Clinician development brief

The first CORUS product is an unflavored powder in development as a medical food, designed to be added to food an older adult already eats. This brief covers the condition it is being developed for, the science behind its three core ingredients, where development stands, and the questions it has to answer before anyone is asked to use it.

READ THIS FIRST

- CORUS is not for sale. The studies cited here did not test CORUS. Each is labeled with who took part, the design and what was measured. One laboratory study in young men is cited for general science only.
- The core ingredients are whey protein, HMB (beta-hydroxy-beta-methylbutyrate) and vitamin D. This brief does not give the amount of each per serving, the full ingredient list or instructions for use. Those belong on the product label and product information sheet.
- A product overview accompanies this brief. Neither is a product information sheet or a prescribing guide. A product sheet will follow when the label is final.

1. The condition

Sarcopenia is a muscle disease. The revised European consensus (EWGSOP2) makes low muscle strength its key characteristic, uses low muscle quantity or quality to confirm the diagnosis, and identifies poor physical performance as severe sarcopenia. It is common among older adults but can also occur earlier in life.[1]

- **How common.** In a meta-analysis of 151 studies, prevalence in people aged 60 and older ranged from 10% to 27%, depending on the classification and cut-off points used. Severe sarcopenia ranged from 2% to 9%.[2]
- **Why it matters.** Sarcopenia can lead to declining physical function and mobility and raises the risk of falls, fractures and premature mortality.[3] Losses in physical function predict loss of independence, falls and mortality.[4]
- **Secondary sarcopenia.** EWGSOP2 calls sarcopenia secondary when causes other than, or in addition to, aging are evident: systemic disease, physical inactivity, and inadequate energy or protein intake.[1]
- **Current treatment.** Resistance exercise is the mainstay, but it is not suitable for everyone.[3]

THE PHENOTYPE CORUS IS BEING DEVELOPED FOR

Sarcopenia associated with chronic disease, in adults with impaired protein utilization and reduced oral intake: patients for whom reduced appetite, early satiety or difficulty finishing meals makes protein targets hard to reach. This phenotype frames the proposed intended use. It is a development premise, not a regulatory determination.

2. Protein needs and intake

- **PROT-AGE.** An average of at least 1.0 to 1.2 g protein/kg/day for adults over 65; 1.2 g/kg/day or more for those who exercise or are otherwise active; 1.2 to 1.5 g/kg/day for most older adults with acute or chronic disease. People with severe kidney disease (eGFR below 30 mL/min/1.73 m^2) who are not on dialysis are an exception and may need to limit protein. Protein quality, timing and other supplements may be relevant, but the evidence is not yet sufficient for specific recommendations.[4]
- **ESPEN Expert Group.** At least 1.0 to 1.2 g/kg/day for healthy older people and 1.2 to 1.5 g/kg/day for those who are malnourished or at risk because of acute or chronic illness, with daily physical activity or exercise for all. Protein combined with exercise is considered optimal for maintaining muscle function.[5]
- **ESPEN practical guideline.** Protein intake in older persons should be at least 1 g/kg/day, adjusted for nutritional status, physical activity, disease and tolerance (recommendation 2).[6]
- **What people eat.** Among 8,107 community-dwelling adults aged 55 and older in four cohorts and four national surveys, 21.5% ate less than 0.8 g/kg adjusted body weight per day, 46.7% less than 1.0 and 70.8% less than 1.2. Low intake was more common in people with poor appetite.[7]
- **Appetite.** Appetite and food intake often decline with age through physiological, medical, social and environmental causes. This anorexia of aging is common but not inevitable.[8]

3. Approaches clinicians already use

- For older persons with or at risk of malnutrition, ESPEN lists individualized counseling, fortified food, additional snacks or finger food, texture-modified enriched food, mealtime assistance and company, and oral nutritional supplements when counseling and fortification are not enough (recommendations 14, 16 and 21 to 26).[6]
- Supplement drinks are generally well taken in trials: across 46 studies, mean compliance was 78%, and 81% in the community.[9] ESPEN still asks that their type, flavor, texture and timing be adapted to each person's taste and eating capacities (recommendation 31).[6]
- Reviews of food fortification report higher energy and protein intake than with usual diets, although the protein findings are less consistent and the evidence on nutritional status and other outcomes is weak.[10–12] In a home-use study in the UK, France and Norway, older adults valued taste, familiar ingredients and their usual ways of preparing food.[13]

DESIGNED FOR FAMILIAR MEALS

An unflavored powder designed to add nutrition to foods patients already enjoy. Preparation and acceptability will be documented with the finished product.

