Supplementary Table 1: Baseline characteristics of cohort separated by study

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|  | **Study 1** | **Study 2** | **Study 3** | **Study 4** | **Study 5** |
| **Variable** | **N** | **Mean ± SD** | **N** | **Mean ± SD** | **N** | **Mean ± SD** | **N** | **Mean ± SD** | **N** | **Mean ± SD** |
| ALM (kg) | 16 | 19.8 ± 2.3 | 21 | 19.8 ± 3.0 | 44 | 15.7 ± 3.4 | 3 | 13.2 ± 1.9 | 11 | 17.8 ± 2.4 |
| ALMBMI |  | 0.6 ± 0.1 | 21 | 0.6 ± 0.1 |  | 0.7 ± 0.1 | 3 | 0.7 ± 0.2 | 11 | 06. ± 0.1 |
| Adiponectin (μg/ml) | 16 | 13.1 ± 5.8 | 17 | 10.8 ± 8.6 | 44 | 17.7 ± 7.3 | 3 | 16.2 ± 5.2 | 11 | 6.6 ± 4.6 |
| Leptin (ng/ml) | 16 | 30.0 ± 18.9 | 19 | 40.4 ± 21.5 | 44 | 33.1 ± 26.1 | 3 | 19.9 ± 18.6 | 11 | 22.4 ± 12.7 |
| BMI (kg/m2) | 16 | 31.1 ± 4.3 | 21 | 35.2 ± 5.4 | 44 | 28.2 ± 5.2 | 3 | 23.8 ± 4.2 | 11 | 31.0 ± 3.9 |
| Trunk Fat (kg) | 16 | 19.0 ± 4.7 | 21 | 25.1 ± 6.9 | 44 | 16.1 ± 5.9 | 3 | 11.5 ± 5.0 | 11 | 19.7 ± 3.1 |
| IL6 (pg/ml)\* | 12 | 14.0 ± 4.3 | 17 | 18.0 ± 7.3 | 43 | 1.7 ± 1.4 | 3 | 1.1 ± 0.9 | 10 | 2.3 ± 12.7 |
| CRP (mg/L)\* | 16 | 5.3 ± 4.3 | 21 | 6.1 ± 6.5 | 44 | 2.7 ± 3.0 | 3 | 0.7 ± 0.9 | 11 | 1.0 ± 1.5 |
| Age (years) | 16 | 59.3 ± 5.1 | 21 | 58.0 ± 6.6 | 44 | 55.4 ± 7.0 | 3 | 51.0 ± 1.0 | 11 | 58.6 ± 8.2 |
| Postmenopausal | 16 |  | 21 |  |  |  |  |  | 11 |  |
| Menopausal |  |  |  |  | 44 |  | 3 |  |  |  |
| T2DM | 0 |  | 21 |  | 44 |  | 0 |  | 11 |  |

Serum was used for adiponectin, leptin, IL6 and CRP for all studies, except for Study 1 which used plasma for adiponectin, leptin and IL6.

Abbreviations: ALM, appendicular lean mass; ALMBMI, appendicular lean mass normalized to body mass index; BMI, body mass index; CRP, C-Reactive Protein; IL6, Interleukin-6; SD, standard deviation; T2DM, Type 2 Diabetes Mellitus.

Supplementary Table 2: Inclusion and exclusion criteria of each study

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| **Study 1** | **Study 2** | **Study 3** | **Study 4** | **Study 5** |
| **Inclusion Criteria**Metabolic SyndromeFemalePostmenopausalBMI 25-55Age 50-69Stable medical historyStable body weightWaist circumference ≥ 88cm**Exclusion Criteria**Tobacco useSubstance abuseType 2 DiabetesMedication for Type 2 DiabetesOTC Medication or supplements for weight lossImpaired cognition Renal diseaseHRTGI diseases | **Inclusion Criteria**Type 2 DiabetesHbA1c ≤9%BMI 25-45Age 30-70Stable medical historyStable body weightPostmenopausal if female**Exclusion Criteria**Tobacco useSubstance abuseOTC Medication or supplements for diabetes or weight lossCHFClaustrophobiaAbnormal liver functionImpaired cognitionRenal diseaseHRTGI diseasesUse of insulin | **Inclusion Criteria**Healthy breast cancer survivors or women with initial abnormal mammogram **Exclusion Criteria**History of additional cancersCOPDSymptomatic ischemic Heart diseaseSubstance abuseImmune-related conditionsInflammatory diseasesUse of blood lipid lowering medications, Angiotensin 1 receptor blockers, and steroids  | **Inclusion Criteria**Healthy adultsAge 24-61Married for at least 3 yearsNo chronic health problem in both partners**Exclusion Criteria**Substance abuseHbA1c >6.5AnemiaAny medication except birth control & levothyroxine ≤2 hours/week of vigorous exercise if BMI <25≤5 hours/week of vigorous exercise if BMI ≥25 | **Inclusion Criteria**FemalePostmenopausalBMI≥30Type 2 DiabetesAge 18-70HbA1c 6.5-14%**Exclusion Criteria**Tobacco useSubstance abuseImpaired cognitive functionRenal diseasesGI diseasesAbnormal liver functionHRTInsulin usePacemaker/ defibrillator  |

Abbreviations: BMI, body mass index; CHF, chronic heart failure; COPD, Chronic Obstructive Pulmonary Disease; GI, gastrointestinal; HRT, Hormone Replacement Therapy; OTC, over-the-counter