Periodization of training in sports

Introduction

Training theory	Exercise physiology	Sport psychology
Sport injuries		Nutrition
Equipment		Biomechanics
Talent identification	Pediatric physiology	Sociology

Introduction

- The definition of training
- The variety of adaptations occurs after different moods of training.
- Flexibility training adaptation

- Aerobic adaptation

- Anaerobic adaptation

What's your idea about the time of recovery?

What's the limiting factor in short to long activities?

What's the physiological determinants of performance (endurance)?

What's your idea about the time of recovery?

- Heart rate and blood pressure will return to baseline values in the hour following exercise.
- After intensive aerobic exercise, 10–48 hours are required for the body to replenish glycogen stores depending on intensity and duration of exercise, whereas 5–24 hours would usually be needed for glycogen replenishment after anaerobic exercise (Koutedakis & Sharp)
- Following resistance training 24–36 hours are required for the muscle to be completely normalized (Viru)
- Recovery of the nervous system, depending on the severity of the stimuli, may take up to 48 hours (McArdle et al).

What's the limiting factor in short to long activities?

Degree of exercise (example)	ATP & CP	Muscle Glycogen	Liver Glycogen	Fat Stores	pH
Light (marathon)	1	5	4-5	2-3	1
Moderate (1500-m run)	1-2	3	2	1-2	2-3
Heavy (400-m run)	3	3	1	1	3-4
Very intense (discus)	2-3	1	1	1	1
Very Intense, repeated	4-5	4-5	1-2	1-2	4-5

NOTE: 1 = least probable limiting factor; 5 = most probable limiting factor

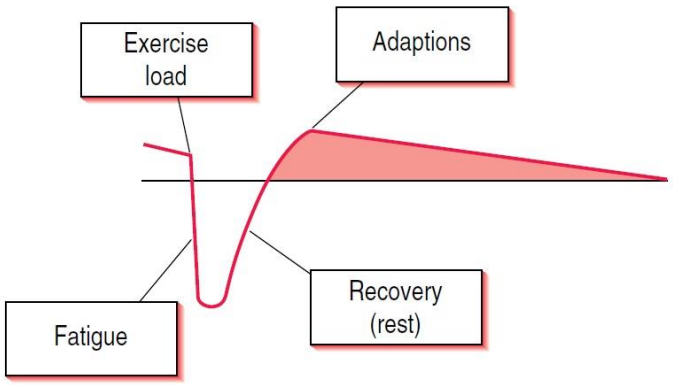
What's the physiological determinants of performance (endurance)?

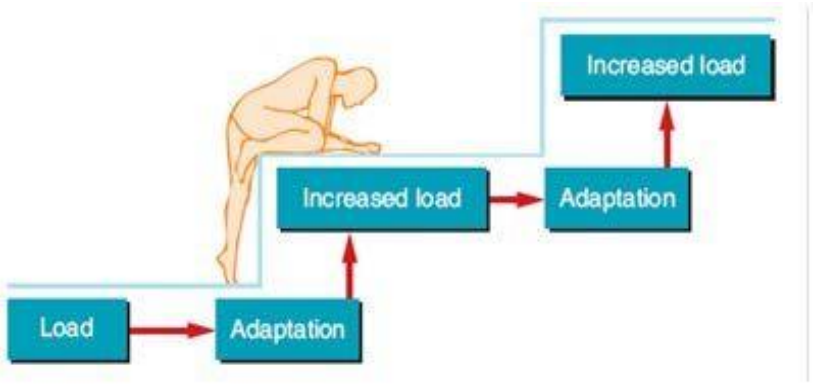
- Physiological determinants of endurance performance:

  - ✓ VO_2max
  - ✓ vVO_2max
  - ✓ Tmax
  - ✓ Time achieve VO_2max
  - ✓ Lactate threshold
  - ✓ vAT
  - ✓ Running economy
  - ✓ Time achieve LT
  - ✓ Fractional utilization
  - ✓ Fuel supply
  - ✓ VΔ50

Introduction

- The principals of overload
- The principals of progressive overload
- The principals of specificity
- The principals of variety
- The principals of reversibility
- The principals of individual differences
- The principals of warm up and cool down





