

BELGIAN SPECIAL FORCES

Q-COURSE PREPARATION PROGRAM

The Belgian Special Forces Qualification course is an extremely demanding selection course with a duration of 6 months. The requirements are not only having an excellent physical condition, but also good intellectual capacities and a strong mental state. Even though all requirements are equally important, experience shows us most candidates pull out due to a lack of physical preparation. Unless you are already an exceptional athlete, nobody is able to succeed the Q-course without specific preparation. Although it might be obvious for every candidate how to become a military athlete, this training program will give you some guidelines and an in detail training program.



A. Introduction:

Preparation for the **Belgian Special Forces** Q-course goes beyond the everyday life physical fitness.

Preparation for the Q-course is all about functional fitness.

Functional fitness is the development of many fitness qualities such as; maximal strength, strength-endurance, mobility, flexibility, power, speed, and agility for enhanced performance for specific demands. In the end, functional fitness for the tactical athlete enhances their performance in the field and minimizes the risk of injuries, in this case, surviving the Belgian Special Forces Q-course.

Going through the Special Forces Q-course means having the ability to exhibit high levels of strength in light of fatigue and compromised, stressful situations i.e. lack of sleep, having heavy equipment on, etc., and to deal efficiently with a great variety of situations and oppositions.

Lastly, functional fitness for the tactical athlete requires them to be resilient to injury under all the varying circumstances they may encounter in the field.

The demands for the Q-course candidate are extreme and unique as their physical fitness can be or will be tested under extreme circumstances, highly unpredictable situations and with no room for error.

It is not the will to win, but the will to prepare to win that will make the difference.

To prepare yourself for the Q-Course, you'll need a combination of three elements:

Discipline, healthy lifestyle and physical training.

Each of these elements needs the other two to succeed. It takes effort to train on a daily basis and it is impossible to grow your stamina and physique if you do not feed yourself properly and listen to your body.

This training advice provides information about the type of training required to help you develop the strength and endurance to withstand the rigors of the Belgian Special Forces Q-course. It will give a training model to help a candidate with average condition to achieve the necessary fitness, develop a disciplined way of life and minimize the risk of injury.

Physical fitness is relative. No single sport can prepare you for the harsh, continuous effort, the sleep deprivation and the attrition your mind and body will have to endure over the six months of the Q-Course. You'll need the strength and stamina of a cross-fit champion combined with the body cult and endurance of an ultra-runner.

A week in the Q-Course, from Monday morning till Friday evening, will make your body consume an average of 30 000 calories, i.e. 6000 calories/day. No healthy diet can bring you such an amount of fuel which means the general condition of your body will start to deteriorate from day one.

Where other serious athletes would rest/sleep/skip training/take a break to let the body recover, the Q-course candidate will be asked to step up the effort. Not only your body has to be strong, it will also take a superhuman mental strength. Your mental state can push the body beyond pain, calorie and sleep deficit and even beyond physical condition. But when the body breaks, when the injuries kick in, you will have to stop in order to avoid further damage.

The Q-Course is a selection to find the men who are able to defeat the odds and go beyond the physical and mental limits but it is not a real, life-threatening situation which would justify the sacrifice of your health in general. Avoiding injury has to be part of the attitude of a mature, professional soldier.

Here the preparation becomes significant. If you want your body to be ready for the Q-course, your body will have to 'develop' over a long period of time as to give muscles, tendons and joints the possibility to be strengthened and grow.

B. General:

It is obvious that the preparation to become a Special Forces operator plays in a higher league than a 'start to run' program. You'll need a good, basic physical condition at the start of your preparation program.

The prerequisites, the minimum level of performance you should be able to achieve before starting this 16 week-training program, is to run for 45-50 minutes without being exhausted. Measure a distance of 1 Km during your training and take the time you run over 1 Km (Every ordinary sports watch or App on a smartphone will do). If you're not able to do this under 6 min/Km, I would suggest you continue running for a few months. Under 6 min/Km is an average speed which you should be able to run over a longer period to start the training program.

Most of the cardiovascular exercise is focussed on running simply because your legs will get most of the load during the Q-course. You can run everywhere and at any time. Don't worry wearing boots when running. You have to try it, even several times, but do not exaggerate as boots are not the proper footwear to run every day.

Cardiovascular fitness will improve your general health, boost your immune system and make you more resistant to sleep deprivation.

Resistance and core training targeting the whole body should be performed to develop the optimal muscular strength, increase the VO²Max and endurance to resist injury and be able to carry heavy loads.

