Formula ONE: Mechanism of Action [Multiple Mode of Action] Claims:

*Muscle strength is about so much more than athletic performance; it has been shown in meta-analysis to reduce all-cause mortality by 17%.

1. Increases Muscle Protein Synthesis

• Significantly increases phosphorylation of S6[activation of mTOR and mTORC1]

• Modulates muscle protein synthesis biomarkers [Produces 56% Myostatin inhibition]

• Increases protein synthesis [greater than whey-4X]

2. Reduces Muscle Protein Breakdown

• Reduce muscle protein breakdown via Atregin and MURF11

3. Reduces exercise induced inflammation

• Significantly reduces a marker of exercise-induced inflammation [TNF-α]

• Produced a 60% reduction in muscle atrophy-induced inflammation†

4. Support energy homeostasis

• Affects a plasma marker that promotes glucose homeostasis (irisin)

• Affects serum markers related to muscle glucose replenishment

• In vitro shown to increase mitochondrial mass

5. Activates proteins that are vital to cellular functioning

• Increase endogenous levels of NAD+ as much as 2.7-fold with a single dose of Nicotinamide Riboside.

6. Regulates cellular metabolism and energy production

• DNA repair [Activation of SIRTs] Epigenome protection

• Converts glucose and other nutrients into energy through cellular respiration

7. Supports over 100 enzymatic functions related to protein synthesis

• Activates Transsulfuration pathway [Cysteine]

• Protein metabolism

8. Supports Methylation [MTHFR]

• Methyl donor of homocysteine and methionine

Efficacy Claims:

In Vivo

• Reduces lean muscle loss [by up to 54.3%] more effectively than milk protein

• Reduces muscle atrophy-induced inflammation [a 60% reduction]

• Produced a 60% reduction in IL-6 high hindlimb unloading

• May support age-related muscle weakness

Randomized-controlled Trial:

• Increases muscle strength recovery rate by 144%

• Fuels muscle strength recovery

• Promotes strength recovery

• Increases muscle strength recovery rate after exercise

• Supports the body's natural recovery ability

• Helps you recover better and faster helping you train better

• Affects factors that promote muscle repair after exercise [fractalkine]

• Help decrease loss of strength during recovery

• Relieves muscles after a workout/strenuous activity

• Clinically proven to combat muscular fatigue after exercise

• Reduces muscular fatigue [by 47%]-feel more energetic

• Supports muscular endurance

• Enhances the response to exercise [Several myokines significantly increased directly after exercise]

• Supports an improved muscle performance

• Your partner to maximize your performance or to restart the exercise

• Increases performance during recovery

• A 54% increase in performance [during recovery compared to placebo]

• Experience a 54% increase in recovery performance with PeptiPLUS

• Helps increase performance during recovery

• Help decrease loss of strength during recovery

• Affects serum markers related to increased muscle synthesis

• Supports an anabolic response

• Effects serum markers related to muscle regeneration/synthesis

• Support muscle mass maintenance

• Promotes muscle protein synthesis

• Maintain your vitality to live the life you want, in motion

• The natural support for muscles

• Your plant-based strength builder

• Increase NAD+ levels by 2.7-fold

Nutrient Content Claims:

1. PeptiPLUS is an excellent/ high/ rich source of Manganese (Mn)

• Mn support bone health (increases BMD by 1%) via DEXA scan within 56 days.

