centrale. Le pause attive sono una strategia educativa efficace per promuovere la salute, ma la loro efficacia dipende dalle competenze degli insegnanti. È quindi necessaria una formazione specifica nelle metodologie per l'attività fisica, per pianificare interventi inclusivi e interdisciplinari.

### KEYWORDS

Physical Literacy; Active Breaks; Teacher Training  
Alfabetizzazione Motoria; Pause Attive; Formazione dell'insegnante

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## Introduction

Both the Italian and international literature highlight the numerous benefits derived from the regular practice of physical activity. Recent scientific evidence reveals concerning data regarding the increase in sedentary lifestyles and the rise of conditions such as overweight, obesity, and musculoskeletal disorders in children and adolescents (Italian National Institute of Health, 2024). An increasing number of young people are showing an energy imbalance — characterized by a caloric intake exceeding energy expenditure (Ali et al., 2024) — linked to unhealthy behavioral choices. This trend represents a risk factor for the development of chronic diseases in adulthood. In light of this scenario, there is a need not only to promote interventions aimed at increasing physical activity and reducing time spent in sedentary behaviors (Bull et al., 2020), but also to adopt more methodologically solid approaches that support the improvement of the educational process through meaningful motor experiences. In this context, the concept of Physical Literacy plays a central role: developing motor skills, motivation, confidence, and a sense of self-efficacy in children during physical activity is essential for promoting an active lifestyle with long-term orientation. Primary school serves as a privileged environment for promoting Physical Literacy, offering the opportunity to integrate intentionally proposed motor experiences within the educational journey. In recent years, numerous multi-component interventions have been developed with the aim of expanding motor opportunities within schools, using practical and effective strategies to promote healthier overall development in children (Bernal et al., 2020). Among the most consolidated initiatives, Active Breaks have emerged as one of the most effective and widespread teaching strategies. Brief breaks during the school day through physically active pauses, integrated into the school context, have been shown to be effective in increasing student motivation and engagement (Jiménez-Parra et al., 2022), while simultaneously improving classroom behavior and supporting academic performance (Mavilidi et al., 2020). However, the widespread use of Active Breaks still faces several barriers. Teachers report challenges in implementing these interventions. Additionally, there are still resistances due to the perception that these activities might interrupt or slow down the flow of content in curricular subjects, potentially interfering with the learning process. These challenges are often the result of a misjudgment of Active Breaks, mistakenly viewed as separate and marginal moments in relation to educational goals. Therefore, it is essential to rethink the structure and implementation of Active Breaks, highlighting their educational contribution and adopting a structured

methodological approach that facilitates their integration into the teaching process. This would help stimulate student engagement while limiting the risk of distractions (Centre for Education Statistics and Evaluation, 2020). Consequently, to make physical activity promotion interventions in schools more effective, it is necessary to invest in teacher training, increasing awareness of the benefits of structured physical activity and providing them with practical guidelines and tools to build a repertoire of effective motor strategies aimed at harmonious integration with the curricular teaching-learning process. This contribution aims to offer teachers an operational model for creating a personal portfolio, designed to provide an example of collecting quality proposals for planning Active Breaks integrated into the school curriculum, aligned with the principles of Physical Literacy and the promotion of active lifestyles.

## **1. Physical Literacy and Child Development**

In recent years, the concept of Physical Literacy (PL) has sparked significant interest among researchers, professionals, and experts in the field. PL is an educational process that mobilizes various aspects: physical, affective, and cognitive, and, in some definitions, also the social dimension (Dlugonski et al., 2022). The International Physical Literacy Association (IPLA) defines PL as "the motivation, confidence, physical competence, knowledge, and understanding required to value and take responsibility for engagement in physical activities for life" (Bailey et al., 2023). Similarly, the Australian Physical Literacy Framework (2019) emphasizes the dynamic interaction of physical, psychological, social, and cognitive capabilities throughout life. In contrast, the Chinese model also highlights the perceptual dimension and the role of interactions with the environment (Li et al., 2022).

Despite differences in certain nuances, in the educational and training context, the PL model emphasizes the centrality of motor experiences for a child's development, not only referring to motor skills but also promoting the development of intrinsic motivation, perceived self-efficacy, knowledge, and critical awareness towards physical activity. From this perspective, PL moves away from performance standards and promotes a person-centered approach. It emphasizes personalized development pathways that are inclusive and accessible to all, regardless of ability, age, or background (Whitehead et al., 2010; Santos et al., 2022). Among the international reference documents, the Global Action Plan on Physical Activity 2018–2030 (GAPPA) (WHO, 2018) and the UNESCO guidelines (2015) for the quality of physical education recognize PL as a key factor in promoting the adoption of

healthy and lasting lifestyles, highlighting the relationship between physical activity and the development of life skills.