More muscular tissue increases your testosterone production but attention; Muscles need oxygen to function and being built like a bodybuilder will handicap you during aerobic efforts.

Try to keep your body fat at 10-15%. More fat is useless but less is reducing your hormonal production and will deny your body of necessary energy reserves. A healthy fat reserve is necessary to keep your immune system functional. It is better to arrive with a moderate fat percentage at the start of the Q-course.

Remember: we do not train to look good at the beach but to kick ass.

Try to do long distance running on a variety of different surfaces or terrains: flat, hilly, firm and soft soil.

Do not immediately buy expensive footwear. Do not look at brand or price but try shoes that fit you and feel comfortable. Buy them half a size bigger than you used to because your feet are going to swell due to the number of kilometres you're about to run.

B. Preparing the body:

This preparation is a run-up towards the Q-Course. It is paramount you start the Q-course at the top of your physical abilities. Exhausting your body before the start is contra productive. Work to achieve balanced fitness, with the optimal combination of endurance, strength, mobility, and flexibility. Work to improve your unsatisfactory qualities, and don't just focus on the things you're good at.

To prevent injury or overload, the preparation has to be built up gradually. Do not exaggerate. Your body is the perfect machine. If you give it the right fuel and rest it needs to recover and repair the damage you inflict, there is almost no limit in what your body can take.

Adapt your training if you think an injury, severe pain or inflammation will cause serious regression if you continue. Adapting training does not mean to stop the program. You'll have to train every day but an ankle problem should allow you to train your upper body and a sore shoulder shouldn't stop you from running. Even if you don't train your body according to the program, your discipline and mental hardness need to grow also.

Having good aerobic capacity is not the same as having a body fit for the Q-course. The continuous strain, sleep deprivation, calorie deficit and unremitting effort will demand more than the normal athletic body can endure... Only preparation of the body during months before the start can prepare muscles, tendons, joints, mental condition (and your military equipment) in order to be ready.

C. Workouts:

Every workout should begin with a warm-up. Start slowly! Remember your body needs time to adapt to the effort to avoid injury. In the first weeks, your body will hurt permanently and every start of training will be difficult before the muscles are warmed up. Begin with moderate intensity; spend several minutes preparing to improve the quality of the workout. Include dynamic stretching to improve mobility and coordination. For interval sessions, your warm-up should be long and thorough. (at least 15 minutes)

After your workout, include a cool-down period. This means a few minutes of easy jogging after a long run or interval training. For cool-down, you may choose to do a cross-training activity like cycling instead of running. Cool down is necessary to reduce the heart rate and give the body the time to get rid of the lactic acid.

I. INTERVAL AND RESISTANCE TRAINING:

Interval is needed to improve stamina (VO_2 Max) and delay the production of lactic acid. Lactic acid is produced when the muscles require energy production faster than the body can adequately deliver oxygen. (Anaerobic effort)

To obtain a workable running speed, you'll have to find your heart rate limitations. ('220 minus age' is your estimated maximum heart rate but of course this is relative to your training level and overall condition. To be sure, consult a doctor.) The maximum heart rate is needed to calculate the intensity of the running. The intensity of interval training should be between 80-90% of the maximum heart rate.

Interval training is nothing more than accustoming the body to lactic acid. Regular interval training will make your heart and muscles more efficient in oxygen consumption - which will result in longer and more strenuous efforts.

Before starting the training program, you will need to find your anaerobic threshold; this is the intensity above which lactic acid starts to accumulate in blood and muscles, since more lactic acid is produced than the body can remove.

Run for 10 minutes or a distance between 2000-3000 meter, at full speed, in a way you will be exhausted at the finish. With this time and distance, you'll have to determine the time you run on 100 meters. (e.g. 2400 meters in 9' 05" which is 545 seconds/ 24 = 22,7 seconds pro 100 meter)

This 22,7 seconds will be your guide timing for interval training. When the training schedule demands to sprint 4 x 100 meter, it will be sufficient to accelerate during 22,7 seconds 4 times.

Interval trainings will take 100 meters as standard. If stated in the training program to run 5 x 400 m you'll have to run 5 times (4x 22,7" = 90,8 seconds)

Rest between intervals is always the same time as you ran, but in a very slow pace which should allow you to recuperate and control your breathing.

Interval can be done with additional weight (small backpack, small dumb-bells) or uphill. Do not exaggerate in extra weight. Start with 2 Kg and increase gradually.

