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Extreme sports in Extreme conditions

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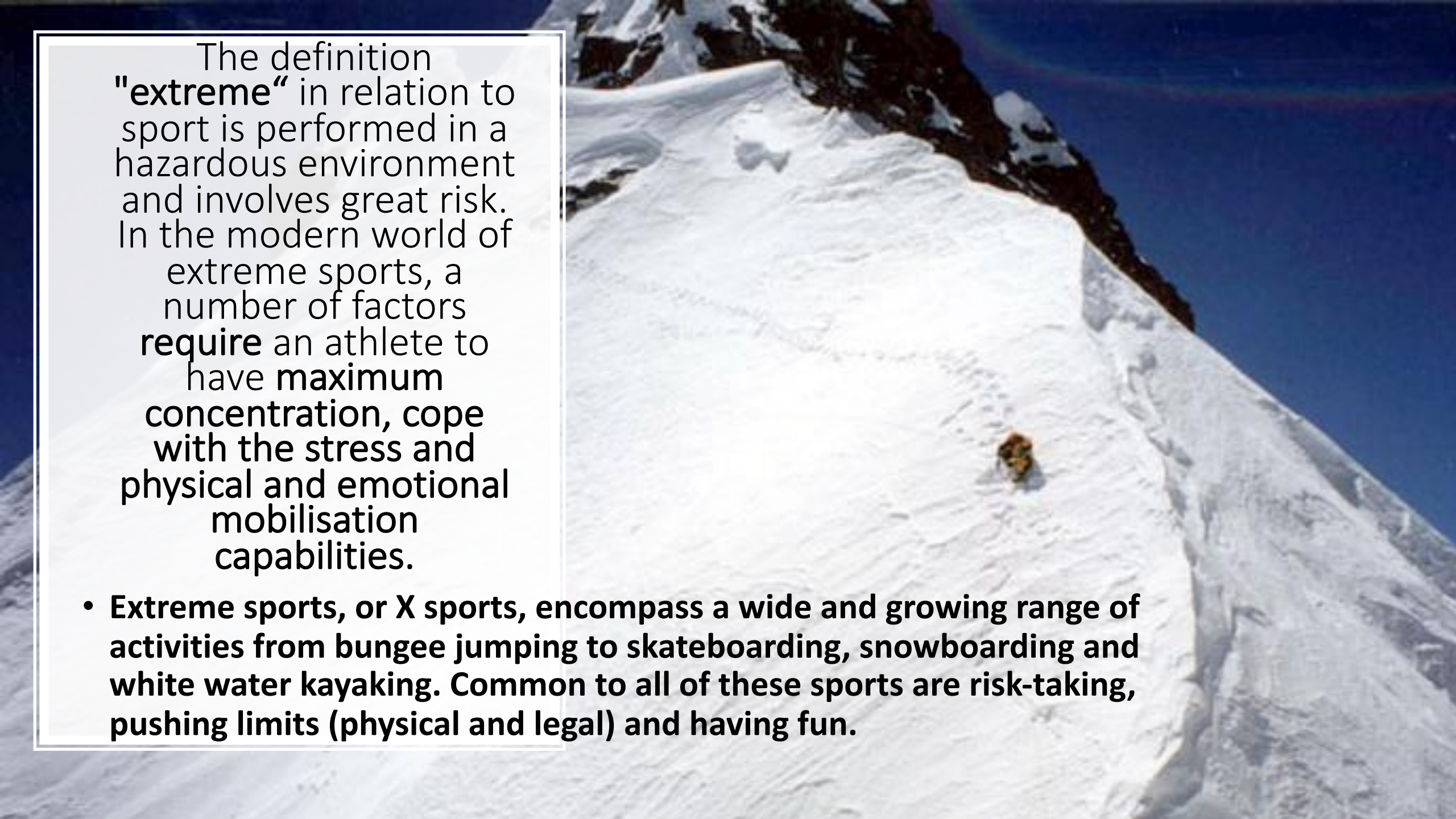


