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Procedure to Measure Effect of Excess Body Mass on Musculoskeleture: I. Foundation SAAMI J. SHAIBANI, Independent Modeling, Algorithms & Analytical Studies (IMAAS) — Increasing levels of obesity are having an increasingly adverse impact on individual and societal health. While much effort is directed to the harmful consequences of excess body mass on the cardiovascular system, there is relatively little research on how obesity compromises the response of the musculoskeletal system across the complete range of body types. This shortfall is addressed here by a comprehensive physics-based approach to produce a wide spectrum of representative adults, who are carefully chosen to cover both sexes, a full spread of percentiles for stature, and multiple weight levels. The latter encompass healthy, overweight and obese conditions defined by the standard parameter, body mass index (BMI). The distribution of body mass is computed for female and male subjects at all height percentiles and values of BMI to generate a detailed description of a diverse population. This cohort can then be examined for more advanced aspects of musculoskeleture, an important precursor for which is included here by calculating the extent of excess body mass at each body part as a function of BMI.

Saami J. Shaibani
Independent Modeling, Algorithms & Analytical Studies (IMAAS)

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