

SPORTS NUTRITION

VITAMIN K2

IN COMBINATION WITH VITAMIN D



TOGETHER, D3 AND K2 WORK IN SYNERGY TO FORM THE PERFECT PAIR



D3 AND K2 PLAY A KEY ROLE IN SPORTS. The Perfect Pair supports bone, muscular, cardiovascular and immune functions.



EVERY D3 SUPPLEMENTATION SHOULD BE COMPLEMENTED WITH VITAMIN K2

Without vitamin D, calcium can not be absorbed or recycled by the body. Vitamin D controls the synthesis of proteins that need to be activated later by vitamin K. Among all vitamin K forms, K2 MK-7 is the most bioavailable, and remains available in the blood for a full 72 hours. As a result, K2 MK-7 shows a much better and longer effectiveness than K1 or K2

MK-4. Studies suggest a widespread vitamin K2 deficiency in the Western Countries.

The body can only work with the trans form of MK-7, which is particularly important when choosing a vitamin K2 supplement. Stability is key. **Vitamin K2 as MK-7 in the trans form is the best form of supplementation.**

EXPERT TIP



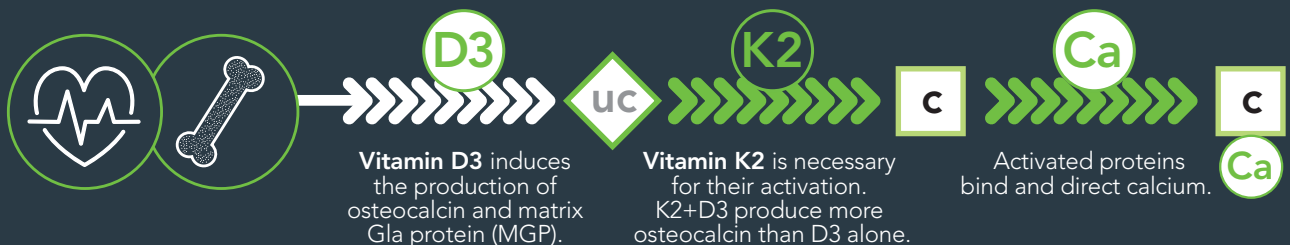
K2 + D3 THE PERFECT PAIR

"During a check-up, vitamin K status should also be analyzed. If a deficiency is found or an increased vitamin K2 requirement is determined, supplementation should be used. The German Institute for Sport Nutrition recommends a combined supplementation of vitamins D3 and K2" says Dr. Georg Friese, member of the German Society for Nutritional Medicine (DGEM).

CALCIUM IS THE MOST ABUNDANT MINERAL IN THE BODY

VITAMIN D3 INCREASES CALCIUM ABSORPTION INTO THE BLOODSTREAM

VITAMIN K2 ACTIVATES OSTEOCALCIN AND MGP TO PUT CALCIUM IN BALANCE



uc = uncarboxylated, inactive proteins c = carboxylated, active proteins

K2VITAL®
Puts Calcium in Balance

THE BENEFITS OF VITAMIN K2 FOR ATHLETES



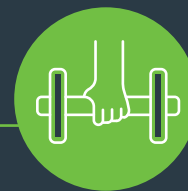
STRONG BONES

Calcium is needed by athletes for skeleton building, muscle contraction, nerve signalling and other metabolic processes. K2 regulates calcium distribution in the body. (3)



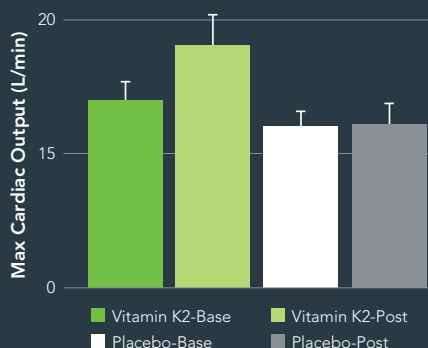
VESSEL FLEXIBILITY

Vitamin K2 prevents calcium deposit in arteries and vessels, helping them remain soft and flexible, aiding athletic performance. (2, 1)



INCREASED POWER

By preventing calcium-induced stiffening of vessels and arteries, and reversing existing calcification, vitamin K2 increases the body's ability to do work.



K2 HELPS YOUR HEART PUMP

A study on trained athletes demonstrated the K2 MK-7 supplementation **increased maximal cardiac output by 12% ...**

K2 supplementation during exercise may reduce the required training time by 60% to achieve comparable increases in maximal cardiac output.

...the equivalent of 6-9 months of continuous training. (6)



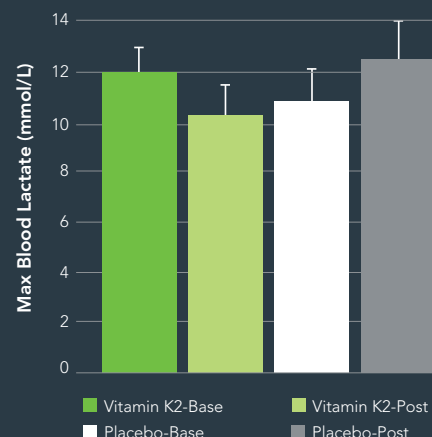
RESISTANCE TRAINING CAN LEAD TO MUSCLE DAMAGE AND SORENESS THAT LIMITS PERFORMANCE IN THE FOLLOWING 1-2 DAYS.