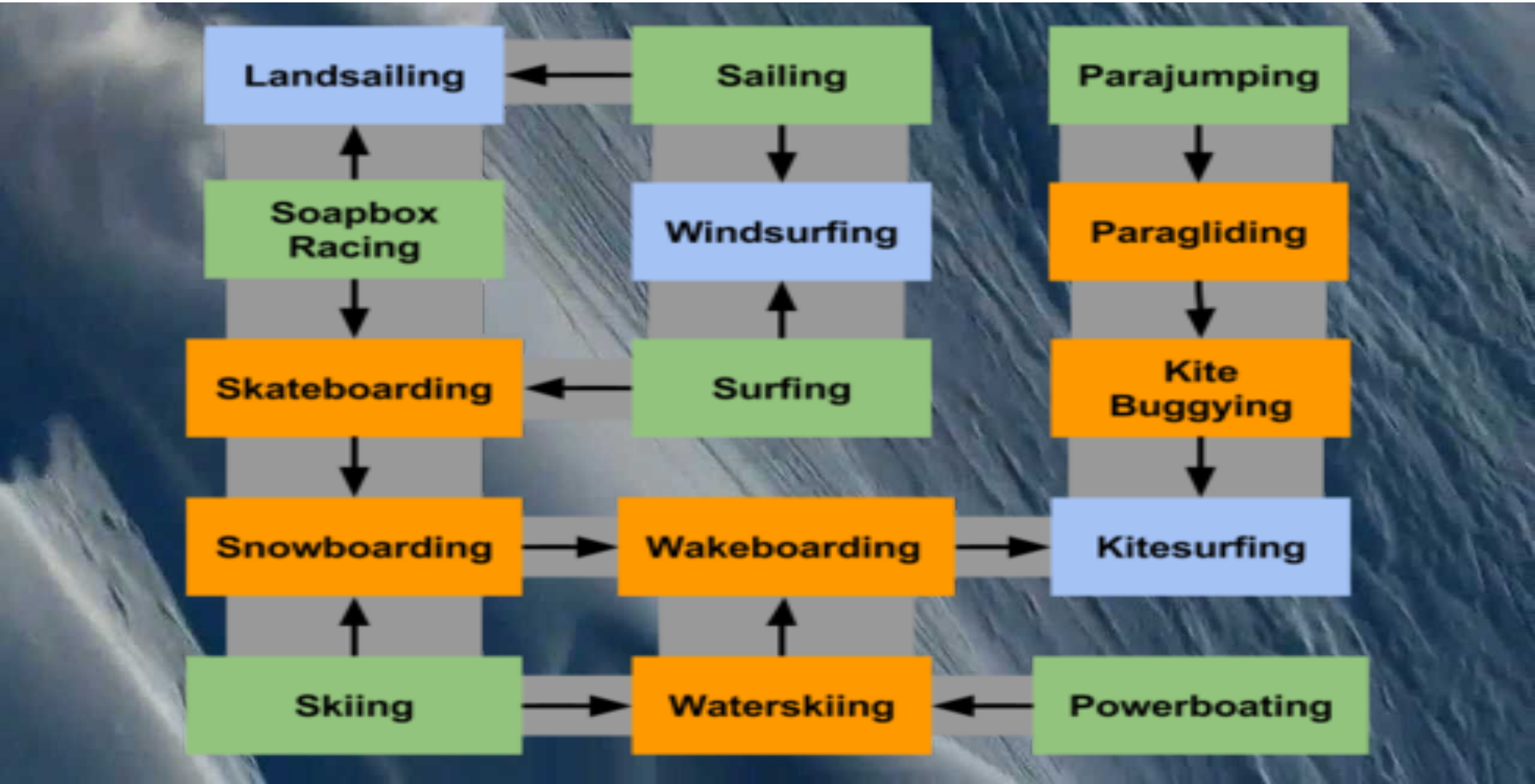
The definition **"extreme"** in relation to sport is performed in a hazardous environment and involves great risk. In the modern world of extreme sports, a number of factors **require** an athlete to have **maximum concentration, cope with the stress and physical and emotional mobilisation capabilities.**

- **Extreme sports, or X sports, encompass a wide and growing range of activities from bungee jumping to skateboarding, snowboarding and white water kayaking. Common to all of these sports are risk-taking, pushing limits (physical and legal) and having fun.**