• Mn protect cell from oxidative stress

• Mn support normal energy yielding metabolism

• Mn support normal formation of connective tissue

2. PeptiPLUS supports Cysteine production

• Pyridoxal-5'-phosphate (P5P) as a coenzyme

• Supports over 100 enzymatic reactions

• Healthy protein metabolism

• Essential for making collagen

3. PeptiPlus support Methionine production

• Methylcobalamin (Methyl B12) as a coenzyme

• Essential for DNA repair, neurotransmitter synthesis, cell division, and more

• Supports protein synthesis

• Methyl donor [MTHFR]

Clinical/Mechanistic Studies:

1. Weijzen MEG, Holwerda AM, Jetten GHJ, et al. Vicia faba Peptide Network Supplementation Does Not Differ From Milk Protein in Modulating Changes in Muscle Size During Short-Term Immobilization and Subsequent Remobilization, but Increases Muscle Protein Synthesis Rates During Remobilization in Healthy Young Men. *J Nutr*. 2023;153(6):1718-1729. doi:10.1016/j.tjnut.2023.01.014

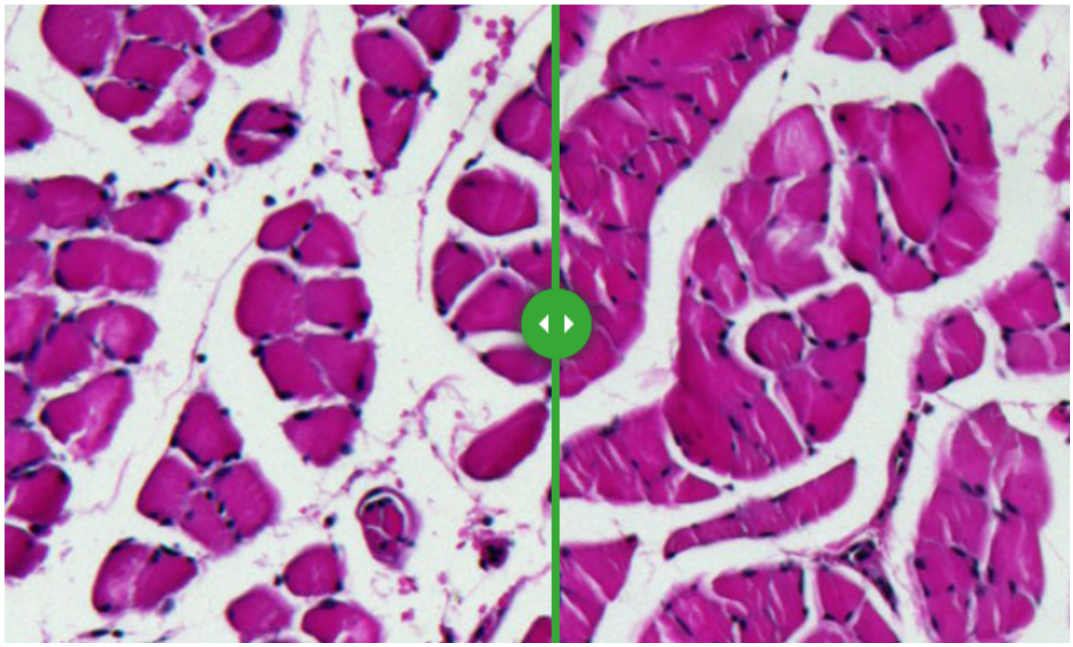
2. Kerr A, Hart L, Davis H, et al. Improved Strength Recovery and Reduced Fatigue with Suppressed Plasma Myostatin Following Supplementation of a *Vicia faba* Hydrolysate, in a Healthy Male Population. *Nutrients*. 2023;15(4):986. Published 2023 Feb 16. doi:10.3390/nu15040986
3. Cal R, Davis H, Kerr A, et al. Preclinical Evaluation of a Food-Derived Functional Ingredient to Address Skeletal Muscle Atrophy. *Nutrients*. 2020;12(8):2274. Published 2020 Jul 29. doi:10.3390/nu12082274
4. Kennedy K, Keogh B, Lopez C, et al. An Artificial Intelligence Characterised Functional Ingredient, Derived from Rice, Inhibits TNF-α and Significantly Improves Physical Strength in an Inflammaging Population. *Foods*. 2020;9(9):1147. Published 2020 Aug 20. doi:10.3390/foods9091147
5. Rein D, Ternes P, Demin R, Gierke J, Helgason T, Schön C. Artificial intelligence identified peptides modulate inflammation in healthy adults. *Food Funct*. 2019;10(9):6030-6041. doi:10.1039/c9fo01398a
6. Corrochano AR, Cal R, Kennedy K, et al. Characterising the efficacy and bioavailability of bioactive peptides identified for attenuating muscle atrophy within a *Vicia faba*-derived functional ingredient. *Curr Res Food Sci*. 2021;4:224-232. Published 2021 Apr 3. doi:10.1016/j.crfs.2021.03.008
7. Cal R, Davis H, Kerr A, et al. Preclinical Evaluation of a Food-Derived Functional Ingredient to Address Skeletal Muscle Atrophy. *Nutrients*. 2020;12(8):2274. Published 2020 Jul 29. doi:10.3390/nu12082274
8. Corrochano AR, Cal R, Kennedy K, et al. Characterising the efficacy and bioavailability of bioactive peptides identified for attenuating muscle atrophy within a *Vicia faba*-derived functional ingredient. *Curr Res Food Sci*. 2021;4:224-232. Published 2021 Apr 3. doi:10.1016/j.crfs.2021.03.008
9. Trammell SA, Schmidt MS, Weidemann BJ, et al. Nicotinamide riboside is uniquely and orally bioavailable in mice and humans. *Nat Commun*. 2016;7:12948. Published 2016 Oct 10. doi:10.1038/ncomms12948
10. Casey R, Adelfio A, Connolly M, Wall A, Holyer I, Khaldi N. Discovery through Machine Learning and Preclinical Validation of Novel Anti-Diabetic Peptides. *Biomedicines*. 2021;9(3):276. Published 2021 Mar 9. doi:10.3390/biomedicines9030276
11. Nikiforov A, Dölle C, Niere M, Ziegler M. Pathways and subcellular compartmentation of NAD biosynthesis in human cells: from entry of extracellular