This muscle damage is accompanied by a local inflammatory response. Vitamin K2 has been shown to have anti-inflammatory activity that could be beneficial for muscle recovery. (5)



CRAMP REDUCTION

Studies demonstrate that vitamin K2 can reduce or prevent the improper contraction of muscle, commonly known as muscle cramp (4). Supplementation with vitamin K2 in trained athletes showed a trend towards lowered maximal blood lactate (6). Acidosis is associated with the burning sensation in muscles, and high lactate typically increase the risk of injury.



REFERENCES:

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- (2) Knapen, M.H., et al., Menaquinone-7 supplementation improves arterial stiffness in healthy postmenopausal women. A double-blind randomised clinical trial. *Thromb Haemost*, 2015. 113(5): p. 1135-44.
- (3) Kaneki, M., Hedges, S. J., Hosoi, T., Fujiwara, S., Lyons, A., Ishida, N., ... & Hoshino, S. (2001). Japanese fermented soybean food as the major determinant of the large geographic difference in circulating levels of vitamin K2: possible implications for hip-fracture risk. *Nutrition*, 17(4), 315-321.
- (4) Mehta, D.S., et al., Therapeutic activity and safety of vitamin K2-7 in muscle cramps: an interventional case-series. *The Indian Practitioner*, 2010. 63(5): p. 287-291.
- (5) Pan, M. H., Maresz, K., Lee, P. S., Wu, J. C., Ho, C. T., Popko, J., ... & Badmaev, V. (2016). Inhibition of TNF- α , IL-1 α , and IL-1 β by pretreatment of human monocyte-derived macrophages with menaquinone-7 and cell activation with TLR agonists in vitro. *Journal of medicinal food*, 19(7), 663-669.
- (6) McFarlin, B.K., A.L. Henning, and A.S. Venable, Oral Consumption of Vitamin K2 for 8 Weeks Associated With Increased Maximal Cardiac Output During Exercise. *Altern Ther Health Med*, 2017. 23(4): p. 26-32.

PRODUCT CONCEPTS

K2VITAL® ENERGY SPORTS GEL

Food Supplement with Vitamin K2 and Vitamin D3

GEL



VITAMINS K2 AND D3
PROVIDE IMPORTANT
BONE, HEART AND
IMMUNE HEALTH BENEFITS
RELEVANT TO ATHLETES

Label Claim
per Portion

% NRV

		EU	US
Vitamin K2 MK-7	75 µg	100	83
Vitamin D3	10 µg	200	200



AN INNOVATIVE AND CONVENIENT DOSAGE FORMAT ON-THE-GO

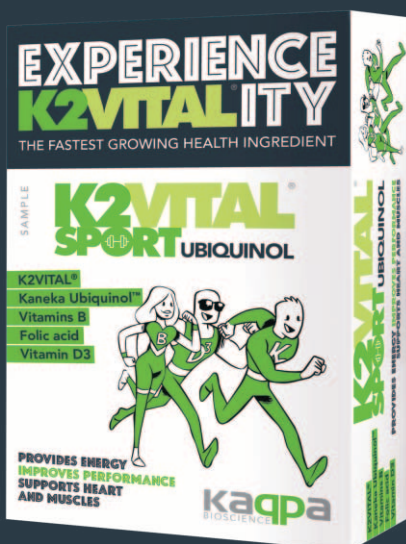
Single dose tubes provide a **spoon-free, no-water-needed dose**, that can be taken anytime, anywhere... even while still in motion.

K2VITAL® Energy Sports Gel addresses innovators and early adopters in the quest for immune support.

K2VITAL® SPORT UBIQUINOL

Food Supplement with Omega-3, Ubiquinol, Vitamin K2, Vitamin D3 and B Vitamins

SOFTGEL



Label Claim
per Portion

% NRV

		EU	US
Omega-3 Fish Oil Concentrate (EPA/ DHA)	250 mg		
Ubiquinol	60 mg		
Vitamin K2 MK-7	100 µg	133	111
Vitamin B5	6 mg	100	120
Vitamin B12	2,5 µg	100	100
Vitamin B6	1,4 mg	100	83
Folic acid	200 mg	100	50
Vitamin D3	5 µg	100	100



SOFTGEL IS THE IDEAL SOLUTION TO AVOID UNPLEASANT AFTERTASTE

Kaneka Ubiquinol™ is 3-8 times more absorbable than conventional CoQ10, to enable incorporation of a lower dose for the same effect.

K2VITAL® Sport Ubiquinol is a powerful combination to support performance and recovery.