For interval training, the time spent between work intervals must include active recovery. Spend the recovery time jogging slowly. This will maintain blood flow to the muscles, deliver oxygen and

nutrients, remove waste (lactic acid) and allows to perform at higher intensity during the work periods.

The training program only plans interval training once a week and keep this training always a few days from your long distance run.

INTERVAL TRAINING:

INTERVAL 1	
Warm-up	15 min
Sprint	4 x 100 m

INTERVAL 2	
Warm-up	15 min
Sprint	6 x 100 m

INTERVAL 3	
Warm-up	15 min
Sprint	5 x 100 m
Sprint	1 x 200 m

INTERVAL 4	
Warm-up	15 min
Sprint	4 x 100 m
Sprint	2 x 200 m

INTERVAL 5	
Warm-up	15 min
Sprint	3 x 100 m
Sprint	3 x 200 m
Cooldown	15 min

INTERVAL 6	
Warm-up	15 min
Sprint	2 x 100 m
Sprint	2 x 200 m
Sprint	1 x 300 m
Cooldown	15 min

INTERVAL 7	
Warm-up	15 min
Sprint	2 x 100 m
Sprint	2 x 200 m
Sprint	1 x 300 m
Cooldown	15 min

INTERVAL 8	
Warm-up	15 min
Sprint	2 x 100 m
Sprint	1 x 200 m
Sprint	1 x 300 m
Sprint	1 x 400 m
Cooldown 15 min	

INTERVAL 9	
Take backpack 5 kg or run uphill	
Warm-up	15 min
Sprint	2 x 100 m
Sprint	1 x 200 m
Sprint	1 x 300 m
Sprint	1 x 400 m
Cooldown 15 min	

INTERVAL 10	
Take backpack 5 kg or run uphill	
Warm-up	15 min
Sprint	2 x 100 m
Sprint	3 x 300 m
Cooldown 15 min	

INTERVAL 11	
Take backpack 5 kg or run uphill	
Warm-up	15 min
Sprint	2 x 100 m
Sprint	4 x 300 m
Cooldown 15 min	

INTERVAL 12	
Take backpack 5 kg or run uphill	
Warm-up	15 min
Sprint	2 x 100 m
Sprint	3 x 400 m
Cooldown 15 min	

II. CORE STABILITY TRAINING

Core strength is needed to be able to carry the heavy loads an SF operator has to wear on a daily basis. Webbing, radio, weapons and ammo weight approximately 15 Kg. Add a backpack of 20-30 Kg and you understand that marching a complete night with 50 Kg requires dedicate training.

The exercises in this program emphasizes the importance of balanced training, developing the whole upper body (upper, core, lower) and training opposing muscle groups equally (push-pull). While it is necessary to focus on push-ups, dips, planking or sit-ups and pull-ups for the entry test, be aware that this may contribute to muscle imbalances that affect the injury risk.

It is important to be economical and efficient to avoid overtraining and creating imbalances. A good rule of thumb is to perform no more than 200 push-ups or sit-ups and no more than 50 pull-ups in a single day, and no more than 1000 push-ups or sit-ups and no more than 250 pull-ups in a week.

In our training program, the workouts of the day (WOD) are chosen in a way you can execute them everywhere. You do not need equipment or fitness machines. However, these training sessions can be replaced by gym sessions where you focus on training the upper body.

The aim is to get stronger. Feel free to adapt (go to a local gym) if it suits you.

Do not expect fast result. Remember, you are training yourself to become stronger and more efficient, not to look good in the mirror or on the beach.

You train for one goal. The purpose is succeeding the Special Forces Q-Course.

The basic training method is to start with several small sets and gradually progress towards fewer, larger sets. The total reps will gradually increase. Recover enough between sets to maintain quality repetitions. Over time, reduce the recovery between sets, without reducing the quality of reps.

The entry test is done with a weight belt of 10 Kg so occasionally (about once a week) practice doing your workout with additional weight. Start with a few kilos.

Try to do every exercise correctly and in a controlled manner through a full range of motion and emphasizing the eccentric (negative) portion. While it may not be obvious, this will improve your ability, strength and increase your resistance to injury. If doubt about the execution of an exercise, you can find every exercise explained on the internet.

Do not swing like cross-fit adepts! Explosive, violent motions during body-weight exercises put a lot of stress on tendons, joints and muscles and will cause damage over time...

If possible use different forms of resistance, including body weight, free weights, and machines.