precursors to mitochondrial NAD generation. *J Biol Chem*. 2011;286(24):21767-21778. doi:10.1074/jbc.M110.213298

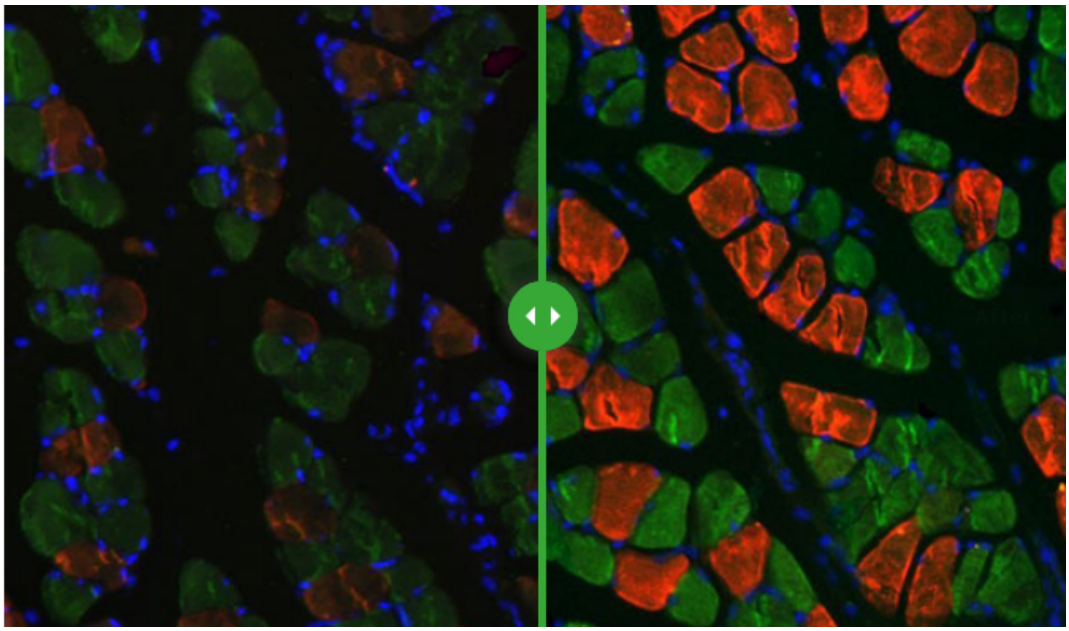
12.

