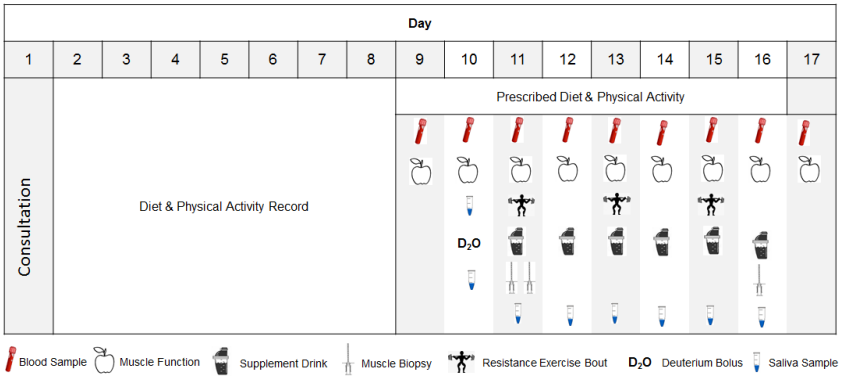
UNIVERSITY of LIMERICK
OLLSCOIL LUIMNIGH

# Statistical Plan

## The Effect of Milk-Derived Protein Supplementation on the Recovery of Muscle Function following Resistance Exercise

**Research Question or hypothesis:**

Ho: The type of protein beverage consumed following resistance exercise training will not affect the temporal recovery of muscle function.




**Brief Background:** Resistance exercise can induce low-level muscle damage in conjunction with impaired contractile function. Milk-derived proteins contain, or induce, bioactive properties for muscle recovery.

**Study Design:** A block randomised, crossover design of 3 groups of 8 subjects per group

**Participants:** 24 young, healthy, resistance exercise trained, males aged 18 - 35 years.

**Statistical Analysis:**

**Independent variables:**

**TIME [9]**
**Day 9,10,11,12,1,31,4,15,16,17**

**PROTEIN [3]**
**WPC-80, UL_209, IsoN**

**Dependent variables**

**MUSCLE FUNCTION [3]**
**Maximal voluntary contraction (MVC)**
**Time to peak tension (TPT)**
**1-REP max lift (1RM)**

**MODEL: Mixed model analysis of variance**

a. Within-subject factor, **TIME (9)**
b. Between-subject factor, **PROTEIN (3)**
c. Bonferroni corrected post-hoc comparisons

i. Graded effect sizes for mixed-model ($\omega^2_p$), between-within subject, effects ($\omega^2$, *d)* reported alongside P-values ($\alpha = 0.05$)
ii. Violation to normality (Shapiro – Wilk) data will be transformed by rank for analysis
iii. Violation to homogeneity of variance-covariance matrices (Mauchly's W), e correction factors (Green-House Geisser, Huynh-Feld) will be applied
iv. Violation to homogeneity of variance for post-hoc analysis (Levene's or Brown-Forsythe Test), Welsch-Satterthwaite corrections will be applied.