It is not necessary to perform multiple sets of each exercise to realize significant gains in strength. One set to momentary muscle failure is generally sufficient. This also leaves time for more exercises to target the whole body. The weight and number of repetitions is not critical, as long as momentary muscle failure is reached. This means completing as many reps as possible with proper form. When you become too fatigued to do another repetition without sacrificing technique, put the weight down.

Generally choose a weight you can lift 8-12 times with proper form before failure. On different days for different exercises, choose heavier weight so you finish in fewer reps (4-6), or lighter weight so

you finish with more reps (15 or even 20). Changing the weight and reps periodically will increase overall strength under different conditions. Over time, you will be able to lift a given weight for more reps

During a workout, move from one exercise to the next efficiently. Recover as necessary, but don't waste time. By the same token, don't race.

Perform each exercise with the best technique possible.

Do the exercises in any order, but alternate between pushing and pulling.

The first month is meant to prepare the body for the harsh training of the coming months. Do not exaggerate in the beginning.

Exercises Core stability and upper body training	
Chest	<ol style="list-style-type: none"> 1. Push up – chest to floor 2. Bench press
Shoulders	<ol style="list-style-type: none"> 1. Push ups – feet elevated. 2. With dumbbells, push weights above head.
Abdominals	<ol style="list-style-type: none"> 1. Hanging and knees to chest 2. Feet to bar 3. Planking 4. Side bridge L & R
Biceps	<ol style="list-style-type: none"> 1. Hanging - hands in supination: Pull up 2. With dumbbells, biceps curl
Back	<ol style="list-style-type: none"> 1. Hanging - hands in pronation: Pull up 2. With machine, pull towards chest
Triceps	<ol style="list-style-type: none"> 1. Dips preferable without support for feet 2. With dumbbells, lower weight behind head
Resistance	Burpees with push up – jump in the air with hands above head.
Legs	<ol style="list-style-type: none"> 1. Lunges 2. Squads, preferable with additional weights.

WODs

WOD 1	
Push ups	3 x 20
Sit ups	3 x 20
Burpees	3 x 10

Push-ups: chest to the ground, stretch arms completely

Sit ups: Heels of feet stay on the ground. No blocking of feet. Hands behind head and elbows touch the knees.

Burpees: Bend your knees, place your hands on the ground, throw your legs behind, do one push-up, throw your knees between your arms, jump up and clap your hands in the air. Repeat.

WOD 2	
Push ups	3 x 25
Sit ups	3 x 25
Burpees	3 x 10
Pull up	4 x 5

Pull-ups: Supination i.e. palms to the front to train muscles of the back. Can be alternated with the palms turned inwards to train biceps.

WOD 3	
Push ups	3 X 30
Sit ups	3 x 30
Burpees	3 x 15
Pull up	5 x 5

WOD 4	
Push ups	3 x 35
Sit ups	3 x 35
Pull up	4 x 8
Burpees	3 x 15
Lunges	2 x 25

Lunges: Do not step to far forward. Take weights in your hands or put on a backpack. Try to start with 10 Kg and work your way up. Attention. Do not exaggerate lunges as you will pay the price during the next runs. Due to the many Km you run, it is preferable to add weight but to limit the number of repetitions.

WOD 5	
Push ups	3 x 40
Sit ups	3 x 40
Pull up	4 x 10
Burpees	3 x 15
Lunges	2 x 30

WOD 6	
Push ups	4 x 40
Planking	2 x 1 min
Pull up	5 x 10
Burpees	50 total
Lunges	2 x 30

WOD 7	
Push ups	4 x 40
Planking	2 x 75 sec
Pull up	5 x 10
Burpees	50 total
Lunges	2 x 30

WOD 8	
Push ups	5 x 40
Planking	2 x 2 min
Pull up	5 x 10
Burpees	3 x 20
Lunges	2 x 30

WOD 9				
Push ups 40	Pull up 15	Feet to bar 15	Burpees 20	Lunges 30
Push ups 30	Pull up 10	Feet to bar 10	Burpees 15	Lunges 20
Push ups 20	Pull up 5	Feet to bar 4	Burpees 10	Lunges 10

III. LONG DISTANCE RUN

The intensity of a long distance run is between 60-70 % of your maximum heart rate. Your pace should feel relaxed. The purpose is to build endurance and prepare muscles and tendons for the countless kilometres you will cover during the Q-course. The focus will be on duration, not on intensity. The distances or durations will increase during the training weeks. The goal is to be able to run comfortable 70-90 Km/week.

