GROUNDING AND PHYSICAL LITERACY: ENHANCING WELL-BEING THROUGH OUTDOOR MOVEMENT FOR YOUNG HOSPITALIZED PATIENTS

GROUNDING E PHYSICAL LITERACY: MIGLIORARE IL BENESSERE ATTRAVERSO IL MOVIMENTO ALL'APERTO DEI GIOVANI PAZIENTI OSPEDALIZZATI

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ABSTRACT
This article explores the importance of Physical Literacy (PL) and grounding as useful practices for promoting the well-being of students in hospital schools. Through the project "Natura e Cura," we will evaluate the benefits of outdoor education and innovative approaches in order to create an educational environment that supports the emotional, physical, and social recovery of young patients, fostering socialization and the development of transferable skills in a hospital context.

Questo articolo esplora l'importanza dell'alfabetizzazione motoria (PL) e del grounding come pratiche utili a promuovere il benessere degli studenti nelle scuole ospedaliere. Attraverso il progetto "Natura e Cura", valuteremo i benefici dell'outdoor education e di approcci innovativi al fine di creare un ambiente educativo che supporti il recupero emotivo, fisico e sociale dei ragazzi, favorendo la socializzazione e lo sviluppo di competenze trasversali in un contesto ospedaliero.

KEYWORDS
Physical Literacy (PL), Grounding, Hospital Schools, Well-being, Inclusion
Alfabetizzazione Motoria (PL), Grounding, scuola in ospedale, benessere, inclusione

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Introduction

The experience of hospitalization represents a critical and often traumatic period for young people, who are forced to confront the fragility of their physical condition and the uncertainty of their health. This transition, marked by an abrupt interruption of their daily lives, gives rise to complex emotions such as disorientation, fear, and a profound sense of vulnerability. Adolescents experience this phase with particular emotional intensity, as separation from their family environment and regular routines often leads to anxiety and uncertainties about their future (Kanizsa, 1996).

In this context, outdoor physical activity emerges as a key element in restoring a sense of identity and building self-efficacy (Latino et al., 2023). Although illness-related restrictions may appear as barriers to creativity and self-expression, it is essential to recognize the intrinsic expressive potential of young people. Outdoor physical activity provides not only a chance to move but also a formative experience that allows young people to face and overcome their limitations, thereby rediscovering a resilient and strong self-image (Boerchi et al., 2013). Research suggests that contact with natural environments is associated with enhanced positive emotions and reduced negative states, supporting the role of outdoor activity in fostering psycho-emotional well-being (McMahan & Estes, 2015). Through movement in natural settings, young people learn to manage challenges, developing not only physical skills but also a renewed sense of self-esteem and belonging.

Healthcare professionals and psycho-pedagogical experts observe how illness profoundly influences young people's relationship with their bodies, particularly during extended hospital stays or following significant therapeutic interventions. Illness can disrupt balance in bodily self-management, leading to a dissonant and uncomfortable relationship with one's body (Guarino, 2006). This imbalance largely arises from a daily life deprived of movement and overshadowed by deep worries, tensions, and often, both physical and emotional pain. Repeated, invasive clinical examinations that cause discomfort and fear further contribute to emotional strain and distort bodily perception (Guarino, 2006).

For these reasons, it is essential to recognize the value of physical movement and contact with the external environment within the hospital setting, especially in School in Hospital contexts. Physical activity helps young patients identify and manage negative emotions, providing tools to cope with challenging emotional states such as stress, anxiety (Chevalier & Sinatra, 2011), and pain (Ober et al., 2010). Through a mindful approach, the body becomes a means to transform such

tensions into more balanced and positive responses, facilitating a path of connection and harmonization that promotes the overall well-being of young patients. Nonetheless, it is common for adolescents to cease their usual physical activities following a diagnosis, which in turn nurtures insecurities and fears that are often ungrounded by scientific evidence supporting a strict prohibition against movement during treatment (Reid et al., 2022). Therefore, it is crucial to create environments that not only encourage continuity of movement but also enable outdoor time, fostering psycho-emotional well-being and mood improvement (Chevalier, 2015) through active recovery pathways. Recent studies show that physical activity, even in therapeutic settings, can be a powerful tool for supporting the overall well-being of pediatric patients, thereby improving their quality of life (Morgan et al., 2013). Various initiatives, such as outdoor activity projects and recreational-educational programs, have proven effective in improving young people's attitudes toward illness by providing experiences of joy and lightness. The presence of family members and recreational activities play a crucial role in counteracting the sense of isolation and distress that often accompany challenging situations. These experiences stimulate physical, social (Coco et al., 2020), and cognitive (Tortella & Fumagalli, 2017) development, promoting greater relational integration.