Despite strong international momentum, the practical application of PL still faces some challenges. The theoretical complexity of the concept, its partial reinterpretation by researchers with different disciplinary approaches, and the lack of training tools hinder its widespread diffusion and application, thus opening the need to train professionals equipped with specific skills and sensitive to the holistic paradigm of PL. This is essential to ensure authentic development pathways capable of fostering a positive and lasting relationship with physical activity in children. Physical Literacy represents, in fact, a guiding line for promoting active and sustainable lifestyles, encouraging children not only to learn motor skills but also to develop motivation, perceived self-efficacy, awareness, and engagement.

## **2. Active Breaks as a Strategy for Health Promotion and Learning**

In the school context, the American Academy of Pediatrics (AAP) recognizes recess as the most enjoyable part of the school day for children. According to the Centers for Disease Control and Prevention (CDC - USA), recess consists of "regular periods scheduled during the school day dedicated to physical activity and unstructured play" (Murray & Ramstetter, 2013). This defines recess as a fundamental opportunity to promote increased physical activity levels among students.

The Active Breaks (AB) teaching strategy is among the most effective for expanding opportunities for children to be active. Considered an educational approach capable of increasing motor engagement during class hours (Masini et al., 2022), ABs are brief intervals of movement (lasting about 7-10 minutes) that can be implemented at different times of the school day: within lessons, during transitions between activities, or during recess, with the main goal of combating the long periods of sedentariness typical of school time.

Through physical activities integrated into disciplinary content, Active Breaks allow reinforcement of specific curriculum concepts and content. Moreover, scientific literature highlights that these motor interruptions foster student participation, improve behavior, and increase attention levels in subsequent educational activities (Zask et al., 2022). Furthermore, incorporating ABs contributes to promoting a motivational climate oriented towards competence (Monacis et al., 2020) and successful motor experiences (Boutios et al., 2021), thus increasing the likelihood that children will engage in more physical activity during their free time. Active Breaks can easily be adapted to different educational contexts and can take various forms, depending on motor learning objectives, intensity, and difficulty, or

in relation to disciplinary content. If we want to classify them, Active Breaks can be distinguished into three categories (Salmon et al., 2020):

- Not tied to the curriculum: motor activities that pursue motor objectives and are not directly connected to disciplinary goals;
- Tied to the curriculum: activities that integrate specific disciplinary content, such as math games in motion, language exercises through bodily activity, or scientific activities involving motor engagement;
- Cognitively challenging: motor proposals that, in addition to promoting physical activity, require students to solve problems, make quick decisions, reason, or memorize, thus increasing the cognitive load during the activity.

Another approach is provided by the TAB model (Natalie et al., 2024), which offers a structure that proposes:

- Structured motor activities integrated into the lesson;
- Transition movements during changes in activity;
- Management breaks, with motor sessions lasting 20-30 minutes;
- Energizing activities, of moderate to high intensity;
- Exercises for learning, supporting the consolidation of academic content.

Anchoring Active Breaks to the curriculum represents a valuable opportunity to enhance both the quantitative (increase in time dedicated to movement) and qualitative (reinforcement of learning) aspects. This methodological approach promotes deep connections between body and mind, simultaneously stimulating all factors of motor competence, namely motor skills, knowledge, and attitudes. In this way, it is possible to know and experiment, through movement, with the concepts of space, time, quantity, and quality and their interconnections.

For the proper implementation of Active Breaks in schools, the CDC and the Society of Health and Physical Education America (SHAPE) have developed guidelines, indicating five fundamental strategies, including adherence to safety criteria, which are essential to ensure that each activity is designed in compliance with safety standards, minimizing the risk of injury. Activities must be properly planned and supervised, performed in suitable spaces, and involve clear instructions for children, adapted to their developmental level. Additionally, according to the guidelines, creating an environment conducive to physical activity is essential, promoting a positive climate that values physical activity as an integral part of the school day. This can generate attitudes and active participation from all students. Another highlighted point is the design of accessible, inclusive activities suitable for the students' age to support the involvement of all children, regardless of their abilities. It is crucial to propose motor games and activity sheets that can be easily adapted to different skill levels, ensuring that every student can actively participate and benefit from the experience.

### **3. Role of Teachers: Required Competencies and Training Needs**

For the effective implementation of Active Breaks (AB) in the school context, it is essential that teachers possess specific teaching competencies. These competencies are not only related to disciplinary content but also to the methodologies used to facilitate interventions that ensure learning through movement.

The lack of time and adequate spaces, the shortage of specific teaching resources, and the fear of limited student participation (Watson et al., 2019) often represent inhibiting factors for teachers when proposing Active Breaks. However, these breaks should be designed as educational interventions, carefully planned and structured in relation to the learning objectives defined by the National Guidelines for the Curriculum (MIUR, 2012), and, most importantly, well-supported methodologically.

For this reason, there is a clear need for continuous teacher training, aimed at strengthening competencies related to the analysis of motor tasks and methodological choices, in order to provide useful tools for systematically integrating movement into daily teaching. Teachers must be capable of analyzing motor tasks, designing differentiated activities, adjusting intensity and the cognitive-motor load, stimulating interdisciplinary relationships, and promoting inclusion by respecting the individual differences of students.