Appendix:

A.

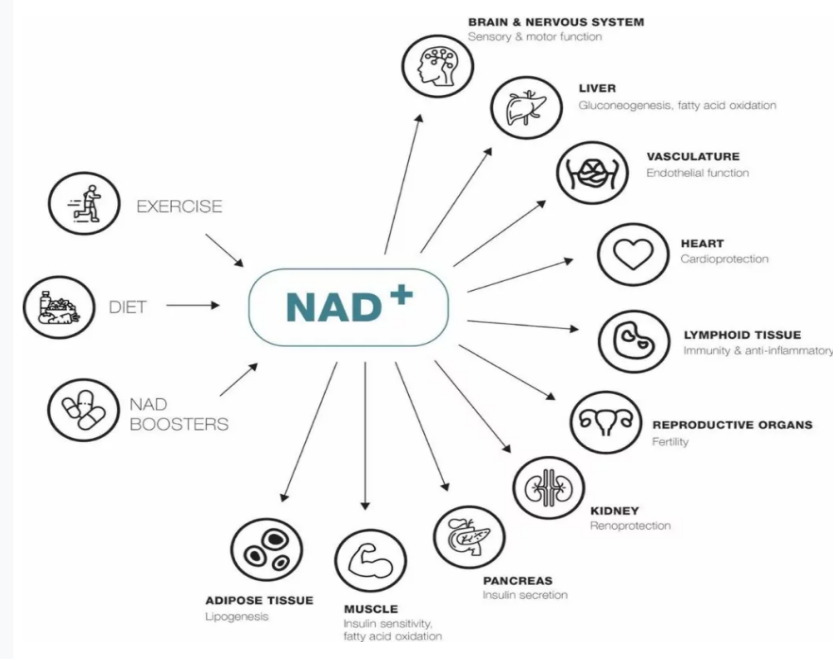


Muscle biopsies demonstrate an increased number of fibers in the muscle. (Left: before, right: After)



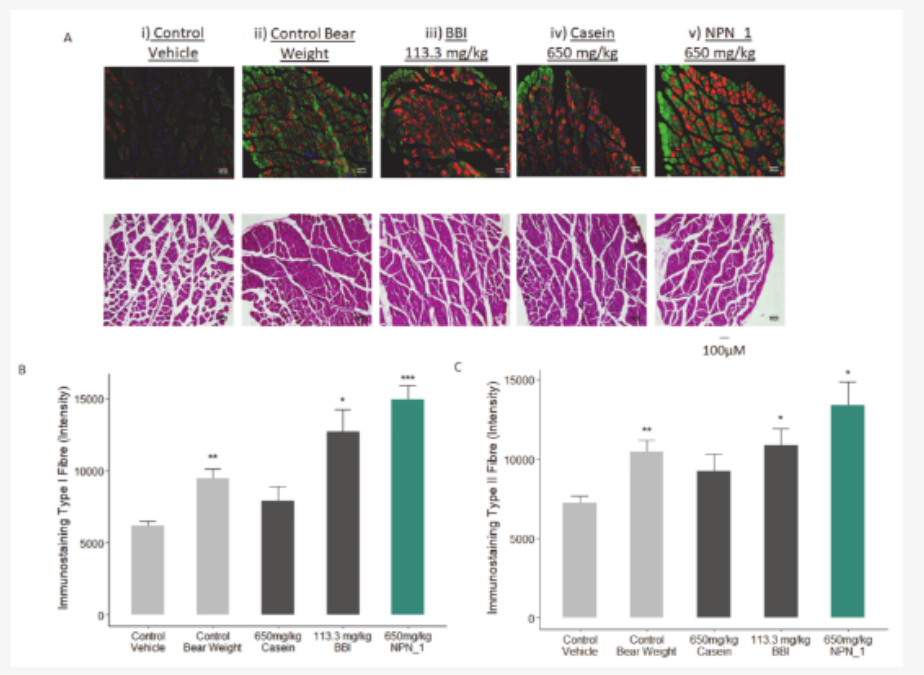
Muscle biopsies demonstrate increases in Type I & II muscle fibers in the muscle: indicating regeneration. (Left: before, right: After).