It is thus essential to design educational spaces that encourage outdoor mobility, as when a young person moves and reclaims natural spaces, not only are motor functions activated, but cognitive and emotional development is also stimulated, creating a profound connection between physical and mental experience (Filippazzi, 2004; Amadini, 2016). By fostering a holistic approach that integrates body and mind, outdoor movement education can genuinely enhance the quality of life for young people, ensuring that each child feels active and involved in their journey of care and growth (Borghi & Cimatti, 2010).

This article explores the importance of outdoor movement in the context of School in Hospital, analyzing practical experiences and proposing educational models to promote the well-being of young patients.

1. Physical Literacy and school in hospital

Physical Literacy (PL) is a key concept in this context, as it encompasses the ability to participate actively and responsibly in physical activity, including not only theoretical understanding but also the practical application of motor skills. According to Mandigo et al. (2009), literacy is based on social practices and relationships, knowledge, language, and culture, and it involves the ethical and

responsible use of acquired knowledge. Being literate means developing critical and creative thinking, communicating information through various channels, applying knowledge and skills, and creating connections across different contexts. In the educational field, the term Physical Literacy has gained increasing popularity among educators and, to some extent, among those involved in athlete development. Physical Literacy (PL) is more than simply engaging in physical activity; it includes motivation, confidence, physical competence, knowledge, and the ability to assess and responsibly engage in lifelong physical activity (Whitehead, 2010, 2013). This concept holds particular significance in sensitive contexts such as the hospital school. While PL is increasingly recognized as essential for health and well-being (Edwards et al., 2017), the lack of a shared definition creates obstacles for research and the effectiveness of interventions. Therefore, adopting a unified approach to PL is urgent, especially in contexts like the hospital school, where coordinated intervention is essential (Nicolosi et al., 2016). The literature defines PL as motivation, self-confidence, physical competence, and the ability to appreciate and take responsibility for lifelong physical activity (IPLA, 2016), and the concept is gaining traction in areas such as sports, health, education, and leisure (Haydn-Davies, 2010; Higgs, 2010; Jurbala, 2015; Pot & van Hilvoorde, 2013). However, the term's growing popularity has led to different definitions that are not always consistent with the original IPLA framework (Higgs, 2010; IPLA, 2016; Jurbala, 2015; Shearer et al., 2018; Whitehead, 2001). This has raised questions about its practical application, leading to practices that, while promoting PL, may not fully align with its philosophical principles (Canadian Sport for Life, 2016; Pot & van Hilvoorde, 2013).

The critique that PL has a strong philosophical foundation but lacks a clear practical translation (Jurbala, 2015; Longmuir & Tremblay, 2016; Whitehead, 2010) necessitates exploring its philosophical foundations and practical operationalization, particularly in physical education. Beyond simply enabling competent and confident movement, PL embodies a holistic view of the person, recognizing the interconnectedness of body and mind. This approach is grounded in philosophical principles such as monism, existentialism, and phenomenology, which suggest a profound and meaningful way to teach physical education.

The principle of **monism** (Whitehead, 2001) is based on the idea that a person is an indivisible entity, rejecting the Cartesian separation of body and mind. This perspective emphasizes the intrinsic value of developing students' embodied potential (Whitehead, Durden-Myers, & Pot, 2018). A key idea is that everyone possesses a unique level of physical literacy, which should be respected and nurtured. Therefore, physical education should recognize students' diverse starting

points, differentiating activities based on their motor development levels and offering a range of choices. Assessment should focus on individual engagement and motivation rather than pre-set standards (Whitehead, 2017).

Existentialism (Whitehead, 2001) highlights the interconnectedness between embodied actions and environment. Consequently, physical education should offer meaningful experiences closely related to real-life contexts students may encounter. This includes integrating activities that mirror real situations with rules, techniques, and tactics that resemble those outside school (Light, 2012; Siedentop, Hastie, & van der Mars, 2011). Teachers should create environments that allow students to choose activities based on their interests, goals, and levels of challenge, acknowledging that individual abilities are influenced by social contexts and opportunities for practice outside school (Pot, 2014; Collins & Kay, 2014; Kaufmann & Clément, 2007).

