

Photogrammetric anthropometry in children

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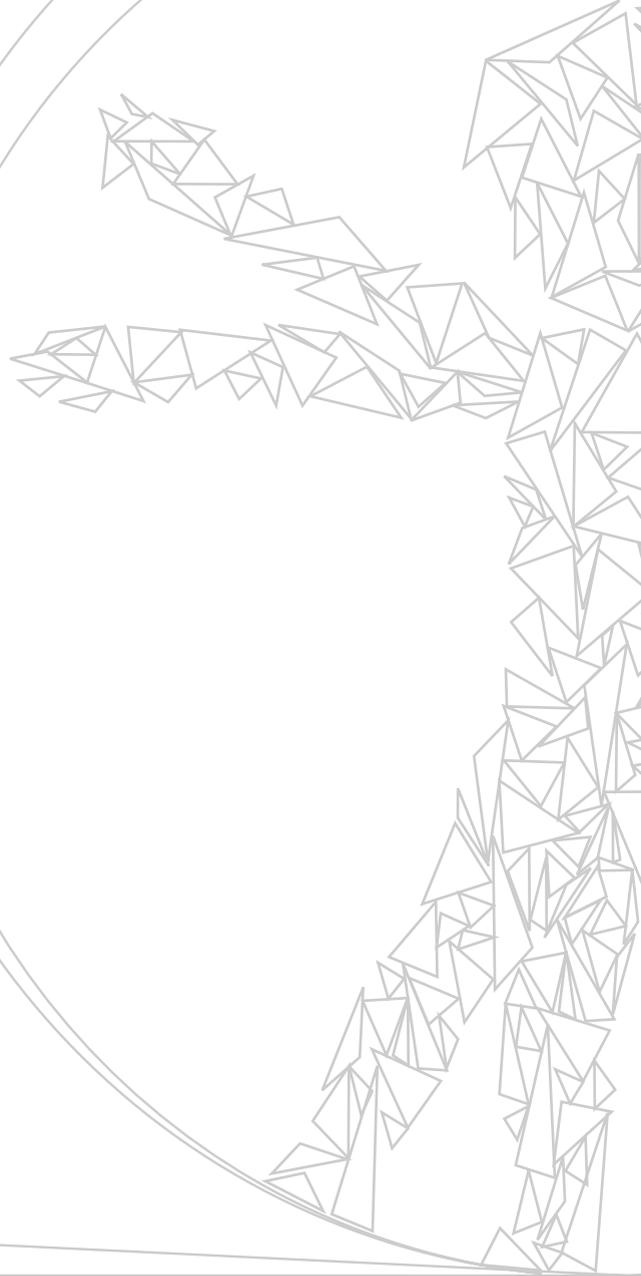
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Valorisation



Valorisation

Relevance

The measurement of the human body, known as anthropometry, is the cornerstone of paediatric practice in the assessment of growth and development. It is often implemented in its most essential form, in the measurement of body weight and height. When insight into the proportional growth is warranted, sitting height, might be included, however this is often reserved for a specific patient population of the paediatric endocrinologist. Knowledge on the relevance of other body proportions might be scarce and the need for specialised instruments and training to perform accurate measurements might dampen the interest of paediatricians and other healthcare professionals. It is, however, important to stress the relevance of insight into body proportions, as change in these proportions across the whole body reflect the summation of human growth and development, and are influenced and guided by genetic, hormonal and environmental factors. Therefore, knowledge of body proportions is essential in judging patients' development, in making diagnoses and in evaluating therapeutic interventions.

Target population and implementation in clinical practice

The development of the photogrammetric anthropometry technique, as described in this thesis, aims to further explore the relevance and diversity of applications for the measurement of body proportions. The core idea in these explorations is the possibility for fast and easy application in daily practice, as limiting oneself to dedicated and sophisticated technology hampers practical value outside of research settings. Therefore, use of digital photographs, which can nowadays be acquired at high quality with relatively inexpensive equipment is an important advantage of this new technique over, for example, 3D body scanners. Apart from streamlining the measurement of multiple body proportions, which is of great value in the study of growth in the field of endocrinology and genetics, it is also shown in this thesis that measurement of body proportions provides a reliable estimation of body fat percentage in children. This makes reliable assessment of adiposity in children more accessible for use in daily paediatric practice, without need for expensive or cumbersome measurement methods, mostly reserved for research settings, such as deuterium dilution, underwater weighing or air-displacement plethysmography. The target population of the photometry technique is the practicing paediatrician and health care provider in community health care services, which this thesis hopes to provide with an attractive, diverse, new tool for the implementation of anthropometry.