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Non-invasive assessment of human brown adipose tissue: development of robust imaging methods to facilitate clinical translation

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Stellingen

Behorende bij het proefschrift getiteld

Non-invasive assessment of human brown adipose tissue *Development of robust imaging methods to facilitate clinical translation*

1. Heat production by brown adipose tissue does not contribute to the cold tolerance capacity during short-term cold challenges.

(Chapter 1)

2. The infrared thermography (IRT)-toolbox has a similar inter-user variability in skin temperature outcomes as manual segmentations, even though the placement and size of regions of interests (ROIs) can vary between raters.

(Chapter 2)

3. A universal fat fraction (FF) cutoff of 30% should be used to segment supraclavicular brown fat on FF images obtained with magnetic resonance imaging (MRI).

(Chapter 3)

4. Dynamic MRI in combination with post-processing techniques such as co-registration produces consistent estimates of supraclavicular brown fat activity in human adults and is the most promising method to overcome the limitations of PET/CT, such as its radiation dependency.

(Chapter 4)

5. Imaging techniques to study properties of brown fat are usually preferred over whole-body measurements when evaluating the efficacy of brown fat targeted therapies.

(Introduction)

6. IRT is becoming more popular as a marker of brown fat activity due to its low costs and flexibility, but should not be used as a standalone imaging modality to study brown fat activity.

(Adopted from Jimenez-Pavon, Obesity (2019) and modified)

7. Although it has been estimated that 50 gram of activated brown fat can use up to 20% of an individual's basic caloric needs, brown fat will never become a primary therapy for weight loss.

(Adopted from Cypess, current opinion in endocrinology, diabetes and obesity (2019) and modified)

8. Anatomical differences between mice and human brown fat make it questionable whether preclinical findings on brown fat can be translated to humans.

(Adopted from Mo, JCI insight (2017) and modified)

9. Brown fat is essential for thermogenesis in human neonates, but is redundant in adults.

(Adopted from Cypess, the New England Journal of Medicine (2009) and modified)

10. One of the greatest virtues of life is to share our knowledge and expertise with others.
(Premood Sardjoe Mishre – quote modified)