Determination of Insulation Properties of Functional Clothing Using Core Body Temperature Gradients as Quantification Parameter

Abstract:
Abstract Increasing quality requirements for functional sports- and work wear make their development more demanding as complex interaction between human physiology and clothing is to be taken adequately into account. Previous test designs, often based on subjective perceptions, make a convincing comparison difficult. Material-specific laboratory tests only offer limited validity regarding effects on physiological and ergonomic properties. Principal objective of the study is to compare two different types of down jackets with respect to their effect on core body temperature during physical activity and inactivity. Both jackets were filled with different lining, one with chemically modified down called “QuixDown” (QD), the other one with conventional down (CD). A climatic chamber test with two activity sessions and a break in between was performed. Subjects were physically active on a bike ergometer at moderate level. A total of

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