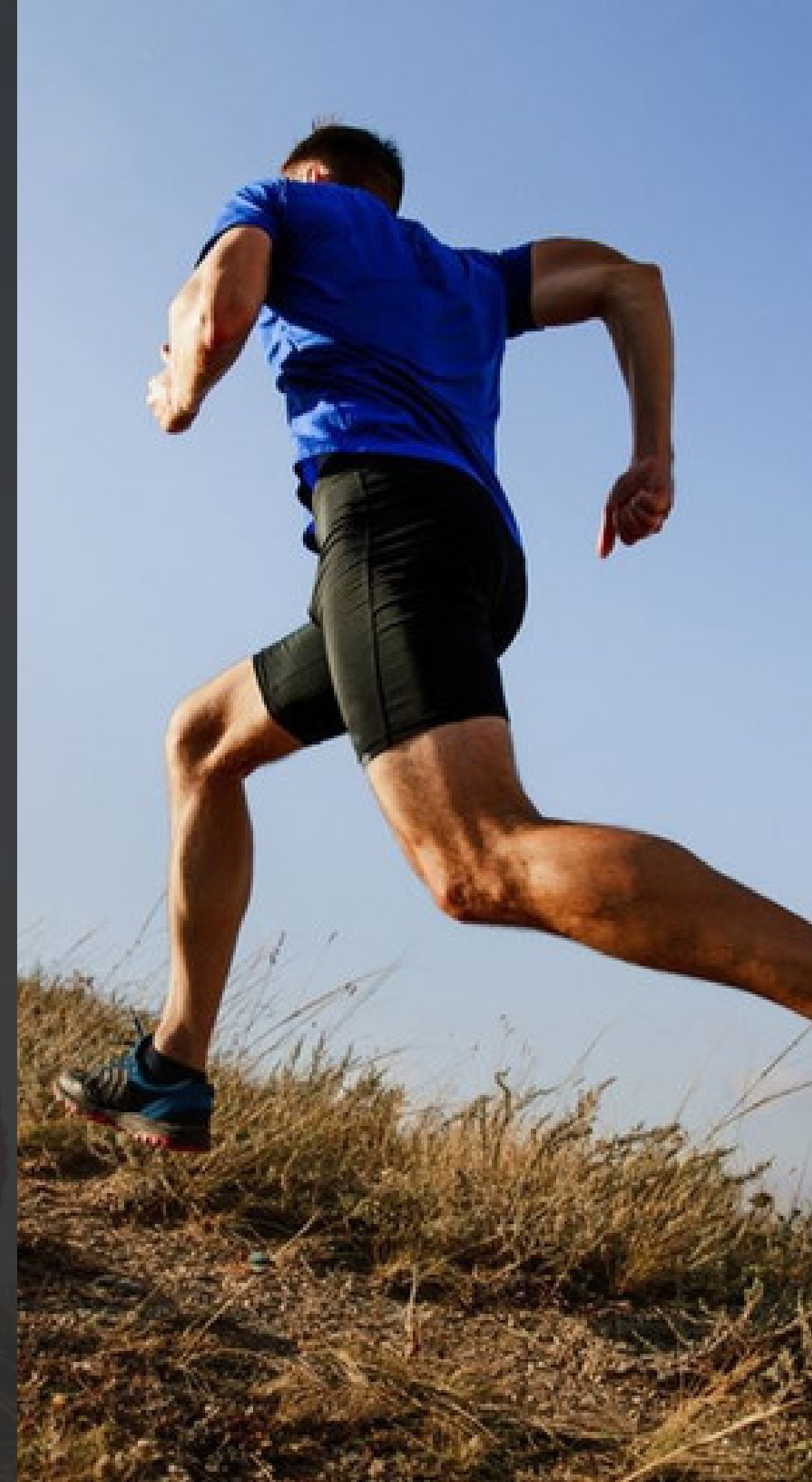
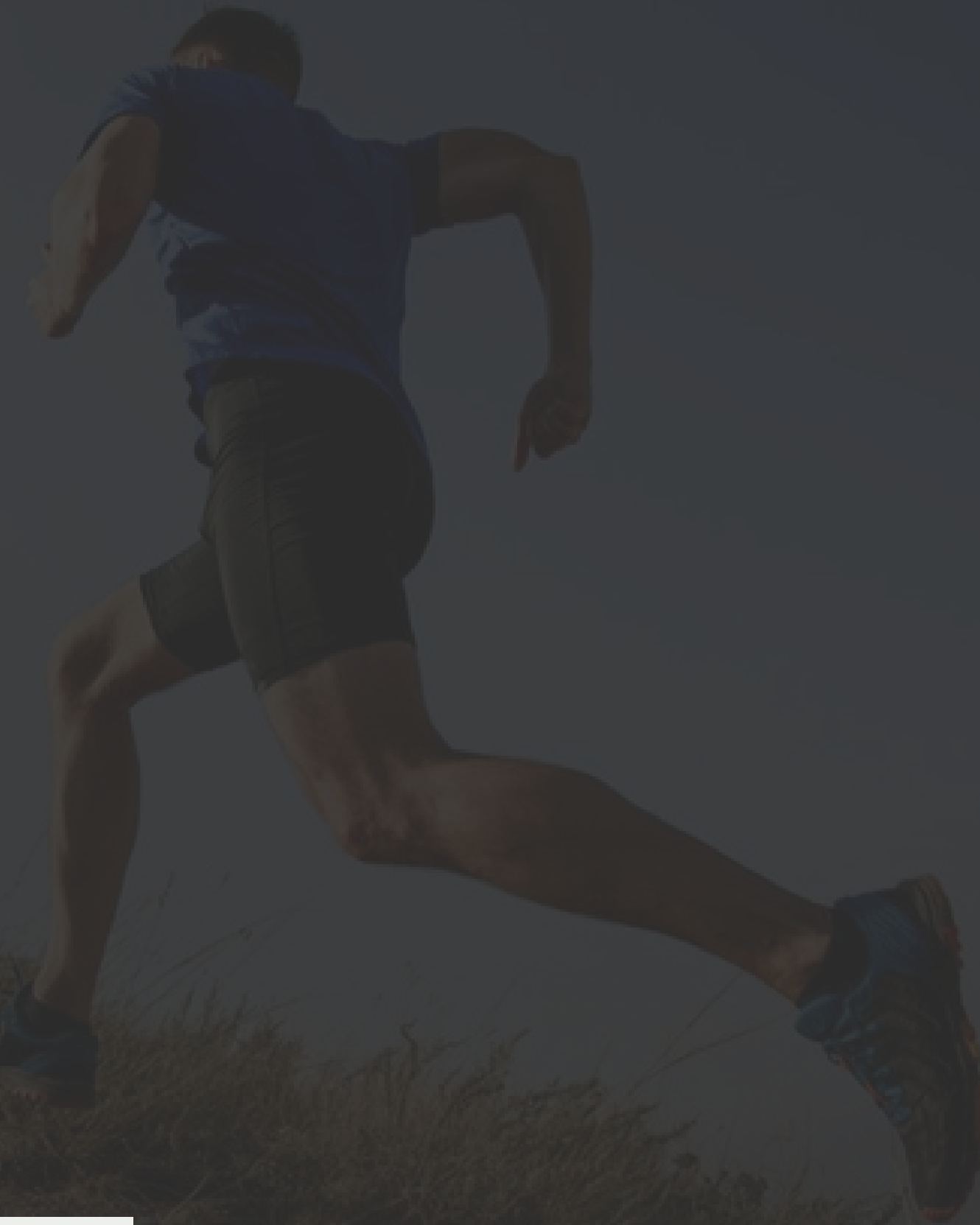