On a weekly basis, only one session should cover a longer distance (more than 15 Km) or exceed 1 hour running. Keep track of your timings and distances. Improvement over several months should be visible or you are doing something wrong. Do not try to go faster each training session. These runs should stay comfortable and the improvement will come after many weeks of training. If you're adapting the program yourself, do not increase more than 5-8% per week.

E. Q-Course training program

WEEK 1: Preparing the body			
Monday	40 min run	Stretching legs and back	
Tuesday	WOD 1		
Wednesday	45 min run	Stretching	
Thursday	WOD 1		
Friday	45 min run	Stretching	
Saturday	WOD 1		
Sunday	Rest		

WEEK 2:			
Monday	45 min run	Stretching	
Tuesday	WOD 2		
Wednesday	Interval 1	Stretching	
Thursday	WOD 2		
Friday	45 min run	Stretching	
Saturday	WOD 2		
Sunday	45 min run	Stretching	

WEEK 3:			
Monday	Rest		
Tuesday	45 min run	Stretching	
Wednesday	WOD 3		
Thursday	Interval 1	Stretching	
Friday	WOD 3		
Saturday	45 min run	Stretching	
Sunday	15 km march	Backpack 10 kg	

WEEK 4:			
Monday	Rest		
Tuesday	45 min run	Stretching	
Wednesday	Interval 2	Stretching	WOD 2
Thursday	WOD 3		
Friday	45 min run	Stretching	
Saturday	WOD 3		
Sunday	50 min run	Stretching	

WEEK 5:			
Monday	45 min run	Stretching	
Tuesday	WOD 3		
Wednesday	Interval 2	Stretching	WOD 2
Thursday	WOD 3		
Friday	50 min run	Stretching	
Saturday	WOD 4		
Sunday	15 Km march	Backpack 15 kg	

WEEK 6:			
Monday	45 min run	Stretching	
Tuesday	WOD 4		
Wednesday	Interval 3	Stretching	WOD 2
Thursday	WOD 4		
Friday	50 min run	Stretching	
Saturday	WOD 4		
Sunday	60 min run	Stretching	

WEEK 7:			
Monday	45 min run	Stretching	
Tuesday	WOD 4		
Wednesday	Interval 4	Stretching	WOD 2
Thursday	WOD 4		
Friday	50 min run	Stretching	
Saturday	WOD 5		
Sunday	20 Km march	Backpack 15 Kg	

WEEK 8:			
Monday	45 min run	Stretching	
Tuesday	WOD 5		
Wednesday	Interval 5	Stretching	WOD 2
Thursday	WOD 5		
Friday	50 min run	Stretching	
Saturday	WOD 5		
Sunday	70 min run	Stretching	

As from today, running will be done in the morning before breakfast.

Get up an hour earlier than you're used to and start the day with your running program. Be aware the lack of calories will be felt in the beginning. Adapt your pace and try to manage your energy level. Your body will get used to the calorie deficit and adapt.

WEEK 9:			
Monday	Rest		
Tuesday	50 min run	Stretching	
Wednesday	Interval 6	Stretching	WOD 2
Thursday	WOD 5		
Friday	50 min run	Stretching	
Saturday	15 Km march	Backpack 20 Kg	
Sunday	70 min run	Stretching	

WEEK 10:			
Monday	WOD 4		
Tuesday	50 min run	Stretching	
Wednesday	Interval 7	Stretching	
Thursday	WOD 6		
Friday	60 min run	Stretching	
Saturday	45 min run	Stretching	
Sunday	25 Km march	Backpack 15 kg	

WEEK 11:			
Monday	WOD 4		
Tuesday	50 min run	Stretching	
Wednesday	Interval 8	Stretching	WOD 2
Thursday	WOD 6		
Friday	60 min run	Stretching	
Saturday	45 min run	Stretching	WOD 2
Sunday	70 min run	Stretching	

WEEK 12:			
Monday	WOD 4		
Tuesday	50 min run	Stretching	
Wednesday	Interval 9	Stretching	WOD 2
Thursday	WOD 7		
Friday	65 min run	Stretching	
Saturday	50 min run	Stretching	WOD 2
Sunday	30 Km march	Backpack 15 Kg	

WEEK 13:			
Monday	WOD 4		
Tuesday	50 min	Stretching	
Wednesday	Interval 10	Stretching	WOD 2
Thursday	WOD 7		
Friday	65 min	Stretching	
Saturday	15 Km march	Backpack 20 Kg	WOD 2
Sunday	80 min run	Stretching	

