We are looking for a Master-or Bachelor student within Biomedical Engineering, or equivalent, for a new exciting and independent pilot project!

Are you looking for an opportunity to run your own project as part of your Master or Bachelor thesis? Then the perfect opportunity is here! We are setting up this exciting pilot project entitled:

**Validation and clinical application of dual-energy X-ray absorptiometry in clinical extreme settings of obesity and cancer cachexia**

**Background for the project**

Weight loss interventions in obesity is often accompanied by an involuntary loss of muscle mass. Thus, treatment options aiming at reducing fat mass without a concomitant loss in muscle mass are warranted. In alignment with this, many cancers are associated with accelerated involuntary loss of muscle mass with or without weight loss, and is associated with poor survival. The main measurement tool in clinical interventions is body weight. However, the weight alone does not provide information regarding loss of fat mass versus lean mass, which is essential for monitoring and securing a healthy weight both in obesity and cancer cachexia. Dual-energy X-ray absorptiometry (DXA) is the preferred method when assessing whole body composition, as it offers an accurate and non-invasive measurement of fat, fat free mass and its distributions. Thus, results from DXA scans in obesity and cancer cachexia contribute to a thorough patient evaluation and helps physicians monitor the effect of a given therapy or intervention.

**Purpose of the project**

This pilot project is initiated with the purpose of validating the DXA scanner and its applicability in clinical extreme settings of obesity and cancer cachexia. Thus, specifically the project aims at establishing two key parameters before it can be applied in large-scale clinical studies:

1.) Position optimization of patients with obesity for half body scans by the performance of contralateral estimation

2) Determination of DXA-derived measures of muscle and fat mass and their correlation with the diagnostic CT-derived muscle – and fat mass measures in patients with cachexia.

**Project Plan**

We will recruit 30 individuals: 10 normal weight, 10 underweight and 10 with obesity, who will undergo a DXA scan. Individuals with obesity will be measured by half-body scan technique, and normal and underweight individuals by a full body scan, to obtain baseline values for comparison with half-body scan values. Finally, height and weight will be measured by an altimeter and a TANITA weight, for comparison.

The time line of the project is scheduled from August 2021 to December 2021.

**Contact**

If you wish to be part of the project or wish to hear more about the project, then please contact post doc Eva Winning (epwi@sund.ku.dk) or assistant professor Henrik El Ali (helali@sund.ku.dk).