B.

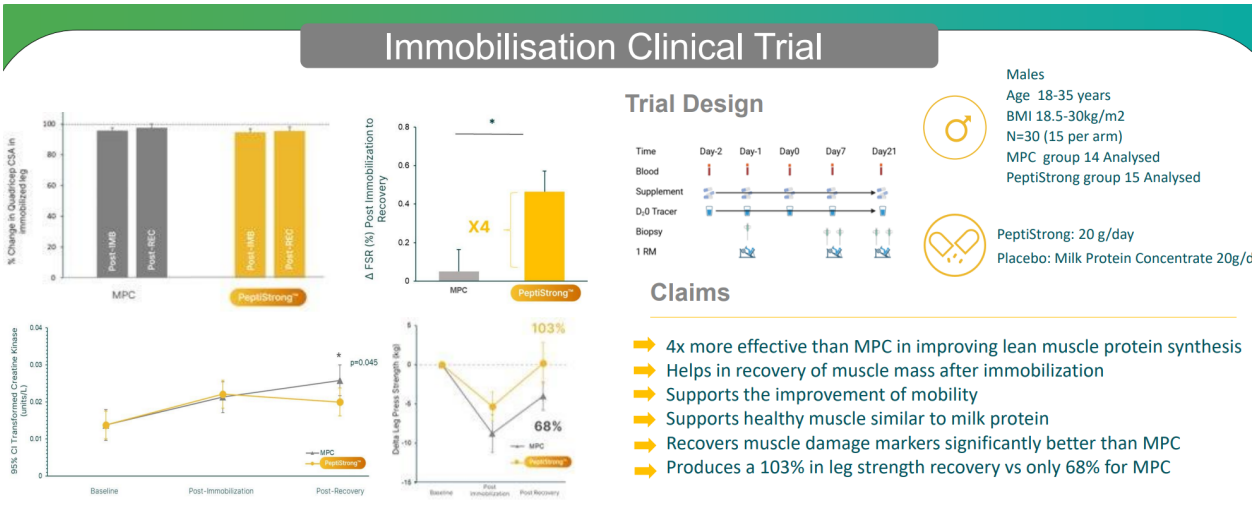


Taking NR increases NAD+ levels. Higher NAD+ levels protect our epigenome and DNA. The epigenome determines which genes are switched on or off. The epigenome enables far more precise regulation of cellular functioning than the genome (our genes or DNA).

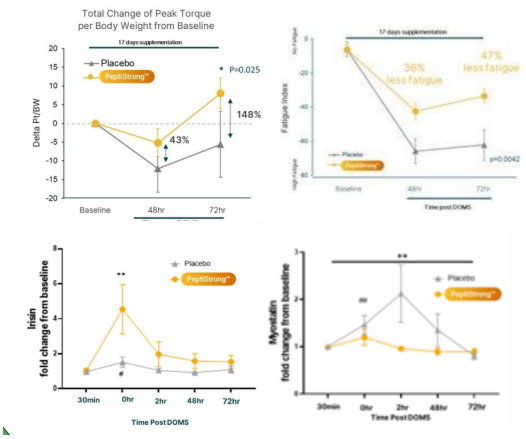
C.