Phenomenology (Husserl, 1991; Whitehead, 2010) acknowledges the subjectivity of experience and the diversity of individual perceptions. Therefore, physical education activities should be differentiated to meet each young person's needs and skill levels (Mosston & Ashworth, 2008). Assessment should concentrate on individual progress and motivation rather than objective standards (Cools, de Martelaer, Samaey, & Andries, 2009; Whitehead, 2010). In practice, teachers should encourage students to co-create learning objectives and reflect on their progress, fostering a sense of personal gratification (Feingold, 2013).

An approach to PL that integrates monism, existentialism, and phenomenology creates an inclusive and meaningful learning environment that respects individual diversity and encourages long-term commitment to physical activity. The teacher's role is fundamental in creating a positive atmosphere and learning environment that promotes positive experiences (Ginott, 1972), helping students develop a positive attitude toward physical activity and adopt a healthy and active lifestyle (Zimmerman, 2008; Allison & Thorpe, 1997; Harvey & Jarrett, 2014; Perlman, 2012). PL is an essential objective, particularly for students facing the challenges of a hospital setting, as it can serve as an antidote to inactivity and promote a positive approach to health and physical well-being (Lubans et al., 2010; Morgan et al., 2013). In a hospital context, PL becomes a learning process that enables students, even when facing physical and emotional challenges, to acquire a motor repertoire and develop basic skills essential for interacting with the environment and with others (Gallahue et al., 2012).

PL encourages not only communication and problem-solving but also self-confidence (perceived self-efficacy) and motivation to stay active (Bandura, 2000; Bortoli & Robazza, 1993; Khodaverdi et al., 2015). These elements are crucial in a hospital environment, where positive motor experiences contribute to the growth and development of students, helping them overcome the challenges associated with their condition (Stodden et al., 2008). PL is composed of various complementary factors: motor skills, knowledge, attitudes, and dispositions (Colella, 2016). It is essential to understand how these factors can be integrated into the educational process in a hospital setting because, not only the choice of activities but also the methods of conveying content are critical to fostering learning. The teacher plays a crucial role in facilitating learning and in motivating students (Mosston & Ashworth, 2008). Teaching styles affect the degree of students' cognitive, motor, and social involvement (Garn & Byra, 2002; Colella, 2017).

2. Grounding and Education in the Hospital

Grounding, also known as "earthing," refers to the process of reconnecting the human body, an electrical conductor, to the Earth's natural surface charge (Menigoz et al., 2020). Grounding has been associated with a reduction in inflammation, pain, and stress, as well as improvements in sleep quality, blood circulation, and lymphatic and venous drainage toward the heart, leading to significant improvements in general well-being (Menigoz et al., 2020). It is a simple practice to implement that often produces rapid positive effects, particularly beneficial for those suffering from chronic illnesses (Thornton et al., 2016).

There are two main ways to practice grounding: the first involves using inexpensive conductive devices like mats, pads, or bands that can be used while sitting or sleeping. The second, more natural and free method consists of walking barefoot outdoors on conductive surfaces like grass, soil, gravel, stones, and sand. Just as the human body produces vitamin D by harnessing the sun's energy and frequencies from over 150 million kilometers away, the Earth beneath our feet emits unique energies and frequencies that influence our bodies. Grounding helps restore a profound electrical connection with the planet (Chevalier et al., 2012), a connection lost over time due to modern habits. This practice can also address what is described as an "electron deficiency syndrome" (Oschman et al., 2015), a condition often underestimated but potentially significant in the genesis of various health issues.

The Earth's surface is constantly subjected to electrical influences generated by natural phenomena like lightning and solar radiation. These events not only shape our environment but also provide a continuous reserve of free electrons, subatomic particles that give the Earth its characteristic negative electrical charge (William & Heckman, 1993). Although less well known, this influx of electrons plays a crucial role for living organisms, in both the animal and plant kingdoms, acting as a form of "electrical nutrition."

Research in the field of grounding suggests that this natural electrical charge promotes a significant transfer of electrons into the human body, producing physiological outcomes that can manifest quickly and, in some cases, immediately. Studies conducted by Drs. Sokal and Sokal have shown that grounding the human body acts as a universal regulatory factor, deeply influencing bioelectric, bioenergetic, and biochemical processes, and exerting a significant modulating effect on various chronic diseases and dysfunctions. These studies emphasize the importance of electrically reconnecting with our planet to improve health and overall well-being (Sokal & Sokal, 2011).