WEEK 14:			
Monday	WOD 4		
Tuesday	50 min	Stretching	
Wednesday	Interval 11	Stretching	WOD 2
Thursday	45 min	Stretching	WOD 8
Friday	70 min	Stretching	
Saturday	50 min	Stretching	WOD 2
Sunday	90 min run	Stretching	

WEEK 15:			
Monday	WOD 4		
Tuesday	50 min	Stretching	
Wednesday	Interval 12	Stretching	WOD 2
Thursday	50 min	Stretching	WOD 8
Friday	70 min	Stretching	
Saturday	50 min	Stretching	WOD 2
Sunday	30 Km march	Backpack 20 Kg	

WEEK 16:			
Monday	WOD 4		
Tuesday	50 min	Stretching	WOD 9
Wednesday	Interval 12	Stretching	WOD 2
Thursday	50 min	Stretching	WOD 9
Friday	75 min	Stretching	
Saturday	50 min	Stretching	WOD 2
Sunday	100 min run	Stretching	

Breathing:

Without going into detail, your brain gives the order to breath due to a surplus of CO² in the blood and not because of a lack of oxygen. It is imperative to exhale properly to get rid of the CO². Inhaling will go naturally. In short, too much CO² will make you gasp for air and will be the major cause for lactic acid production. Force yourself to exhale during every effort.

F. NUTRITION

Dietary advice.

Internet will overwhelm you with all sorts of diets. Some could be useful but most of them are just whims of fashion and even unhealthy.

The Q-course candidate needs a healthy, balanced and moderate diet with a lot of variation. All basic food elements should be present.

1. Fruit and vegetables, vitamine C, folic acid, minerals, fibers and bioactives
2. Carbohydrates, B-vitamines, calcium and iron
3. Proteins
4. Fat and essential fatty acids
5. Fluids

By following the preparation program, healthy and balanced nutrition is the only way to keep up the training without damaging your body. You will need to find out a balance between your calorie intake and consumption which is not so difficult but to get these calories out of healthy nutrition is a real quest.

Avoid animal fat, refined carbohydrates and more than 30 gr of protein supplements.

Adapt your diet towards whole grains, legumes, like peas and beans, nuts and fatty fish. Your breakfast (oatmeal with seeds and fresh fruit is an excellent choice) is the main dish which will give you energy for the day but try to avoid a feeling of hunger. Eat throughout the day and top up your energy level after every training session. Energy bars should be an exception as they are just full of sugars. Replace energy bars with bananas, dried fruit (attention; contains most of the time also added sugar) or homemade oatmeal cookies or rye bread.

The preparation program is meant to build up an operator-fit body. During the Q-course you'll find yourself in an almost starvation situation. You will burn more calories than you can eat; Military kitchen, no time to eat due to tactical scenarios and not enough space in your backpack to carry the food you need...

From day one of the Q-course, your body will start to decay. During weekends you'll try to bulk food in order to top up your reserve and you'll find yourself eating unhealthy, calorie-rich food.

There is no other way. The weekends during the Q-course are necessary to recharge the batteries and the food shortage problem cannot be resolved with only healthy nutrition.

Hence the importance of presenting yourself in top shape at the start of the Q-course!

The next explanation has only one purpose which is to state the importance of nutrition in relation to effort. Without fuel the machine stops and without the right fuel, the machine will not work efficiently.

Carbohydrates:

Carbohydrates are the most important and efficient energy supplier especially during long continuous and/or intense efforts. Carbohydrates are transformed in glycogen which is used as fuel

for your efforts. They will be stocked in liver and muscle tissue but in limited quantities. (up to 2000 calories)

1 gr Carbohydrate provides 4 Kcal.

Efforts of high intensity need carbohydrates as these provide in the same amount of time more energy than fat or proteins. Being an efficient survival machine, the body will spread the energy consumption according to his needs and available reserves between carbohydrates, fat and proteins.

First, the majority of the calories will be found in the glycogen reserves. As the reserve of carbohydrates decreases the balance will tip over to fat and proteins.

Getting energy out of fat is a much slower system than carbohydrates and will make your energy production perform at only 50%.

Your daily nutrition should contain around 60% carbohydrates – 25% proteins – 15% fat. Before an effort you can eat 30-60gr carbohydrates/hour. Eating more is useless as it does not digest in time.