A
i) Control Vehicle
ii) Control Bear Weight
iii) BBI 113.3 mg/kg
iv) Casein 650 mg/kg
v) NPN_1 650 mg/kg
100µM
B
Immunostaining Type I Fibre (Intensity)
15000
10000
5000
0
Control Vehicle
Control Bear Weight
650mg/kg Casein
113.3 mg/kg BBI
650mg/kg NPN_1
C
Immunostaining Type II Fibre (Intensity)
15000
10000
5000
0
Control Vehicle
Control Bear Weight
650mg/kg Casein
113.3 mg/kg BBI
650mg/kg NPN_1

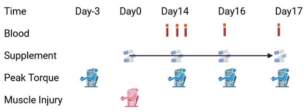
D.


Immobilisation Clinical Trial
% Change in Quadricep CSA in immobilized leg
Post-IMB
Post-REC
MPC
PeptiStrong™
Δ FSR (%) Post Immobilization to Recovery
X4
95% CI Transformed Creatine Kinase (units/L)
p=0.045
Baseline
Post-Immobilization
Post-Recovery
Delta Leg Press Strength (kg)
103%
68%
Trial Design
Time
Day-2
Day-1
Day0
Day7
Day21
Blood
Supplement
D2O Tracer
Biopsy
1 RM
Males
Age 18-35 years
BMI 18.5-30kg/m2
N=30 (15 per arm)
MPC group 14 Analysed
PeptiStrong group 15 Analysed
PeptiStrong: 20 g/day
Placebo: Milk Protein Concentrate 20g/d
Claims
4x more effective than MPC in improving lean muscle protein synthesis
Helps in recovery of muscle mass after immobilization
Supports the improvement of mobility
Supports healthy muscle similar to milk protein
Recovers muscle damage markers significantly better than MPC
Produces a 103% in leg strength recovery vs only 68% for MPC

E.



Trial Design



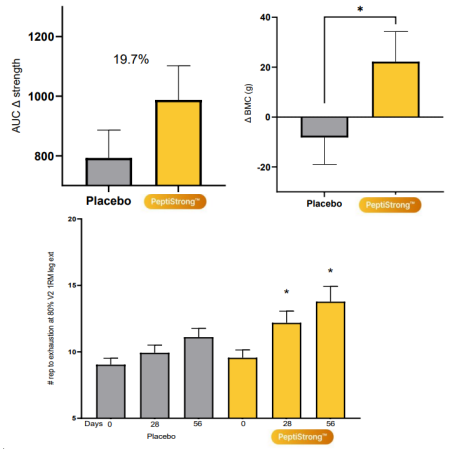
Males
Age 30 – 45 years
BMI 18.5-29.9kg/m2
N=30 (15 per arm)
MCC group 10 Analysed
PeptiStrong group 14 Analysed

PeptiStrong: 2.4 g/day
Placebo: Microcrystalline cellulose 2.4g/c

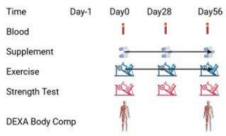
Claims

- A 54% increase in performance
- Increases muscle recovery rate by 144%
- Reduces muscular fatigue
- Increases muscle strength recovery rate after exercise
- Affects factors that promote muscle repair after exercise
- Affects serum markers related to increased muscle synthesis

F.



Trial Design



Males and Females
Age 19 – 40 years
BMI 18.5-29.9kg/m2
N=72 (36 per arm even sex split)
MCC group 28 Analysed 13M/15F
PeptiStrong group 27 Analysed 16M/11F

PeptiStrong: 2.4 g/day
Placebo: Microcrystalline cellulose 2.4g/day

Claims*

- Increases strength by 19.7% compared to exercise alone
- Helps you gain strength faster
- Significantly increases endurance after just 4 weeks
- Increases overall bone mineral content by 1%

Under investigation – myokines, DEXA, arm circumference, Questionnaire…