Overview of Extreme Sports

1.Trekking
2.Paragliding
3.Rock Climbing
4.Mountain Bike
5.Snorkeling
6.Hot Air Ballooning
7.Hand Gliding
8.Wind Surfing
9.Canoeing
10.Sailing
11.Sky Diving
12.Surfing
13.Bungee Jumping
14.Scuba Diving
15.Snowboarding
16.Skiing

Origins/Evolution Of Major Extreme Sports



- Extreme sports are individual rather than team focused. The core values are testing oneself and meeting personal challenges, usually through close engagement with the natural environment. Extreme sports have a strong counter-cultural element, with participants often snubbing authority and conventional sporting values.

- According to a number of researchers [Medvedev, 2008;O. Romashin,2004; M. Dobson, 1992, Malashenkova, 2003 etc], sustainability of organism under extreme conditions is determined by the **reserve capacity of its functional systems**. However, in recent years the scientific evidence, indicating a very high variability of individual human resilience to various environmental factors.

The reserve abilities of the human body

The remaining capacity of an organ or body part to fulfil its physiological activity

- There is a parable about the two frogs caught in a jar with cream. One did not adjust with its plight, ceased resistance and died.
- The other frog continued to jump, although its jumps seemed pointless. Under the blows of the frogs feet, the cream has thickened, gradually turning into a lump of solid butter.
- Frog has gained support and jumped off of the jar.

Scientific and technological progress and personal motives dictate individual's penetration in extreme conditions, such as Highlands, water depth, caves etc. In some cases, the effect on the body from these variables can cause adjustment disorder. These effects apply the term "extreme conditions", which refers to the extreme natural conditions (i.e. temperature, wind, altitude, speed, atmospheric pressure, hypoxia) as well as other actions affecting the human body to the brink of portability. Resistance to physical stress in extreme conditions is an important issue for ensuring the safety of athletes.

- Another key consideration is whether humans can adapt successfully to a given environment.
- If they can, how is this optimised?
- How much is behavioural and how much physiological?
- Can everyone adapt?
- How quickly can people adapt and what are the best markers of adaptation?
- Does adaptation to one environmental stressor provide cross tolerance to another? Is it ergogenic? etc.
- For many extreme environments, these questions have not been satisfactorily answered.

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- Accumulation of knowledge on the subject of individual tolerance of extreme loads will aid in preventing sports injuries, morbidity and improving the effectiveness of training in extreme sports.

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- Over a 5 year period, 966 healthy people were recruited in 6 main stages of the study. All participants during these stages were provided with the same protocols in each series of research as follows; recording concrete influence, feature of course of exchange processes and their neuroendocrine regulation psychophysiological status and level of functioning of cardiorespiratory system.
- In separate stages, depending on private tasks, a set of the applied methods could change.

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In separate stages, depending on private tasks, a set of the applied methods could change.

- *Computer spirometry*
- *ECG, including Holter's monitoring*
- *Research of variability of cardiac rhythm*
- *Echocardiography*
- *Functional condition of cardiorespiratory system*
- *Microcirculatory*
- *Biochemical, hematological, immunologic and endocrinologic research techniques*
- *Psychophysiological research techniques*