Your normal capacity to take in carbohydrates is between 6-12 gr/Kg/day or 60 gr/hour but of course it depends on your needs and efforts. (this is very simplified as there are ways to increase your intake. Details on single and complex carbohydrates, glycaemic index and nutrient density will not be elaborated)

Which is important is to make sure your reserves will never get depleted. Where you can cheat and 'train' without reserve to force the body to perform at low energy levels, it is most important to fill up your reserves after the effort.

Carbohydrates are much needed by the tired body to restore the damage you inflicted.

Your next effort will depend on your ability to recover after an effort and without nutrition, there is no recovery possible. Note that the best result is obtained when carbohydrates are taken together with proteins.

Proteins

Proteins are necessary to build and conserve the body. Proteins (amino acids) are the building blocks of cells, muscle tissue, organs, nerve system, bones and blood. It repairs and replaces tissue in case of injuries, they are needed for your defence and immunity and boosts production of hormones. Eating proteins gives good food satiety.

1 gr protein gives 4 kcal energy.

Attention: Too much protein will give kidney problems where they are degraded. Protein degradation needs a lot of fluid and too much protein consumption will cause dehydration.

An athlete can process 1,5 gr/kg bodyweight with a maximum of 2 gr/kg bodyweight.

During the Q-Course, where the body needs to recover and repair itself permanently, the maximum amount of protein intake is justified. During the preparation, the maximum amount of proteins should be 1,6 gr/kg bodyweight

Example: Average bodyweight: $80 \text{ Kg} \times 1,6 \text{ gr/Kg/day} = 128 \text{ gr/day}$.

A normal daily diet contains between 70 – 90 gr proteins. This means an athlete who trains on daily basis is allowed to take one spoon of 30 gr protein supplement. Do not believe the fairy tales you hear in every gym. More proteins will not make you bigger and better. Eat healthy and reward your body with some extra proteins. Remember: to recover after an effort, carbohydrates and proteins form a great team.

Fat

Fat is the most generous calorie supplier:

1 gr fat gives 9 kcal energy.

All surplus of food will be processed to fat which is degenerated in the liver. Fat is necessary to make your body function but careful in the amount and what kind of fat you eat. Saturated fat (animal origins, hardened plant fat) is not good for your health. Unsaturated (vegetable, liquid oils) is better. Try to get as much as possible from nuts, fish, vegetable oil.

Training hard means consuming many calories! Extreme athletes (Q-course candidates) can get 30% of their calorie intake from fat.

1 kg fat = 9000 kcal

To lose 1 kg body fat you'll need to burn 7777 kcal which is, for Q-course candidates 13 hours of marching with a heavy backpack. (= 2 nights tactical infiltration)

While running you burn 1 kcal/Kg bodyweight/Km. An average 80 Kg man will thus burn 80 kcal/ Km but a trained runner will consume much less. → 0,5 kcal/Kg bodyweight/Km
On average you can state that 100 Km equals 8000 kcal = 1 kg body fat.

Fluids

Water will regulate the thermostat of your body. It is much needed to make the blood feed your muscles with oxygen during the effort and help transport nutrition, remove CO² and waste products. During the effort you will eliminate liquid through transpiration and the loss of fluid will have a negative effect on your performance.

Dehydration is when your total body fluids are lower than normal which will disturb your thermostat, increase your heart rate and body temperature, increase fatigue and lower your performance.

Mentally; losing bodily fluid will diminish your locomotor abilities, decrease your speed of reaction and most important, decrease your ability to take rational decisions.

Minor loss of bodily fluids 1% will decrease your performance by 4%. 2% (here you will get thirsty) decreases your performance by 10%. 4-6% decreases your performance by 20-40%.

From 6% loss of sweat you will get cramps, headache, feel exhausted and eventually lose consciousness.

(2% bodyweight is around 1,6 litre for an average 80 kg man. If you run 20 km in normal temperatures, this is the amount of fluid you will lose)

The only solution is to drink, before, during and after training. It is possible to refill the loss during the effort up to 30-70%. The reason for not drinking is not enough time, not having water available or just the lack of thirst. The sweat loss will depend on the atmospheric humidity, wind, body condition, weight, effort, clothing,... Note that moistening the mouth will eliminate your thirst, but not solve your dehydration problem.

Without going into detail, you need sodium in the liquid you drink. It will make you compensate the loss of sodium by sweating, increase your desire to drink and restore the osmotic balance in your body. A good sports drink contains up to 400-1100 mg/sodium/litre.