Grounding allows a significant influx of free electrons into the body, neutralizing excess free radicals (Oschman, 2008), aiding in cellular damage repair, and promoting electron transport to inflamed areas. This process involves the nervous, circulatory, and meridian energy systems. It is hypothesized that the uptake of free electrons acts as a potent anti-inflammatory reinforcement for the immune system, helping to rapidly reverse both acute and chronic inflammation (Oschman, 2008; Oschman, 2009).

Systematic reviews and several meta-analyses have revealed that interaction with the natural environment can significantly improve human well-being; spending time immersed in nature or simply observing it is associated with tangible health benefits, clinical improvements, and a strong positive impact on mental health (Gascon et al., 2015b; Van Den Berg et al., 2015) and emotions (McMahan & Estes, 2015; Han & Ruan, 2019). In recent years, there has been renewed scientific interest regarding the effects of nature in educational settings, particularly on students' well-being and academic performance. Authors like Gulwadi et al. (2019) observed that a greater presence of green spaces on campuses correlates with improved quality of life among university students, while studies conducted by Matsuoka (2010) demonstrated that high school students achieve higher results when learning in natural settings. Furthermore, a study by Park et al. (2008) showed that high school students report lower stress levels in classrooms with natural elements than in those without them. This growing focus on integrating nature in

educational settings is motivated by increasing concerns for student well-being, as many face issues related to stress, burnout, and depression (Auerbach et al., 2018; Eskin et al., 2016). Promoting an educational environment that fosters a connection with nature may thus be an effective strategy for improving the psychological well-being and academic performance of hospitalized students.

3. Outdoor Education

Increasingly, research highlights the numerous benefits of spending time outdoors (Noseworthy et al., 2023; Manferdelli et al., 2019)—benefits that few other activities can match. On a global scale, data reveals a worrying trend of children spending less time engaging in outdoor activities, impacting not only school settings but also daily habits; for example, the growing number of people choosing indoor gyms over outdoor sports. Many studies attest that time spent in nature directly benefits health. Specifically, “being in nature, including urban environments, supports stronger bone structure nourished by vitamin D, reduces early-onset myopia from excessive time spent indoors under artificial light, decreases the onset of allergies, and generally strengthens the immune system, resulting in a lower incidence of even seasonal illnesses” (Guerra, 2016, p. 36).

Considering emotional benefits, the advantages become even more substantial. Connection with nature is a significant indicator of happiness: people who spend time in green spaces tend to be more satisfied with their lives than those without this opportunity. This relationship with the natural environment positively affects psycho-physical well-being (Lahart et al., 2019), suggesting that nature interaction is essential for a fulfilling life (Guerra, 2016). Spending time outdoors enhances sensory perception and improves attention and concentration (Berto, 2005), critical elements for educators. Increasing classroom attention is one of the most challenging tasks for teachers, and discovering that the learning environment can aid this process is indeed encouraging. A simple walk in a green area can alleviate stress—a common issue in schools that significantly impedes students' learning abilities. Furthermore, studies indicate that contact with nature can boost individuals' curiosity and creativity (Formella & Perillo, 2018), as well as promote improvements in cognitive development. These benefits include enhanced short-term memory and reduced attention problems, suggesting that time spent outdoors can significantly impact growth and learning (Dadvand et al., 2015).

This approach focuses on exploring processes, developing autonomy, and mastering one's actions. In this context, learning becomes a task capable of

inspiring curiosity for new things and encouraging the resolution of small problems that children might encounter during their activity sessions (Montessori, 2008).

4. The project

Insights into Physical Literacy (PL), grounding, and outdoor education have highlighted the potential of these practices in improving the quality of life and emotional well-being of young patients in hospitals. For this reason, we have designed a study at a hospital in Rome that integrates these techniques, aiming to assess their impact on various aspects of physical, emotional, and cognitive well-being in young participants.

The project, named "Nature and Care: Grounding and Outdoor Education in Hospital," seeks to create an innovative educational environment for hospitalized children, integrating grounding and outdoor education strategies to achieve the following objectives:

1. Enhancing emotional well-being: develop a sense of safety and calm through practical activities that encourage mindfulness and support emotional recovery for young patients.
2. Encouraging active learning: provide an alternative to traditional education, promoting interactive and stimulating methods that make the learning process engaging even in hospital settings.
3. Connecting nature and learning: create nature-based learning experiences to develop practical and cognitive skills through the observation and care of natural environments.
4. Promoting socialization: facilitate social interaction among the children through collaborative activities, reinforcing a sense of community even in a care context.
5. Adapting education to individual needs: offer personalized activities that consider the health conditions and individual interests of young patients, ensuring an inclusive educational approach.
6. Developing skills for the future: cultivate transferable skills such as resilience, creativity, and problem-solving, preparing children to face future challenges positively and proactively.