4. How older muscle responds to protein

These laboratory studies, in small groups of volunteers, describe mechanisms. None tested a product.

LABORATORY STUDIES OF THE MUSCLE RESPONSE TO PROTEIN AND AMINO ACIDS

STUDY	WHO	WHAT IT FOUND
Cuthbertson 2005[14] Laboratory study	44 healthy young and older men	Basal muscle protein synthesis did not differ, but the older men showed less sensitivity and responsiveness to essential amino acids, with lower activation of amino acid signaling proteins such as mTOR.
Boirie 1997[15] Laboratory study	6 young and 6 older men	During a meal, the gut and liver took up about half of dietary leucine in the older men (50 ± 11%) and about a quarter in the young men (23 ± 2%), which could lower the leucine reaching muscle.
Katsanos 2006[16] Laboratory study	Older and young adults, given 6.7 g of essential amino acids	In the older adults, muscle protein synthesis rose only when the mix had a higher share of leucine (41%, against 26% in a mix patterned on whey protein). In the young adults it rose with both.
Moore 2015[17] Laboratory data, pooled	Healthy older (about 71) and younger (about 22) men, 0 to 40 g protein; retrospective analysis	Myofibrillar protein synthesis reached a plateau at 0.40 ± 0.19 versus 0.24 ± 0.06 g/kg body mass (p = . 055), and 0.60 ± 0.29 versus 0.25 ± 0.13 g/kg lean body mass (p < .01), in older versus younger men.

Taken together, older muscle in these studies responded less to small amounts of protein and needed more protein in a meal to reach its full response. The studies were small and short, and most were in healthy men.

> GENERAL SCIENCE: BLOOD LEUCINE IS NOT THE SAME AS MUSCLE BUILDING
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> In a crossover study of 10 healthy young men, about 10 g of beta-lactoglobulin, a naturally leucine-rich protein found in whey, raised blood essential amino acids and leucine more than the same amount of whey protein isolate. Muscle protein synthesis rose similarly with both, at rest and after exercise.[18] It is cited for mechanism only. It did not include older adults.

5. The three core ingredients and the evidence

Each row is labeled by the kind of study. None tested CORUS. Doses used in each trial are stated where verified from the primary paper; CORUS amounts per serving are not given in this brief.

TRIALS AND REVIEWS BY INGREDIENT

STUDY	WHO AND DESIGN	WHAT IT FOUND	LIMITS
Whey protein: a complete protein made from milk, with naturally occurring leucine			
PROVIDE, Bauer 2015[19] **Trial: related formula**	380 older adults with sarcopenia (SPPB 4 to 9, low muscle mass), mostly living independently. Each serving contained 20 g whey protein, 3 g total leucine and 800 IU vitamin D. Two servings daily, or an isocaloric control, for 13 weeks; double-blind.	Handgrip strength and SPPB, the primary outcomes, improved in both groups with no difference between them. Chair-stand time was 1.01 s faster (P = .018) and appendicular muscle mass 0.17 kg higher (P = .045) with the formula.	Leucine-enriched formula. 13 weeks. The positive results were secondary outcomes.
Rondanelli 2020[20] **Trial: related formula**	140 adults with sarcopenia (age 81 ± 6) in hospital rehabilitation with exercise. Whey protein formula with added leucine and vitamin D, or an isocaloric control, twice daily for 4 to 8 weeks; double-blind.	Gait speed rose 0.063 m/s per month more than control (P < 0.001). Muscle mass (P < 0.03) and all key secondary outcomes also favored the formula.	Single site, rehabilitation setting, with exercise. 13 people, across both groups, stopped because they disliked the product.
Rondanelli 2016[21] **Trial: related formula**	130 adults with sarcopenia (mean age 80.3), all in a controlled physical activity program. Whey protein with added essential amino acids and vitamin D, or placebo, for 12 weeks; double-blind.	Fat-free mass 1.7 kg higher than with placebo (P < 0.001). Handgrip strength and activities of daily living also favored the supplement.	Added amino acids, including leucine. All participants exercised.
Chang and Choo 2023[22] **Review of trials**	3 randomized trials, 637 patients with sarcopenia, of whey protein, leucine and vitamin D formulas.	Appendicular muscle mass improved with or without exercise. Grip strength and SPPB improved only when exercise was added.	Only three trials.