Not enough sodium will make you nauseous, make you vomit and give you a headache.

Scientifically proven; the best sports drink is low fat milk with some chocolate.

Hormones:

Testosterone: The male hormones are responsible for the growth of the muscles, skeleton, production of red blood cells, concentration, aggression, ant-social behaviour, dominance, energy, libido,...

To boost the natural production you need to stay physical active (strength sports!), have sex (lack of sex decreases the testosterone production), feed well (alcohol and not enough fat will decrease testosterone production), perform (winning increases the testosterone level even as a supporter)

Attention: too much physical activity will slow down the testosterone production and produce cortisol (which will happen during the Q-course)

The perfect balance is a well-trained, muscular body with low body fat.

Cortisol: digestion of food (process of transforming proteins into amino acids → glucoses), biorhythm, immune system.

Is released at every form of stress, as well physical as psychological stress. Stress produces adrenaline and noradrenaline which will prepare the body to fight or flee.

A short increase of cortisol is beneficial for the body but sustained high cortisol levels have a very negative impact on your health.

On short term; cortisol will give you extra energy, better memory, more active immune

system and makes you less sensitive to pain. On the long run, there are lots of negative effects such as decreased intellectual performance, disturbance of the blood sugar level, high blood pressure, overweight and a disturbed immune system.

Adrenaline: hormone and neurotransmitter which is released by stress but also in case of anger, cold, heat, pain or physical effort. Harmful in high doses but necessary in many cases to increase your alertness and give you more energy.

Starvation mode:

The Q-course will put the candidate's body in starvation mode. At any given moment, you will consume more calories than you can compensate by eating. This calorie deficit together with the increased physical effort and the lack of sleep will put the body under excess stress, which over weeks and long periods of time means the body will have to compensate and adapt for this stress in order to survive.

When it comes to hunger cravings and weight control, we depend on various hormones and cell signaling from the hypothalamus and pituitary gland. These glands send out signals and hormones to the thyroid gland, adrenal glands, and gonads, creating a coordinated hormonal system that can coordinate our metabolism.

As your metabolism starts to adapt to calorie restriction or excessive calorie combustion, it undergoes metabolic compensation - a natural physiological response to starvation. Here's where you'll start to feel the hunger cravings and some occasional drops in energy- which are being caused by a decline in action from your thyroid hormone. Metabolic compensation which when worsened turns into metabolic resistance can be identified by symptoms such as:

- ✓ Your metabolism slowing down
- ✓ Hunger cravings and occasionally low energy
- ✓ Weight loss comes to a stop and your body seems to be able to do the same effort with less calories.
- ✓ Binge eating will take place as you feel, voluntary or subconscious, you have to compensate the loss or take in reserves for the days to come. You're more energetic at night and your sleep pattern is disturbed.

It will take several weeks after finishing the Q-course getting your metabolism back on track. Listen to your body and make sure you're recovering especially if you are suffering from fatigue at this point.

Metabolic damage is the final stage and the most serious and longer term consequence of long term low calorie deficit and fatigue. If you're suffering from metabolic damage you'll find yourself agreeing with a lot of the below:

- ✓ You're no longer losing weight
- ✓ You may be gaining weight even though you eat and consume the same. (water retention)

- ✓ Your immune system is breaking down, you become more vulnerable to bacterial or viral infections (cold, flue, infected wounds, inflammations, constant fatigue)
- ✓ You suffer from digestive discomfort
- ✓ Your sleep pattern is completely out of whack. You fall asleep everywhere but you cannot sleep for more than two hours.
- ✓ You feel depressed and demotivated with no energy and constant fatigue (testosterone production falling back)
- ✓ You're dizzy, feel nauseous and light headed. (low blood sugar level)

If you have several of these symptoms you may be suffering from metabolic damage or adrenal fatigue.

At the moment your thyroid gland may be suffering from hypothyroid, hypothyroid and even autoimmune thyroid conditions and your adrenal glands are under a great deal of stress.

The reason your body reacts like this is pure survival.

The consequences of metabolic damage are both mental and physical. Recovering from the damage means eat more and exercise less. Sleep and calories are needed but pay attention; Coming out of this metabolic damage condition, your body will store fat rapidly which will result in a massive increase in weight. If you want to maintain your weight you need to increase your calories and decrease exercise levels at a very slow rate- monitoring the reaction of your body along the way.

WHO DARES WINS – FAR AHEAD