



**TRAIN HARD. EVERY DAY**  
— WITH LACPRODAN®  
HYDRO.365

**Arla Foods Ingredients**  
Discovering the wonders of whey 

Athletes are currently challenged by dehydration, depletion of muscle fuels, mechanical damage to muscles, Immune depression and muscle fatigue. A compromised recovery decreases athletes ability to maximize training and decrease their performance. By a reduced recovery time athletes can reach their best in training (figure 1).

For full recovery within a short time we can offer you Lacprodan® HYDRO.365 (table 1)

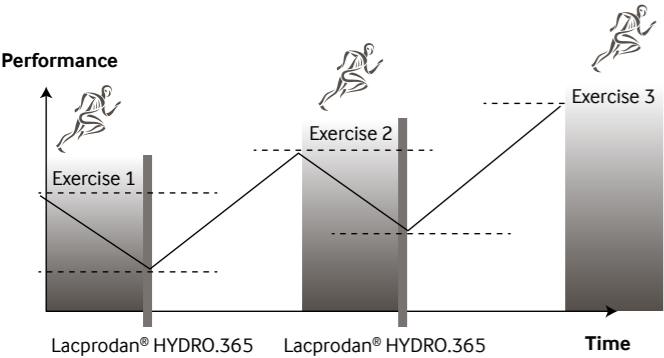
TABLE 1

Whey protein hydrolysates from Arla Foods Ingredients suitable for everyday recovery

PRODUCT	PROTEIN (%)	DH	TASTE
Lacprodan® HYDRO.365	Min. 80	23-29	Low bitterness

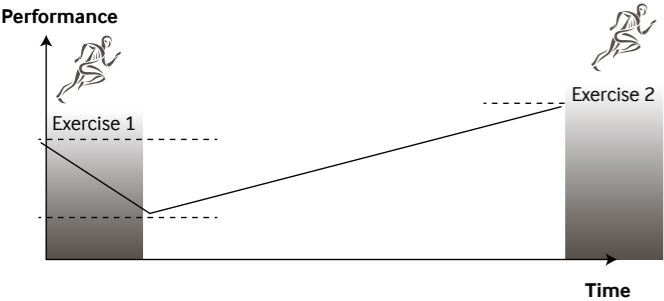
FIGURE 1

Reach your best with reduced time of recovery



The high degree of hydrolysate Lacprodan® HYDRO.365 allows you to reach your best! In particular it provides the most beneficial environment for

1. Fast BCAA absorption
2. Fast insulin response
3. Optimal glycogen replenishment



Without Lacprodan® HYDRO.365 you have a more slow recovery, and may not benefit from exercising more often.

Whey protein in combination with carbohydrates has been found to enhance recovery of muscle function (1-4), enhance muscle glycogen replenishment (5), decrease muscle damage (2), improve rehydration (6) and finally result in increased performance (7) when compared to carbohydrates alone.

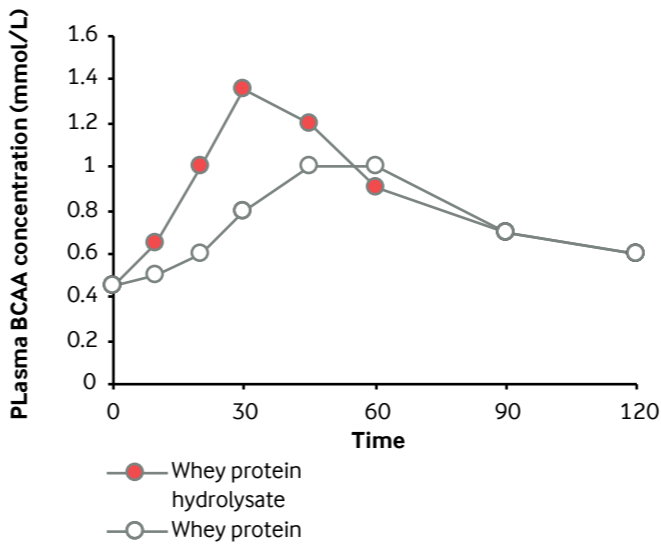
### Whey protein hydrolysate – The optimal solution

During exercise the digestive capacity is hampered, however, hydrolyzed whey proteins are predigested and thus fast absorbed (8). To ensure optimal absorption of energy, amino acids, and water, during exercise and to make most of the “metabolic window” after exercise, whey protein hydrolysate is thus the optimal choice for recovery.

Whey protein hydrolysates, containing mostly di- and tripeptides, have been demonstrated to be more rapidly absorbed compared to hydrolysates with longer peptides (9-13). This fast absorption of amino acids (branched chained amino acids, figure 2) influences insulin response, which plays an important part in the body’s uptake and storage of nutrients e.g., amino acids for muscle building and carbohydrates for glycogen storage. Ingestion of protein in combination with carbohydrates can induce a plasma insulin concentration up to 100% higher than if carbohydrate is ingested alone (15). In addition it induces a greater muscle protein net balance (16-18). Fast absorption of peptides also improves the uptake of water (14).

FIGURE 2

Absorption of branched chained amino acids



Modified from Morifiji, 2010 (5)

Whey protein hydrolysate has been shown to provide full recovery of peak power and soreness after 6 hours, compared to several days with intact whey protein (1).

### Application

Lacprodan® HYDRO.365 whey protein hydrolysates can be applied in clear UHT beverages and in protein bars up to 50% protein content. It is also possible to add Lacprodan® HYDRO.365 directly to milk or water as a powder solution. For recovery we recommend a dose of 20-50g whey protein hydrolysate within an hour after exercise.

The highly hydrolysed Lacprodan® HYDRO.365 in particular provides the most beneficial environment for

1. Fast BCAA absorption
2. Fast insulin response
3. Optimal glycogen replenishment

### Whey protein hydrolysate

Whey protein hydrolysates offers all essential amino acids (EAA), including the muscle-building branched chain amino acids (BCAA) in higher amounts than any other type of hydrolosate. Whey has been classified as a “fast” protein (9, 20-22), but comparing to all intact proteins and other hydrolosates, whey protein hydrolosates is even faster and increases plasma AA and insulin significantly more after consumption, through the high amount of whey di- and tri- peptides.



## References

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