Fitness Preparation for High Altitude Treks

A scientific set of preparatory
guidelines for the best experience

**Are you training
for a specific goal
OR just
performing a
maintenance
fitness regime to
stay healthy?**



TRAINING FOR HIGH ALTITUDE

TOPICS AND HIGHLIGHTS

- Training Goals
- Importance of Aerobic Endurance Training
- The idea of Supercompensation
- Principles of Fitness Training
- Fitness Training Components
- Sample Training Plans
- Q&A

An appropriate mountaineering training is a blend of aerobic, anaerobic, strength, endurance, flexibility, mobility, meditation, and adequate recovery as per the goal set.



Training Goals for High Altitude Adventures

BEGINNER TREKS

altitude:
2500 m - 3500 m

Duration:
8-10 days

Preparation:
8-10 weeks

Examples:
Dayara Bugyal Trek
Chandrakhani Trek

MOD - DIF TREKS

altitude:
3500 m - 5500 m

Duration:
12-18 days

Preparation:
16-20 weeks

Examples:
ABC, EBC, KGL Treks
Tapovan, Goechala

BEGINNER EXPED

altitude:
5500 m - 6100 m

Duration:
12-15 days

Preparation:
20-24 weeks

Examples:
Kangyatse II, Mera,
Kilimanjaro, Elbrus

PROF EXPED

altitude:
Above 6200 m

Duration:
beyond 15 days

Preparation:
24 -52 weeks

Examples:
Mt. Island, Mt.
Aconcagua, Everest

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Benefits of High Aerobic Capacity

GLYCOGEN

Conserves glycogen stores and encourages fat burning

RECOVERY

Helps in better recovering from physical exertions

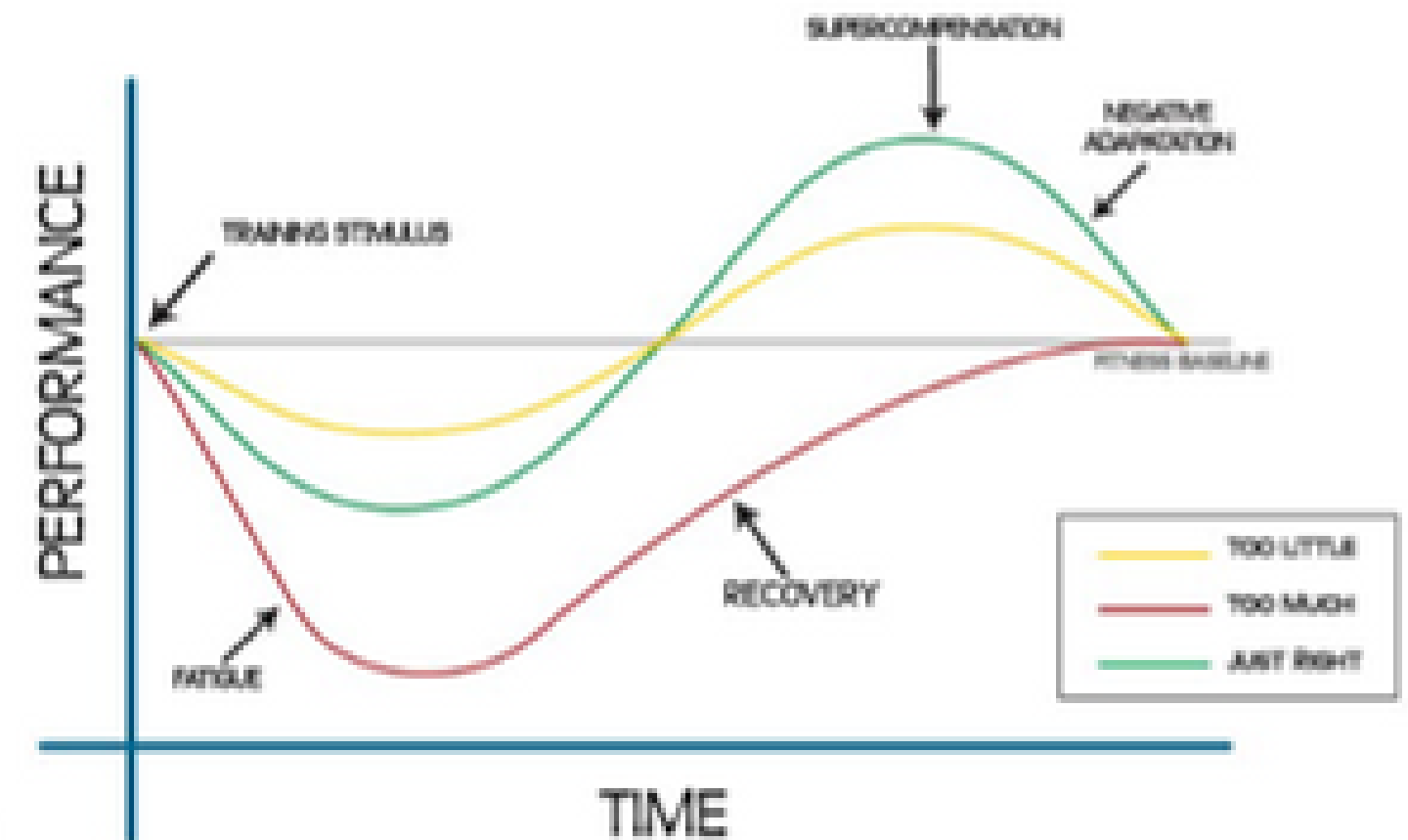
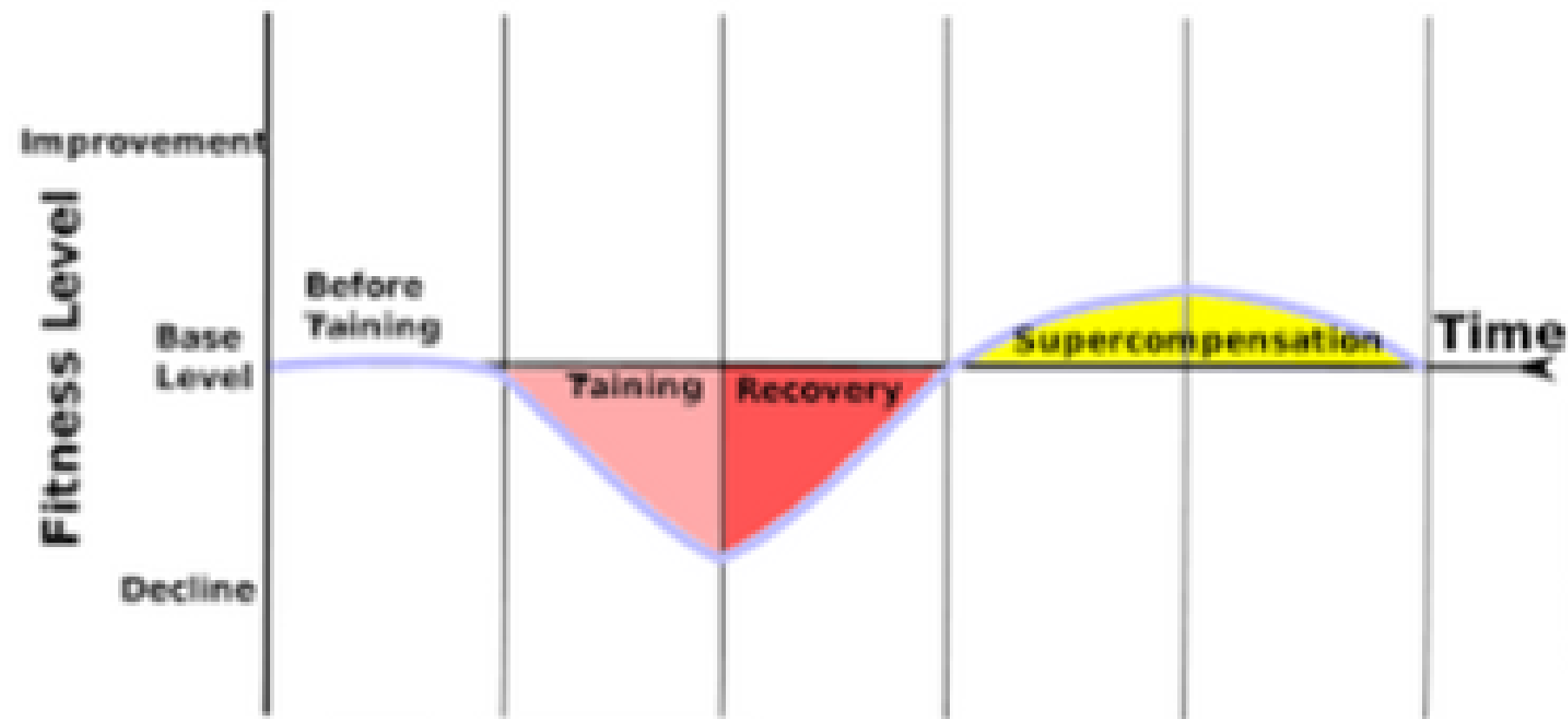
STRESS

