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Skin Tone Representation in Kinesiology Textbook: Objective and Subjective Analysis

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Previous subjective analysis of the Foundations of Kinesiology and Biomechanics, Samuels 2018; textbook using New Immigrant Survey (NIS) determined images in this text represented light skin tones (NIS 1-3). These findings raise question about subjective interpretation of skin tone representation. **PURPOSE:** To determine skin tone representation in *Foundations of Kinesiology and Biomechanics* using objective method of measurement and compare to previous subjective findings. **METHODS:** 169 images from textbook were digitally assessed. Objective measurements included computer analysis of Image proportion, Average/Darkest/Lightest skin tone area. Objective Red/Green rating for skin tone analysis was calculated with R based modeling MatLab program. Subjective data from previous study was collected via visual assessment of images using NIS. T-test was performed to compare the NIS scale between the objective and subjective rating with an alpha set at 0.05. Bivariate analysis of image/page ratio to objective scale. **RESULTS:** Significant difference between NIS scale objective and subjective ratings, $t(168)= 37.977$, $p<0.001$. No significant difference between objective scale rating and image/page ratio, $r(168)= -0.78$, $p=0.313$. **CONCLUSION:** Findings indicate subjective raters perceived lighter skin tones than objective analysis. Subjective ratings indicated all images within NIS 1-3. Objective measurement showed greater skin tone diversity, indicating representations of skin tones NIS 1-6, but indicate omission of darkest tones (NIS 7-9). Representation of skin tone in image size relative to page size showed no significant difference, indicating that image size in this text is not influenced by skin tone representation. Foundations in Kinesiology and Biomechanics by Samuels highlights limitations in skin tone representation as indicated through both subjective and objective measures. Objective results show greater variability, though still indicating an omission of darker skin tone. This raises the question whether exclusion of darker skin tones is due to visibility and contrast issue versus a systemic bias in textbook development. Future research should continue to objectively assess course textbooks and generate discussion about skin tone representation in course curriculum.