STUDY	WHO AND DESIGN	WHAT IT FOUND	LIMITS
HMB: a leucine metabolite the body makes in small amounts			
Deutz 2013[23] **Trial: HMB**	24 healthy adults aged 60 to 76 (20 women), 19 evaluable, on 10 days of complete bed rest. HMB or an inactive placebo; double-blind.	The control group lost 2.05 ± 0.66 kg of lean body mass. The HMB group lost 0.17 ± 0.19 kg, with one participant excluded. Between-group P = .02. Function did not differ.	Small, healthy volunteers. The authors call for a larger trial.
Yang 2023[24] **Trial: HMB, with exercise**	34 adults aged 60 and older with sarcopenia (18 HMB, 16 placebo). Twice daily for 12 weeks; both groups did resistance training twice a week.	Handgrip strength 4.61 kg, gait speed 0.11 m/s and five-time chair stand 3.65 s better than placebo. Skeletal muscle mass did not differ.	Small. Effects were measured on top of resistance training.
Rathmacher 2020[25] **Trial: HMB with vitamin D**	238 adults over 60 with insufficient vitamin D enrolled; 117 completed the 12-month trial and were included in the per-protocol analysis. 3 g calcium HMB with vitamin D3 daily, or control, with or without resistance training (2 x 2 design); double-blind.	Without exercise: lean mass gained 0.44 kg against a 0.33 kg loss with control at 6 months; knee extension torque rose more at 3 months; a composite function index was better at 3, 6 and 12 months. With exercise: no further function benefit.	Low vitamin D population. Substantial loss to follow-up over 12 months (238 enrolled, 117 completed). HMB and vitamin D were given together, so their effects cannot be separated.
Li 2025[26] **Review of trials**	21 randomized trials, 1,935 participants over 50.	Lean mass 0.28 kg higher (95% CI 0.16 to 0.41). Small differences in handgrip (0.54 kg), five-time chair stand (0.73 s) and gait speed (0.06 m/s).	Trials varied in population, product and duration.
Phillips 2022[27] **Review of reviews**	15 systematic reviews in aging and clinical populations.	5 of 15 found some evidence for lean soft-tissue mass and 4 of 12 for strength. None reported a positive effect on physical function. The authors describe “minor, inconsistent support.”	Depends on the quality of the underlying reviews.

STUDY	WHO AND DESIGN	WHAT IT FOUND	LIMITS
Vitamin D			
Vitamin D supports normal muscle function. Supplementation findings vary, as the two reviews below show, in different populations. Vitamin D is also part of the combined formulas above (PROVIDE, Rondanelli 2016 and 2020) and was tested with HMB in older adults with low vitamin D (Rathmacher 2020).			
Beaudart 2014[28] **Review of trials**	Meta-analysis of 30 randomized trials (5,615 participants); mixed populations, not limited to older adults.	Vitamin D supplementation had a small positive effect on muscle strength. The effect on muscle mass was not significant.	Mixed populations and doses. Not specific to older adults with sarcopenia.
Prokopidis 2022[29] **Review of trials**	Meta-analysis of 10 randomized trials of vitamin D alone, in community-dwelling older adults.	Vitamin D on its own gave no improvement in muscle strength, muscle mass or physical performance.	Vitamin D monotherapy, not a combination formula.

6. What CORUS is being designed to be

These are design intentions. None of them is a claim about what CORUS does.