Low oxidative stresses that encourages anti aging

HIGH ALTITUDE

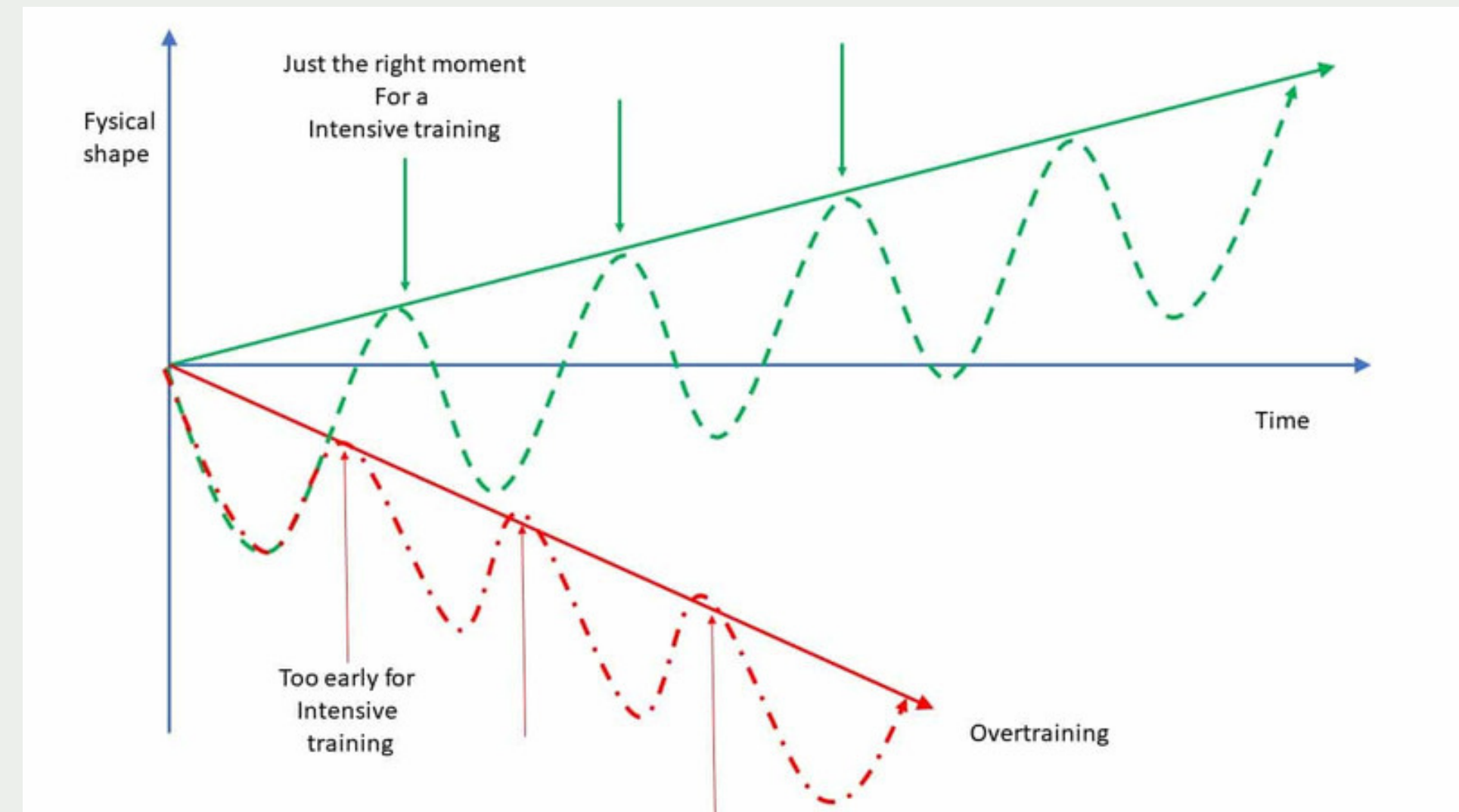