5. Methodology

The methodology is structured in multiple stages, each with specific activities designed to meet the physical, emotional, and cognitive needs of hospitalized children. Before the project begins, an individual assessment will be conducted to identify the needs of each participant, involving teachers, psychologists, and medical staff. This initial approach will ensure that the intervention is personalized and responds to the actual needs of young patients.

Stages of the Intervention

1. Grounding Activities
   - Use of natural materials (stones, leaves, flowers) for art therapy projects, where children can express their emotions through creative activities, reducing anxiety and promoting well-being.
   - Creation of natural mats designed to facilitate barefoot contact with conductive surfaces, fostering a direct sensory connection with the natural environment.
2. Outdoor Education
   - Development of a therapeutic garden or accessible green space at the hospital where children can care for plants and learn about botany and sustainability.
   - Organization of regular outings to gardens or parks for outdoor learning experiences, including nature explorations, group games, and team-building activities, stimulating socialization and cooperation.
   - Practical lessons integrated with the school curriculum, such as science and art, that connect theoretical concepts with the natural environment, encouraging experiential learning.
   - Collaborative activities where children can work together on projects, like a potted garden, fostering teamwork and shared experiences.
3. Personalized Learning Plans
   - Development of customized learning plans that consider the participants' abilities, interests, and health conditions to ensure each activity is accessible, engaging, and meaningful.
   - Each activity will conclude with reflection and sharing moments where children can express their impressions, facilitating an active and mindful learning process.
4. Family Involvement
   - Families of the participants will be informed and equipped with tools to support the educational and therapeutic journey of the children beyond the hospital, strengthening the bond between the hospital environment and the family context.

6. Evaluation of the Intervention

To evaluate the effectiveness of the project, both qualitative and quantitative data collection methodologies will be employed to ensure a holistic analysis of the outcomes:

- Qualitative feedback: collected through semi-structured interviews and questionnaires, enabling an in-depth understanding of the participants' experiences, perceptions, and levels of satisfaction.
- Behavioral observation: monitoring of changes in behavior, social interactions, and emotional well-being during the intervention to assess the effectiveness of the activities.
- Measurement of educational outcomes: evaluation of learning achievements will be conducted through practical and creative activities, based on individualized objectives, allowing for the assessment of specific skill development in each participant.

Through this methodology, the “Nature and Care” project aims not only to improve the quality of life of hospitalized children but also to provide a replicable model of educational-therapeutic intervention that integrates grounding and outdoor education in hospital contexts to support the holistic well-being of young patients.

Conclusions

In today’s healthcare landscape, the care of pediatric patients extends beyond merely administering medical treatments, encompassing the broader concept of well-being, which includes physical, emotional, and social dimensions. Hospitalized children, often distanced from their daily routines, schools, and peers, face significant challenges that can negatively affect their emotional state and learning (Faraoni & Melchiori, 2024).

The growing awareness of the importance of a holistic approach to health has underscored the need to integrate educational support within hospital care programs, contributing to a smoother recovery and improved quality of life, while also reducing the stress (Baroni & Berto, 2013) and anxiety associated with hospitalization.
Traditional educational programs often fail to meet the specific needs of students with fragile health conditions. An innovative educational approach, incorporating hands-on and experiential methods like grounding and outdoor education, could

address this need, helping children stay connected to their learning journey despite the difficulties. The creation of green spaces, such as therapeutic gardens, not only facilitates contact with nature but also provides sensory experiences that foster creativity and autonomy, offering a safe and stimulating context for educational activities. The project aims to encourage collaboration among various professionals, including educators, psychologists, pediatricians, and therapists, to develop an effective interdisciplinary educational program. The context described sets the foundation for an educational intervention that could not only improve learning but also actively contribute to the physical and psychological well-being of hospitalized children. Through the "Nature and Care" project, we aim to create a welcoming and stimulating environment capable of constructively addressing the challenges of hospitalization, while also promoting connection with nature, socialization, and the development of cross-disciplinary skills.

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