- **Format.** An unflavored powder made with whey protein, HMB and vitamin D, packed in individual sachets, to be added to everyday foods the person already chooses.
- **Proposed intended use.** The dietary management of sarcopenia associated with chronic disease in adults with impaired protein utilization and reduced oral intake, under the supervision of a physician. In practice, many will be older adults living at home, often supported by a family member who shops and cooks.
- **Design aims.** To add no flavor of its own, to work with the person's own food and preferences, to add nutrition without making the meal larger, and to be simple for a family member to prepare. Each aim still has to be shown in testing.
- **Not intended as** a meal replacement, a sole source of nutrition, a treatment for any disease, or a substitute for a clinician's assessment. It is not being designed for tube feeding.

7. Where development stands

STATUS, NOVEMBER 2026

AREA	STATUS
Composition	Formula finalized. Core ingredients: whey protein, HMB and vitamin D. Amounts per serving and the full ingredient list will appear on the product label; they are not given in this brief.
Directions and preparation	Directions for use, including suitable foods, will appear on the label. They are not given in this brief.

AREA	STATUS
Taste and acceptability	To be documented with older adults and family members, in the foods they actually use.
Tolerance, safety and allergens	Whey protein is made from milk. Tolerance, safety and the full allergen statement are to be documented before release.
Clinical study results	This brief presents no CORUS clinical study results, and no outcome is claimed.
Regulatory route	Being developed as a medical food under 21 U.S.C. 360ee(b)(3) and 21 CFR 101.9(j)(8). Label and claims wording are still in preparation. FDA does not approve medical foods before sale.
Availability	Not for sale. No samples, pricing, ordering or coverage information.

8. What is established, and what is not

RESEARCH, SET AGAINST CORUS

TOPIC	ESTABLISHED IN RESEARCH	NOT ESTABLISHED FOR CORUS
The condition	Sarcopenia is defined by low strength, confirmed by low muscle quantity or quality, and is common in older age.[1,2]	Which patients with sarcopenia associated with chronic disease it suits.
Protein needs	Guidance recommends at least 1.0 to 1.2 g/kg/day for older adults, and more with disease.[4–6]	How much CORUS would add to anyone's total intake in everyday use.
The intake gap	Many community-dwelling older adults eat below these levels.[7]	Whether people using CORUS would close any part of that gap.
Age response	In laboratory studies, older muscle responded less to small amounts of protein and needed more in a meal.[14–17]	How CORUS servings relate to the amounts studied.
Related formulas	Whey protein formulas with added leucine and vitamin D raised appendicular muscle mass in trials. Strength and function results were mixed, and stronger with exercise.[19–22]	Any effect of CORUS on muscle, strength or function. None is claimed.
HMB	A 2022 umbrella review of 15 systematic reviews found inconsistent effects on lean mass; none of those reviews reported better physical function.[27] A 2025 meta-analysis of 21 varied trials reported small positive pooled differences in lean mass, handgrip, chair-rise time and gait speed.[26]	Any effect of the HMB in CORUS.

TOPIC	ESTABLISHED IN RESEARCH	NOT ESTABLISHED FOR CORUS
Vitamin D	A 2014 review found a small benefit for muscle strength across mixed populations, while a 2022 review of vitamin D alone found none in community-dwelling older adults.[28,29]	Any effect of the vitamin D in CORUS.
Acceptability	Older adults value taste, familiar ingredients and their usual preparation.[13]	How CORUS tastes, mixes and holds up in real foods over weeks.
Who should limit protein	Recommendations carry exceptions, such as severe kidney disease not on dialysis.[4]	Contraindications, allergens, tolerance and interactions for CORUS.

9. Clinical questions

Who is it for?

The dietary management of sarcopenia associated with chronic disease in adults with impaired protein utilization and reduced oral intake, under the supervision of a physician.

Is it available?

Not yet. CORUS is preparing its product label and information sheet.

What will the product information include?

Ingredient amounts, allergens, preparation, directions for use, storage and suitability.

How can I ask a question?

General questions can go to hello@viridianbrands.com. A product information sheet will follow when the label is final; see also takecorus.com/clinicians.

10. What this brief leaves out

Instructions for use, serving amounts, prescribing or ordering information, samples, coverage or reimbursement, and outcome claims. Each depends on the product label, product information and supporting evidence, and none is published yet.

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Citations checked against PubMed on 2 November 2026. Recommendation numbers refer to the 2022 ESPEN practical guideline. More at takecorus.com/clinicians.