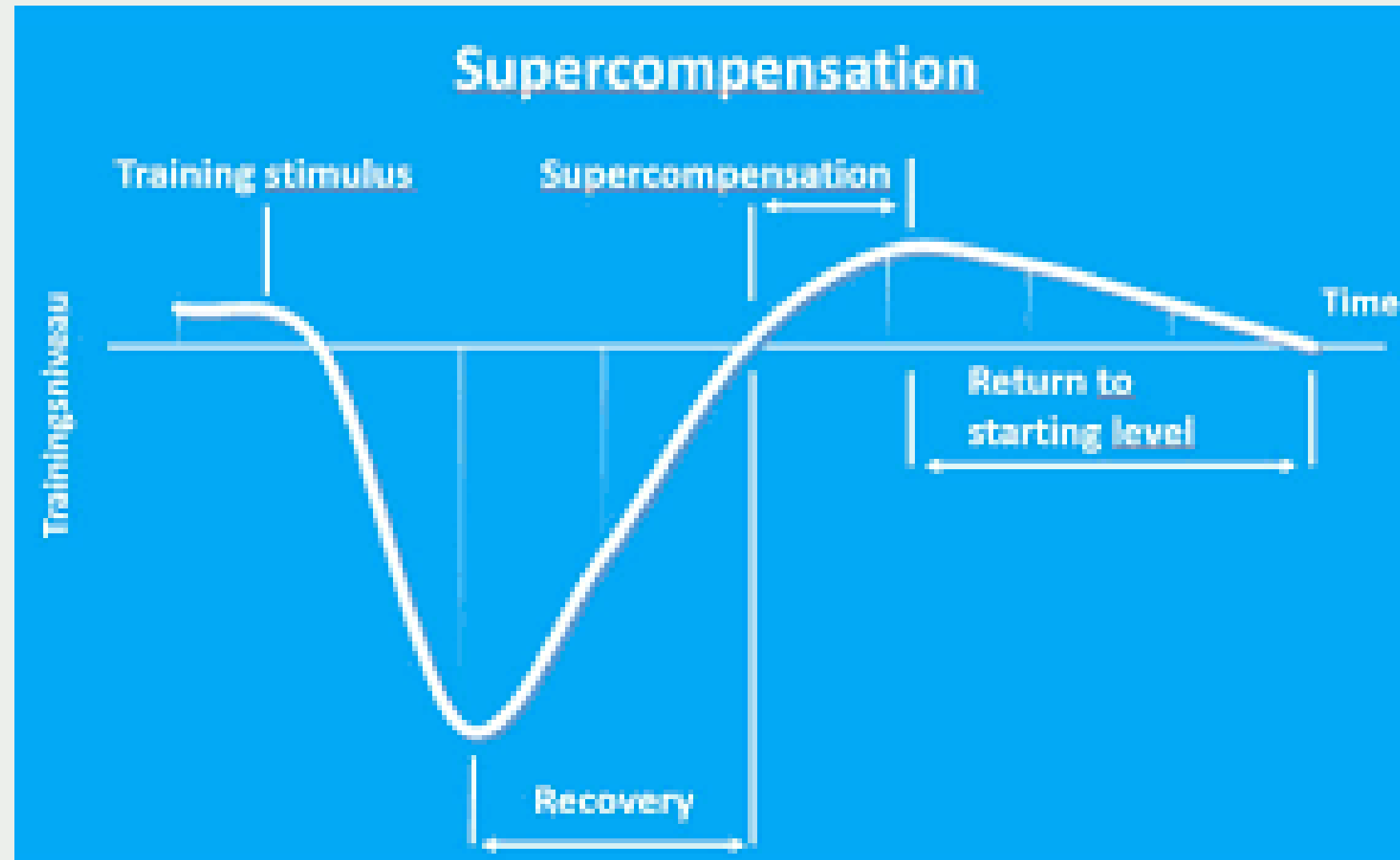
New research hints that better aerobic high capacity is good for adapting to high altitudes better

