Fable or fact?

1. "A bowl of low-fat quark is always a good recovery snack."

Many athletes eat a bowl of low-fat quark after their training session as a recovery meal. They do this after a strength workout, but also after an intensive endurance or interval workout. Is this a wise choice for you as an athlete? What stimulates the recovery of your body most?

Nutritional value

Low-fat quark contains a lot of proteins, a little bit of carbohydrates and hardly any fats. In addition, it is rich in various B vitamins, potassium, calcium and phosphorus.[1]

Macronutrients	Per 100 g	Vitamins & minerals	Per 100 g
Energy (kcal)	58	Vitamin B2 (mg)	0,30
Protein (g)	8,5	Vitamin B12 (mcg)	0,70
Fat (g)	0,3	Potassium (mg)	163
Carbohydrate	4,9	Calcium (mg)	128
Dietary fibre	0	Phosphorus (mg)	100

Role of proteins

Athletes usually use low-fat quark for the proteins. During exercise you use your muscles. Proteins are the building blocks of your muscle cells. In addition, proteins are involved in various regulatory processes in our body: as an enzyme in digestion, as an antibody, or as a hormone. Proteins are also involved in the transport of oxygen to the muscles. The protein hemoglobin binds oxygen in our blood, so that it can be transported to the muscles.[2] [3]

Protein distribution

Athletes are known to have an increased protein requirement. Recreational athletes have a requirement of 0,8-1,0 grams of protein per kilogram bodyweight per day, for strength athletes while muscle building 1,5-1,7 grams of protein per kilogram bodyweight per day and for endurance athletes at a high level 1,2-1,6 grams of protein per kilogram bodyweight per day.[4]
By distributing the protein intake properly over the day, you can achieve a maximum return in terms of muscle protein building.[5] A protein distribution of 4-5 meals with 0,3-0,4 grams of protein per kilogram bodyweight is recommended.[6] [7] For someone who weighs 75 kg, this amounts to 23-30 grams of protein per meal moment. A 500 gram package of low-fat quark therefore contains too much protein.

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[1] http://nevo-online.rivm.nl/ (1 februari 2021)
[2] Burke L, Deakin V. *Clinical Sports Nutrition*. McGraw-Hill Education / Australia; 2015.
[3] Harms-Aris C, Geerets T. *Sportvoedingsatlas, een wereld te winnen.* Nieuwegein: Arko Sports Media; 2012.
[4] Pannekoek S, van der Stelt T, Wisse V. *Eet als een atleet.* Amsterdam: I'm a foodie Publishing; 2017.
[5] Phillips SM, Chevalier S, Leidy HJ. *Protein "requirements" beyond the RDA: implications for optimizing health.* Appl Physiol Nutr Metab. 2016;41(5):565–72.
[6] Moore DR, Churchward-Venne TA, Witard O, Breen L, Burd NA, Tipton KD, et al. *Protein Ingestion to Stimulate Myofibrillar Protein Synthesis Requires Greater Relative Protein Intakes in Healthy Older Versus Younger Men*. J Gerontol A Biol Sci Med Sci. 2014;70(1):57–62.
[7] Phillips SM. *A brief review of critical processes in exercise-induced muscular hypertrophy*. Sports Med. 2014 May;44 Suppl 1:S71–7.

Recovery after workout

But beware, even if you maintain 0,3-0,4 grams of protein per kilogram bodyweight, this can sometimes delay recovery. For example, if you have just completed an intensive endurance or interval workout. During these type of training sessions you mainly use carbohydrates as fuel and you get these from your carbohydrate storage, the so-called glycogen storage. Afterwards, this storage has to be replenished and that takes time. Moreover, the replenishment of the glycogen storage is inhibited if too many proteins are consumed: see graph.[3]

If you only use 0,3-0,4 grams of protein per kilogram bodyweight after an intensive endurance or interval workout without combining this with carbohydrates, the glycogen storage might not be replenished before the start of your next training session.

Conclusion

After a pure strength workout, 300 grams of low-fat quark is an excellent recovery snack. However, if you want to replenish your glycogen storage as soon as possible after an intensive endurance or interval workout, a recovery snack rich in carbohydrates is a better choice. By adding a little bit of protein, you can promote the absorption of carbohydrates. The most optimal ratio between carbohydrates and proteins is 3:1 and 4:1.[2 3] Recovery snacks that contain this carbohydrate:protein ratio include low-fat yogurt with fruits, 2 slices of wholemeal bread of which one with a sweet topping and one with a savory topping, or a package of low-fat chocolate milk.