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HydroParks: Directives for Physical Environment Interventions Battling Childhood Overweight in Berlin, Germany

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Abstract : Background: In recent years, childhood overweight and obesity have become an increasing and challenging phenomenon in Berlin and Germany in general. The highest shares of childhood overweight in Berlin are district localities within the inner city ring with lowest socio-economic levels and the highest number of migration background populations. Most factors explaining overweight and obesity are linked to individual dispositions and nutrition balances. Among various strategies, to target drinking behaviors of children and adolescents has been proven to be effective. On the one hand, encouraging the intake of water – which does not contain energy and thus may support a healthy weight status – on the other hand, reducing the consumption of sugar-containing beverages – which are linked to weight gain and obesity. Anyhow, these preventive approaches have mostly developed into individual or educational interventions widely neglecting environmental modifications. Therefore, little is known on how urban physical environment patterns and features can act as influence factors for childhood overweight. Aiming the development of a physical environment intervention tackling children overweight, this study evaluated urban situations surrounding public playgrounds in Berlin where the issue is evident. It verified the presence and state of physical environmental conditions that can be conducive for children to engage physical activity and water intake. Methods: The study included public playgrounds for children from 0-12 y/o within district localities with the highest prevalence of childhood overweight, highest population density, and highest mixed uses. A systematic observation was realized to describe physical environment patterns and features that may affect children health behavior leading to overweight. Neighborhood walkability for all age groups was assessed using the Walkability for Health framework (TU-Berlin). Playground physical environment conditions were evaluated using Active Living Research assessment sheets. Finally, the food environment in the playground's pedestrian catchment areas was reviewed focusing on: proximity to suppliers offering sugar-containing beverages, and physical access for 5 y/o children and up to drinking water following the Drinking Fountains and Public Health guidelines of the Pacific Institute. Findings: Out of 114 locations, only 7 had a child population over 3.000. Three with the lowest socio-economic index and highest percentage of migration background were selected. All three urban situations presented similar walkability: large trafficked avenues without buffer bordering at least one side of the playground, and important block to block disconnections for active travel. All three playgrounds rated equipment conditions from good to very good. None had water fountains at the reach of a 5 y/o. and all presented convenience stores and/or fast food outlets selling sugar-containing beverages nearby the perimeter. Conclusion: The three playground situations selected are representative of Berlin locations where most factors that influence children overweight are found. The results delivered urban and architectural design directives for an environmental intervention, used to study children health-related behavior. A post-intervention evaluation could prove associations between designed spaces and children overweight rate reduction creating a precedent in public health interventions and providing novel strategies for the health sector.

Keywords : children overweight, evaluation research, public playgrounds, urban design, urban health
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