- Improving our aerobic capacity to continue efforts for more duration of time at 55–60% of your maximum Heart rate
- Developing Anaerobic Threshold (Lactate Threshold)– the point where our Body starts accumulating Lactic Acids



SUPERCOMPENSATION

Supercompensation is the adaptive response of our bodies to a training programme. In other words, by training hard and getting your work-to-recovery balance right, you will achieve better results. Each individual will have their own optimum level of exercise and recovery to increase their base fitness level over time.



Adaptation occurs only during the rest. If the next training stimulus is applied when the body isn't recovered, there can be overtraining, leading to a negative supercompensation

Principles of Fitness Training



INDIVIDUALITY

Every person is unique and requires unique set of training regime to achieve the desire fitness



SPECIFICITY

The training must be goal specific. If you are preparing for a Himalaya trek, swimming workout wont provide the results



PERIODIZATION

There should be periodization in terms of intensity, duration of activities as required by the specificity.



PROGRESSION

Training effect takes place only when you do it more than you normally do

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GRADUAL LOADING

Manipulating Frequency, Intensity, Time, Type (FITT) & complexity you can gradually manage the training load



REVERSIBILITY

Use it or lose it. Over 4 months of detraining can drastically reduce the fitness levels. Endurance is lost rather at a faster rate than the strength



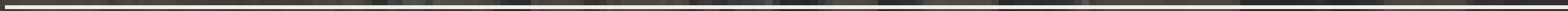
VARIATION

Variation in training activities is important to keep the athletes motivated



REST & RECOVERY

Training adaptations occur only during the rest phase and not during the training



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Athletes who are sleep deprived are at risk of losing aerobic endurance and may experience subtle changes in hormone levels, which can lead to higher levels of cortisol (a stress hormone) as well as a decrease in human growth hormone, which is active during tissue repair.