Training programs should focus on understanding the execution variants of motor tasks to stimulate motor abilities and the methodologies necessary for educational mediation when proposing and adapting activities.

Significant training must be able to provide teachers with the methodological foundations for managing ABs, defining the structure of each intervention.

The design and execution of an Active Break involve several stages: a brief initial activation (1-2 minutes), a central phase of greater intensity (6-7 minutes) with active recovery, and a final relaxation phase (1-2 minutes) to restore the concentration climate needed for subsequent learning.

Methodologically, it is necessary for the teacher to master both reproductive teaching styles (in which they explain, guide, and structure activities) and productive teaching styles (in which they stimulate the students' independent discovery of execution variants and motor creativity), according to the model by Mosston and Ashworth (2008).

The alternation of these styles will encourage different modes of information processing and motor responses from students, promoting a more inclusive and non-linear approach to teaching and learning.

Additionally, teachers should have the opportunity to discover how digital technologies and artificial intelligence can provide support. Interactive whiteboards

or digital devices are valuable tools to enrich teaching and offer stimulating and visually engaging motor tasks, enhancing student motivation.

Furthermore, every teacher should have the opportunity to acquire skills useful for designing ABs in an interdisciplinary way, anchoring motor experiences to the academic content of different areas (linguistic-expressive, logical-mathematical, historical-geographical, musical), respecting individual characteristics, and fostering active participation and respect for differences. It is essential for the teacher to imagine and identify a thread that connects motor tasks with curricular objectives, promoting not only physical well-being but also cognitive and social functions of students, with an overall focus on the holistic development of the person. For this to be possible, teachers should be supported with structured materials and tools that facilitate the planning of ABs, enabling their systematic and mindful integration into the school curriculum.

#### **4. Guidelines for Operational Proposals**

It is therefore necessary to propose operational guidelines that will guide teachers in the design, execution, and evaluation of interventions.

It is advisable that physical activities be planned based on the principles of:

- Accessibility;
- Graduality;
- Adaptation to different school contexts (taking into account space-time variables, the motor repertoire of students, and curriculum objectives).

The guiding principle of these guidelines focuses on integrating Active Breaks (AB) into the regular teaching plan, linking them to the objectives of various subjects; the weekly or daily planning of activities, with brief interventions (5-10 minutes) strategically distributed during transitions between lessons or at moments of attention decline; and the use of supporting tools such as portfolios of motor tasks, interactive digital materials, and specific evaluation rubrics.

Moreover, careful planning requires the teacher to consider the following questions:

- a) What environment and how much space are available?
- b) How much time is available to complete the Active Break?

Each intervention should be implemented after analyzing the motor task and choosing the organizational methods for the activities, which can be done individually, in pairs, or in groups. These must be intentionally proposed by the teacher, adjusting the intensity and cognitive-motor load, while also stimulating connections with predefined curricular objectives and promoting inclusion.

Specifically, the structure of an Active Break (AB) can consist of tasks related to different coordination levels, in relation to the students' age and motor repertoire. The training should equip teachers to build their own repertoire of interventions and proposals, organized according to systematic criteria.

It is possible to envision dividing the interventions into three main categories:

- a) Postural patterns and execution variants;
- b) Motor coordination factors;
- c) Interdisciplinary Active Breaks (Fig. 1).

Each category includes activities structured in the three operational phases of activation, central phase, and deactivation, with motor tasks selected in coherence with specific educational objectives. This organizational approach enables more aware and effective planning of Active Breaks, promoting their systematic integration within the school curriculum, and offers teachers numerous proposals.



Fig.1 Example of a repository of Active Breaks for teachers

## Conclusions

The design of Active Breaks requires specific teacher training that ensures the acquisition of methodological competencies, enabling teachers to develop interdisciplinary planning skills and to consciously use educational technologies. In particular, the continuous training of teaching staff should provide teachers with knowledge not only about the benefits of physical activity but also about the main



motor aspects and operational practices needed to design and implement truly effective interventions.

It is essential that training programs include modules on:

- Analysis and construction of motor tasks, both anchored and non-anchored to the curriculum;
- Techniques for adapting activities to the different skill levels of students;
- Strategies for managing the class group in movement and using technologies to support physical activity.

A key element for teacher training aimed at the design of Active Breaks is the creation of an Active Break repository, which would provide and allow the collection of a structured and targeted repertoire of motor proposals. Such a tool would make it easy to select the most suitable activities based on educational objectives, the skill levels of students, and the specific needs of the class. Through the collection of diverse activities, teachers could continuously adapt the proposals to the needs of each group, thus improving the overall effectiveness of Active Breaks with intentional teaching goals. This type of collection could be structured into categories and would serve as an important resource for lesson planning.

This would enable active participation in promoting a health-oriented school culture, recognizing daily physical activity as an integral part of the educational path, and enhancing Physical Literacy from primary school.

### **Author contributions**

The introduction and the first paragraph were written by Giacomo Pascali. The remaining sections of the article were prepared by Sabrina Annoscia. Both authors contributed to the development of the guidelines and the repository, and approved the final version of the manuscript.

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