Effect of Anthropometric Adjustments on BMD and BMC Z-Scores in a Population of Prader-Willi Syndrome Pediatric Patients

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By comparing to the OVX group, bone quality in groups with IV injection were enhanced reflected in the increased BMD ($p < 0.05$), trabecular bone density of trabecular bone increased 19.70%). Moreover from Structure Model Index (SMI) value, we concluded that the morphology of trabecular bone in icaritin injection groups tends more to be plate-like: SMI(OVX) = 2.19±0.30, SMI(SM-LIP-ICT-1) = 2.07±0.36, SMI(SM-IAP8-LPS-ICT-H) = 2.01±0.23. More signals retain in bone 72 hours after injection by comparing to the delivery system without bone targeting molecules ASP8 shown in IVIS image.

Conclusion: The novel bone-targeting delivery system carrying osteopromotive phytomolecule(s) Icaritin was confirmed that was capable of preventing the estrogen depletion induced osteoporosis in a dose dependent manner.

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Micro-CT 3D images of trabecular bone in L5.
after applying the anthropometric corrections, we can gain insight into the relevance of such adjustments. Whereas 8/31 (26%) patients cross from the non-critical to the critical region with WH corrections applied to sub-head whole-body BMD, 6/31 (19%) cross the same boundary when WHF corrections are applied. The numbers are similar for BMC, with 9/31 (29%) crossing the critical boundary with WH or WHF corrections applied. The number of patients crossing from critical to non-critical is 23% for BMC with the WH correction and 29% for BMC with the WHF correction applied. However, when BMD is considered, that change in classification is smaller for the WH correction (13%) but not for the WHF correction (19%). The patterns are similar for the other body sites.

Conclusion: Anthropometric correction for the calculation of Z-scores appears to affect a considerable fraction of patients with PWS. This is due to the large abnormality in body size, and DXA measurements, being projection measurements, are affected by body size. However, fracture risk has not yet been studied in connection with DXA parameters in individuals with PWS, and the full implication of anthropometric corrections needs to be evaluated pending such investigations.

**IBDW2014-00142-F0065**

**MUSCLE DENSITY IS ASSOCIATED WITH FRACTILITY FRACTIONS IN POSTMENOPAUSAL WOMEN WHO ARE LESS FRAIL: THE CaMos MUSCLE QUALITY STUDY**

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**Objective**

Muscle is the largest source for energy production and storage and is a determinant of frailty. Muscle has been linked to bone strength and fractures. Muscle is the largest source for energy production and storage and is a determinant of frailty. Muscle has been linked to bone strength and fractures independently of the full implication of anthropometric corrections needs to be evaluated pending such investigations.

**Association between pQCT muscle outcomes and fractures with adjustment for covarlates and the CaMos Frailty Index (CFI).** *In this model, CFI was examined as an interaction with each muscle measurement.*

<table>
<thead>
<tr>
<th>pQCT variables</th>
<th>Odds Ratio (OR) (95%CI)</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>A) Base model</td>
</tr>
<tr>
<td>Muscle density</td>
<td>1.34 (1.09, 1.65)</td>
</tr>
<tr>
<td>Muscle area</td>
<td>1.04 (0.85, 1.26)</td>
</tr>
<tr>
<td>Muscle mass</td>
<td>1.14 (0.93, 1.38)</td>
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**STRUCTURAL AND FUNCTIONAL INVESTIGATION OF GASTROCNEMIUS MUSCLE AND LUMBAR 5 OF SENESCENCE-ACCELERATED MOUSE P8 (SAMP8) – A MUSCULOSKELETAL SENESCENCE MODEL FOR SARCOPENIA RESEARCH**

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**Objective**

Sarcopenia is an age-related systemic syndrome characterized by a progressive loss of skeletal muscle mass and muscle strength as well as a poor physical performance. Previous studies also suggested that sarcopenia might be associated with low bone mineral density (BMD). A good animal model is needed to explore the mechanism of sarcopenia and its relationship with low BMD.

**Methods:** Senescence-accelerated mouse P8 (SAMP8) was selected as the animal model and the target muscle was gastrocnemius. Parameters were investigated at 6, 7, 8, 9, 10-month old (6 mice per timepoint). Functional outcomes were measured with ex vivo muscle functional test system (800DA, Aurora Scientific Inc). H&E staining was performed for fiber cross-sectional area evaluation and ATPase staining for muscle fiber typing. BMD of L5 was measured with viva CT. Data analysis was done with one-way ANOVA followed by Tukey post-hoc test with p < 0.05 as significant difference.

**Results:** The peak of muscle mass (MM) appeared in 7-month group and significant decrease was observed in 10-month group (-12.11%, p < 0.01). Compared with 10-month group, the 8-month group showed the largest specific twitch force (SF0, 11.54%, p < 0.01) and muscle cross-sectional area (MSCA, 6.4%), while the peak of specific tetanic force (SFT, 13.23%, p < 0.05) appeared in 7-month group with the largest fatigue rate (34.5%, p < 0.05). Though there was no significant change in muscle stiffness and muscle contractility in 8-month, it was still better than 10-month with a higher contraction speed (35.1%, p < 0.05). Animals in month 8 showed the largest fiber cross-sectional area of type IIA (12.1%, p < 0.05). Meanwhile, type IIB and type I showed a decreasing trend from 6-month to 10-month. From 6-month, BMD of L5 showed a continuous decreasing trend (-10.39%).

**Conclusion:** Sarcopenia is defined by the decline of muscle mass and muscle strength and is divided into pre-sarcopenia, sarcopenia and severe sarcopenia stages by the onset of decreased muscle mass, muscle strength and quality of life. Based on this criteria, our result suggested that sarcopenia started between 7 and 8-month in SAMP8 animals and the 8-month animals were at pre-sarcopenia stage and 10-month animals were at sarcopenia stage. The result also indicated that the bone loss occurred earlier than the reduction of skeletal muscle mass and muscle strength.