Specific Training Component: CardioVascular



TREKKING

Best goal specific trainig



BRISK WALKING

Most suitable for improving
the metabolism, overall
health and recovery after
training



RUNNING / JOGGING

Most ideal for improving
cardiovascular strengthening
and improving anaerobic
endurance

Specific Training Component: Skeletal Muscular



VERTICALS WITH WEIGHTS

Do as much vertical climbing with backpacks as possible.



WEIGHT TRAINING

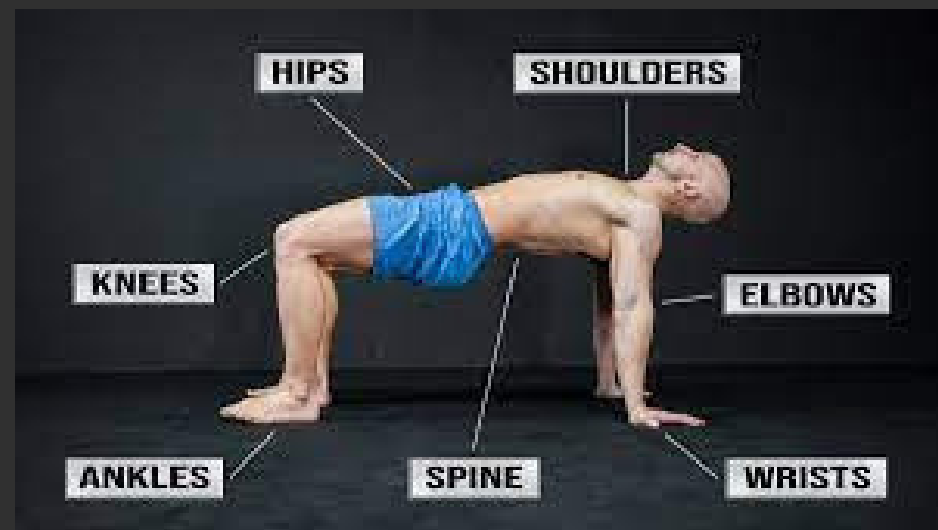
Should be performed under supervision. Helps in strengthening and toning of the muscles.



BODY WEIGHT TRAINING

Can be practised even at home. But recommended with guidance for the best results

Specific Training Component: Flexibility - Mobility



MOBILITY

mobility is the ability to actively achieve an extended range of motion dynamically. Mobility is essentially stretching the muscle using strength to control the movement through a safe range.



FLEXIBILITY

improve the ability of a joint to maintain the movement necessary for carrying out daily tasks and physical activity.

SAMPLE TRAINING 6 WEEKS

WEEK	MON	TUES	WED	THURS	FRI	SAT	SUN
BUILD AEROBIC CAPACITY AND STRENGTH							
• 1	30 min aerobic 20 min strength	60 min aerobic Trek with backpack. 5-6 kg		30 min aerobic walk/jog	30 min strength full body		Trek with backpack 2-3 hrs
• 2	40 min aerobic 20 min strength	60 min aerobic Trek with backpack. 5-6 kg	OFF	40 min aerobic walk/jog	30 min strength full body	OFF	Trek with backpack 3-4 hrs
• 3	40 min aerobic 30 min strength	30 min fast uphill Trek with backpack. 8-9 kg		40 min aerobic walk/jog	45 min strength full body		Trek with backpack 4-5 hrs
BUILD ENDURANCE							
• 4	40 min aerobic 30 min strength	35 min uphill Trek with backpack. 10 kg		40 min aerobic walk/jog	30 min strength full body (Sport Specific)		Trek with backpack 4-5 hrs
• 5	45 min aerobic 45 min strength	35 min uphill Trek with backpack. 12 kg	OFF	45 min aerobic walk/jog	40 min strength full body (Sport Specific)	OFF	Trek with backpack 6-7 hrs
• 6	60 min aerobic	30min moderate speed aerobic 30 min strength		Cross Training cycling/swimming play any sport	OFF		Trek with backpack 6-7 hrs

ATTENTION!