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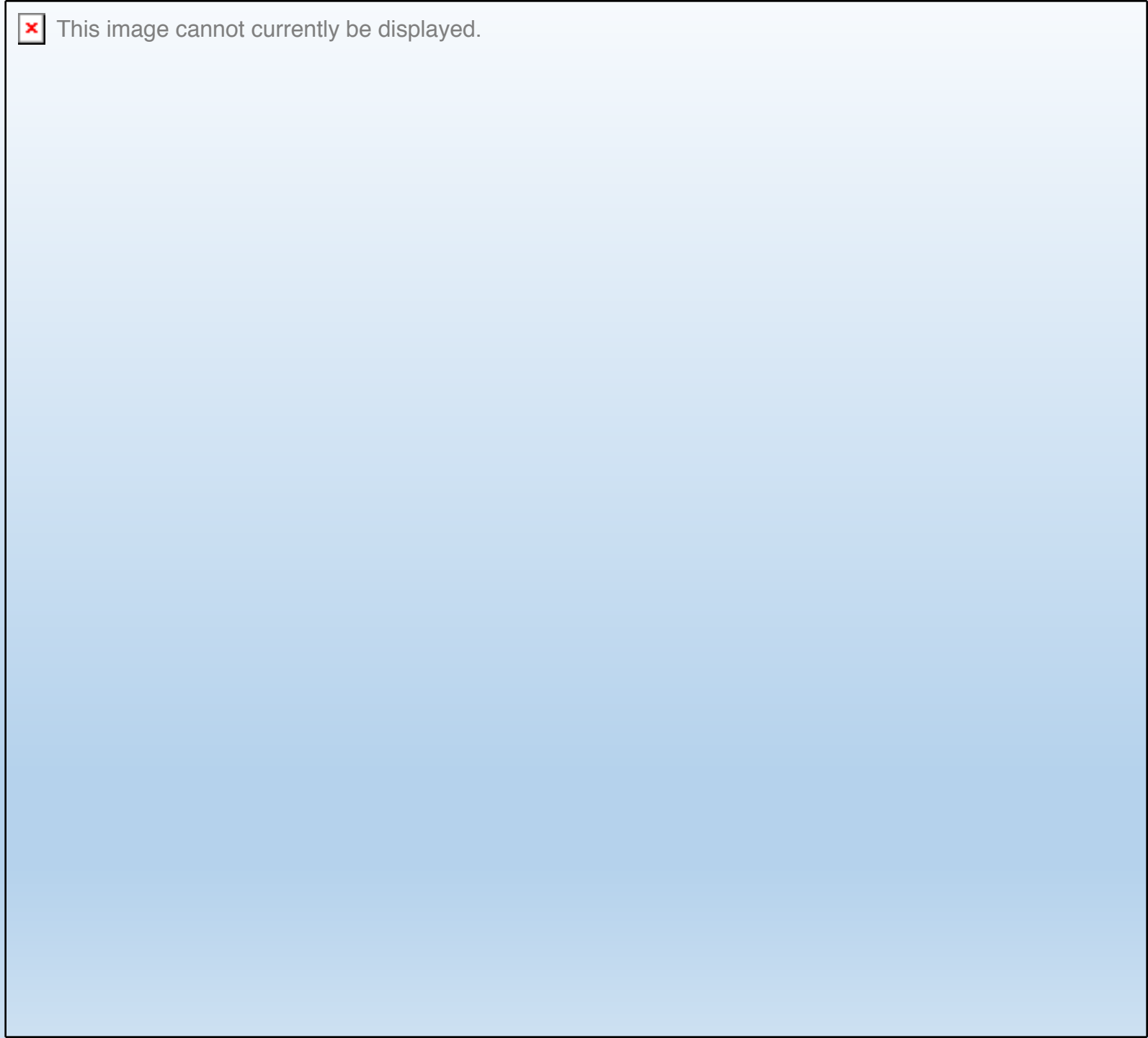
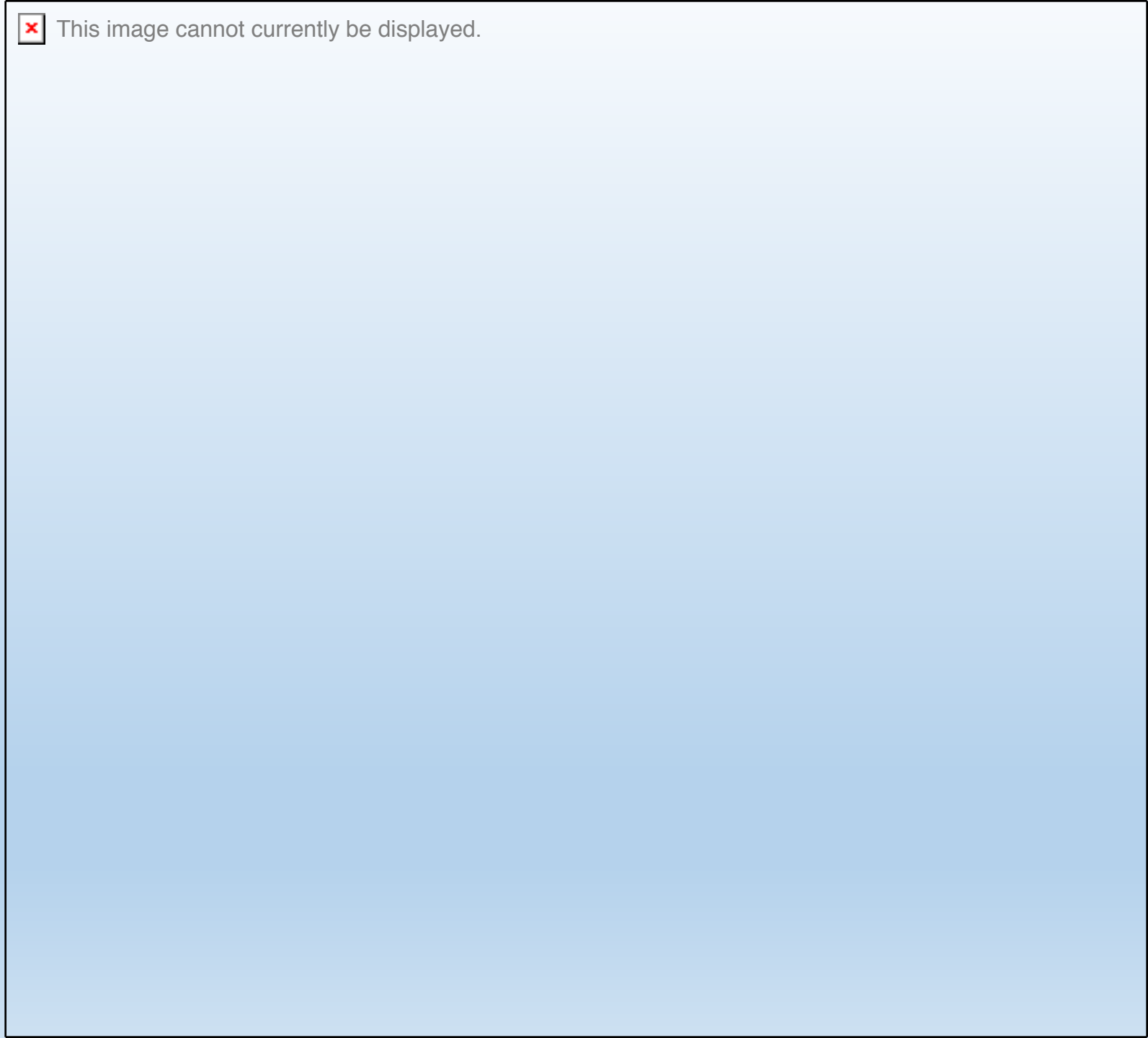
- The numerous dosages of extreme types of recreational sport/activity are very effective in causing formation of long-term adaptation, adaptive reorganisation of regulatory opportunities of an individual and an increase in the functional reserves.



- Data from the study formed the basis of the developed system of the organisational and methodical principles including:
- ***Maximal safety***
- ***Medical monitoring and system of the medical admission***
- ***Advancing screening testing of psycho emotional tension***
- ***Dosage influence on the extreme types of a recreation***
- ***Accounting of a reference functional state of an individual***
- ***A dynamic equilibrium between opportunities of regulatory and compensatory mechanisms and expressiveness a stress-damaging changes in the human body***
- ***Informing on possible psychophysiological reactions of individuals***
- Use of these provisions in practical activities is directed to gain awareness for maximal safety, increase in compensatory and adaptive opportunities, and the functional reserves of an individual and support the need for a healthy lifestyle.

The rapid development of extreme types of recreation, particularly extreme triathlon, has attracted a greater influence of athletes from different age groups, levels of education and health. This increase highlights the development and consideration for the approach to medical and biological problems. Therefore, taking into account the impact on the human body from the variety of factors mentioned, it is important to continue further research in New Zealand.



Questions