- POWERS CELLULAR ENERGY
- LOWERS OXIDATIVE STRESS AND INFLAMMATION
- SUPPORTS RECOVERY

K2VITAL® GUMS

Food Supplement with Vitamin K2 and Vitamin D3

Label Claim
per Portion

% NRV

		EU	US
Vitamin K2 MK-7	75 µg	100	83
Vitamin D3	5 µg	100	100



AN INNOVATIVE VITAMIN K2 DELIVERY DOSAGE FORM.

K2VITAL® Gums is a stable K2 dosage form in a highly marketable format. Suitable for kids, vegetarians and vegans.

K2VITAL® VISION GUMS

Food Supplement with Vitamin K2, Lutein, AstaReal® Astaxanthin, Vitamin A, Vitamin B, Vitamin B12, Zinc, Selenium, Vitamin C and Vitamin E

Label Claim
per Portion

% NRV

		EU	US
Vitamin K2 MK-7	90 µg	120	100
Lutein	15 mg		
AstaReal®	4 mg		
Vitamin A	0,4 mg	50	45
Vitamin B6	2 mg	143	117
Vitamin B12	1,0 µg	40	42
Zinc	5 mg	50	45
Selenium	40 µg	73	73
Vitamin C	60 mg	75	67
Vitamin E	4 mg	33	27



THE UNIQUE FORMULATION OF K2VITAL® VISION GUMS PROVIDES A COMBINATION OF THE BEST INGREDIENTS FOR VISION HEALTH.

K2VITAL® JOINT EXTRA

Food Supplement with Vitamin K2 and Vitamin D3

Label Claim
per Portion

% NRV

		EU	US
UC-II® Undenatured Type II Collagen	40 mg		
Vitamin K2 MK-7	90 µg	120	100
Vitamin D3	5 µg	100	100



ALL-IN-ONE SOLUTION TO KEEP YOU MOVING WITH EASE

K2VITAL® Joint extra, vitamin D3 and K2VITAL®, together with UC-II® for the best solution to protect your joints.

K2VITAL® CARDIO GUMS

Food Supplement with Vitamin K2, Vitamin D3 and Vitamin B1

Label Claim
per Portion

% NRV

		EU	US
Vitamin K2 MK-7	90 µg	120	100
Vitamin D3	5 µg	100	100
Vitamin B1	1,1 mg	100	104



DELICIOUS TROPICAL FLAVORED GUMS

Improves cardio health through only three gummies a day. K2VITAL® Cardio Gums, specifically created to support heart health.

K2VITAL® MULTI GUMS

Food Supplement with Vitamin K2, Vitamin A, Vitamin D3, Vitamin E, Biotin, Folic Acid, Vitamin B12, Vitamin B2, Vitamin B6, Vitamin C and Iodine

Label Claim
per Portion

% NRV

		EU	US
Vitamin K2 MK-7	90 µg	120	100
Vitamin A	220 µg	27,5	24
Vitamin D3	1,5 µg	30	30
Vitamin E	2,35 mg	20	16
Biotin	6 µg	12	20
Folic Acid	11 µg	5,5	3
Vitamin B12	0,3 µg	13	13

% NRV

		EU	US
Vitamin B2	0,35 mg	25	27
Vitamin B6	0,52 mg	37	31
Vitamin C	10 mg	13	11
Iodine	21 µg	14	14
Zinc	1,35 mg	14	12
Inositol	20 µg		

INNOVATIVE DELIVERY FORM FOR CHILDREN AND ADULTS



K2VITAL® PROBIOTICS 4SPORT

Food Supplement with Synbio®, Cocoa Flavanols and Vitamin K2

TABLETS



SYNBIO® PROBIOTIC MIX HELPS IN REDUCING OXIDATIVE STRESS DURING PHYSICAL EXERCISE, RESULTING IN A REDUCED TIREDNESS

Label Claim
per Portion

% NRV

		EU	US
Vitamin K2 MK-7	200 µg	267	222
Synbio® (<i>L. rhamnosus</i> IMC 501®, <i>L. paracasei</i> IMC 502®)	1 bil. CFU		
Cocoa flavanols	200 mg		



MODERN MULTIPLE LAYERED TECHNOLOGY FOR AN ALL-IN-ONE FORMULATION

K2VITAL® Probiotics 4Sport comes as a **three-layer tablet**. This novel system enables the **controlled release** of the active ingredients for them to be delivered in the appropriate time and location. It also prevents their cross-interactions, for a **sustained product stability**.



SUPPORTS PERFORMANCE AND RECOVERY::

- RESPIRATORY AND GASTROINTESTINAL HEALTH
- IMMUNE SUPPORT
- OXIDATIVE STRESS AND INFLAMMATION REDUCTION
- STRONG BONES AND MUSCLES

SYNBIO®

COCOA FLAVANOLS

K2VITAL®



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K2VITAL® SPORTS BROCHURE
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AND MORE. GET IN TOUCH WITH OUR TEAM:

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K2VITAL®

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BIOSCIENCE

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