- Too much Exercise can be harmful.
- Proper method of doing Exercise needs to be learned from Experts
- Consult your doctor before starting any Fitness plan
- Exercise is beneficial with proper Rest & Proper Hydration & Nutrition
- Food supplements to be used with recommendation by medical/ nutrition advisor.
- Keep your body hydrated. Increase your water intake before going to high altitude.
- Do not hesitate to share your discomfort

RESOURCES FOR USE

SAMPLE 4 MONTH FITNESS TRAINING PLANS

GUARDIAN GIRIPREMI INSTITUTE OF MOUNTAINEERING 

4 month Training Programme for Himalaya Treks



Hope you are excited for your upcoming adventure. But before you take on the actual challenge, let me tell you an important thing. There is a difference between doing general exercise and training for a specific goal. Here, we are intended to pursue our Himalayan Adventure or any high-altitude expedition, a specific goal. So it needs training, a methodical training. And that is what we have tried to offer you here. We are sure you all have been doing some level of fitness activities to stay active and fit. But final four months are going to be very crucial in deciding your performance at high altitude. Here is a sample training module that you can follow on your own. You can modify add/delete as per your fitness level.

1st, 2nd and 4th weeks: Enhancing basic fitness level

Stamina training: (Mon - Wed - Fri) you can opt for any of the following options. Variations will keep you away from boredom. You can choose any of the following aerobic activities

- Jogging (45 min)
- Trail run (uphill-downhill) 20-25 min
- Cycling (90 min)
- Step climbing (400 steps, approx. 1 hr)

Strength training: (Tue - Thurs) after workout take a break of 48 hrs before starting a new set.

- Pushups (2 sets of 10)
- Crunches (3 sets of 10)
- Pull ups (2 sets depending on your capacity)
- Squats (2 sets of 15)
- Plank position (2 sets - 30 sec) (Hold your body in plank position for 30 sec)
- Suryanamaskar (2)

Flexibility: daily


- Stretching (to be performed before and after the session)
- Yoga asana (optional)

Mental preparation:


- Meditation
- Breathing exercises

Do 1 easy- moderate level trek

Stretching Exercises



- 1. Neck Flexion/Extension Stretch**
(forward, then back)
- 2. Neck Lateral Flexion Stretch**
(one side, then the other)
- 3. Latissimus Dorsi and Posterior Deltoid Stretch**
(link hands, push elbows together)
- 4. Triceps Stretch**
(pull elbow across and down)
- 5. Shoulder Rotator Stretch**
(using towel, pull up with the top arm then down with the other)
- 6. Pectoral Stretch at 90° and 120°**
(use a doorway or post)
- 7. Bicep Stretch**
(hands apart)
- 8. Supraspinatus Stretch**
(keep elbow parallel to ground)
- 9. Wrist Extensor Stretch**
(tilt head to opposite side, keep elbow straight)
- 10. Thoracic Extension Stretch**
(reach forward with arms, push chest towards floor, arch back down, backside behind knees)
- 11. Lateral Flexion Stretch**
(one side, then the other, push pelvis across as you bend)
- 12. Lumbar Extension and Abdominal Stretch**
(be gentle if sore)
- 13. Lumbar Flexion Stretch**
(be gentle if sore)
- 14. Lumbar Rotation Stretch**
(rotate legs one side, then the other side, draw in and brace stomach muscles at the same time, breathe)
- 15. Hamstring Stretch**
(straighten leg)
i. with foot pointed
ii. with foot pulled back towards the knee
- 16. Hamstring Stretch**
(commence with knee slightly bent, then push knee straight as tension allows, push chest towards foot)
- 17. Adductor Stretch**
(push down with elbows on knees very gently, keep back straight)
- 18. Gluteal Stretch**
(pull knee and lower leg towards opposite shoulder)
- 19. Gluteal and Lumbar Rotation Stretch**
- 20. Quadriceps Stretch**
(keep pelvis on floor)
- 21. Quadriceps Stretch**
- 22. Adductor Stretch**
(keep foot pointing forward, lunge sideways on bent knee, keep back straight)
- 23. Hip Flexor Stretch**
(keep back straight, tuck bottom under, lunge forward on front leg)
- 24. Tensor Fascia Stretch**
(continue to push bottom forward, whilst pushing hip to the side)
- 25. Gastrocnemius Stretch**
(keep knee straight and heel down, feet facing forward)



**The quest of a
mountaineer in the
simplest terms is,
for the Freedom of
the Hills..**

- Mountaineering
The Freedom of the Hills



GET IN TOUCH WITH US

FOR MORE DETAILS:

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**THANK
YOU**

**WISHING
YOU
A
SAFE
&**

**ENJOYABLE
HIGH ALTITUDE
ADVENTURES!**