Introduction

- in training periodization there is a hierarchy of terms :

Macrocycle

Period

Phase

Mesocycle

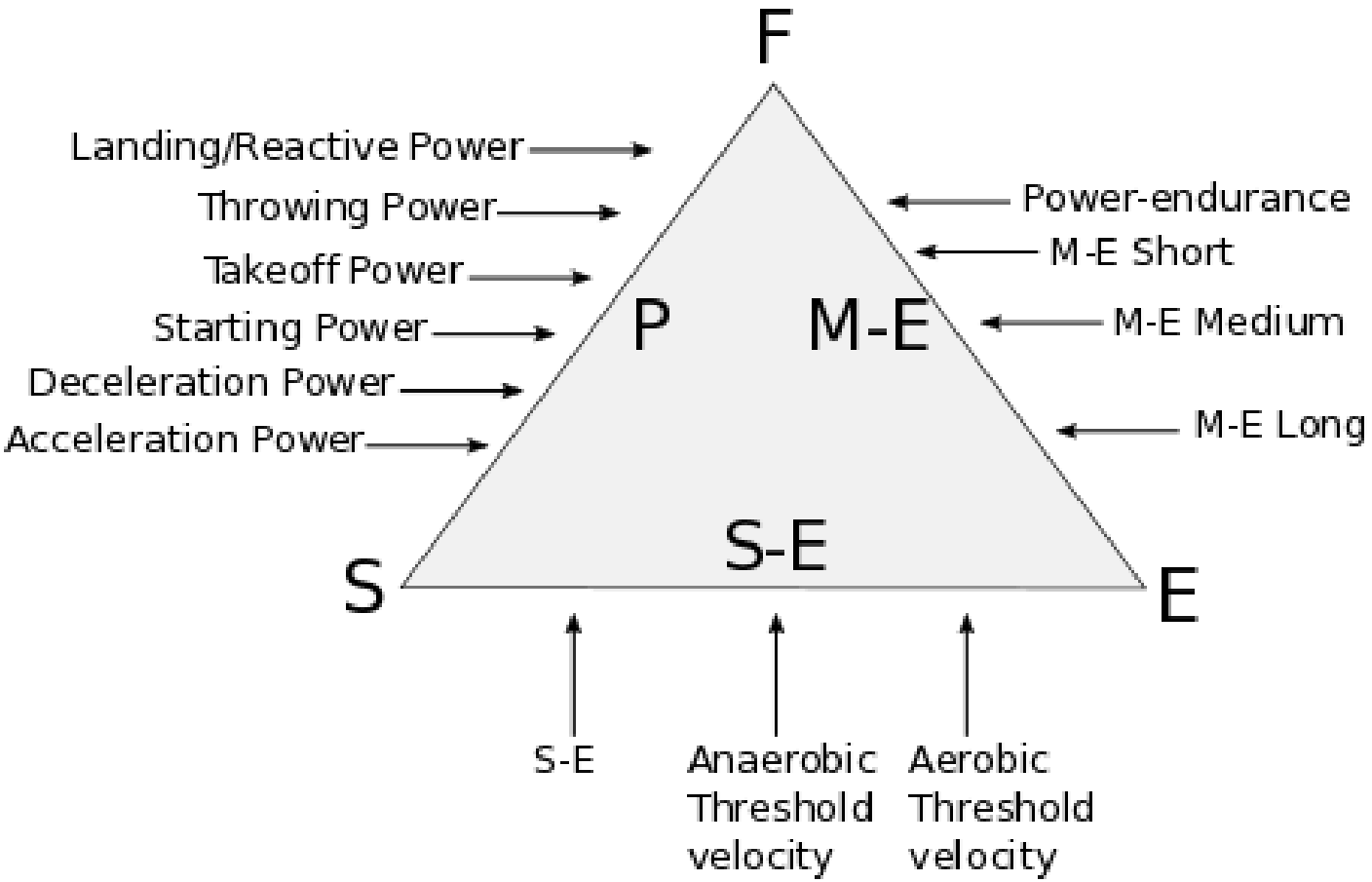
Microcycle

Session

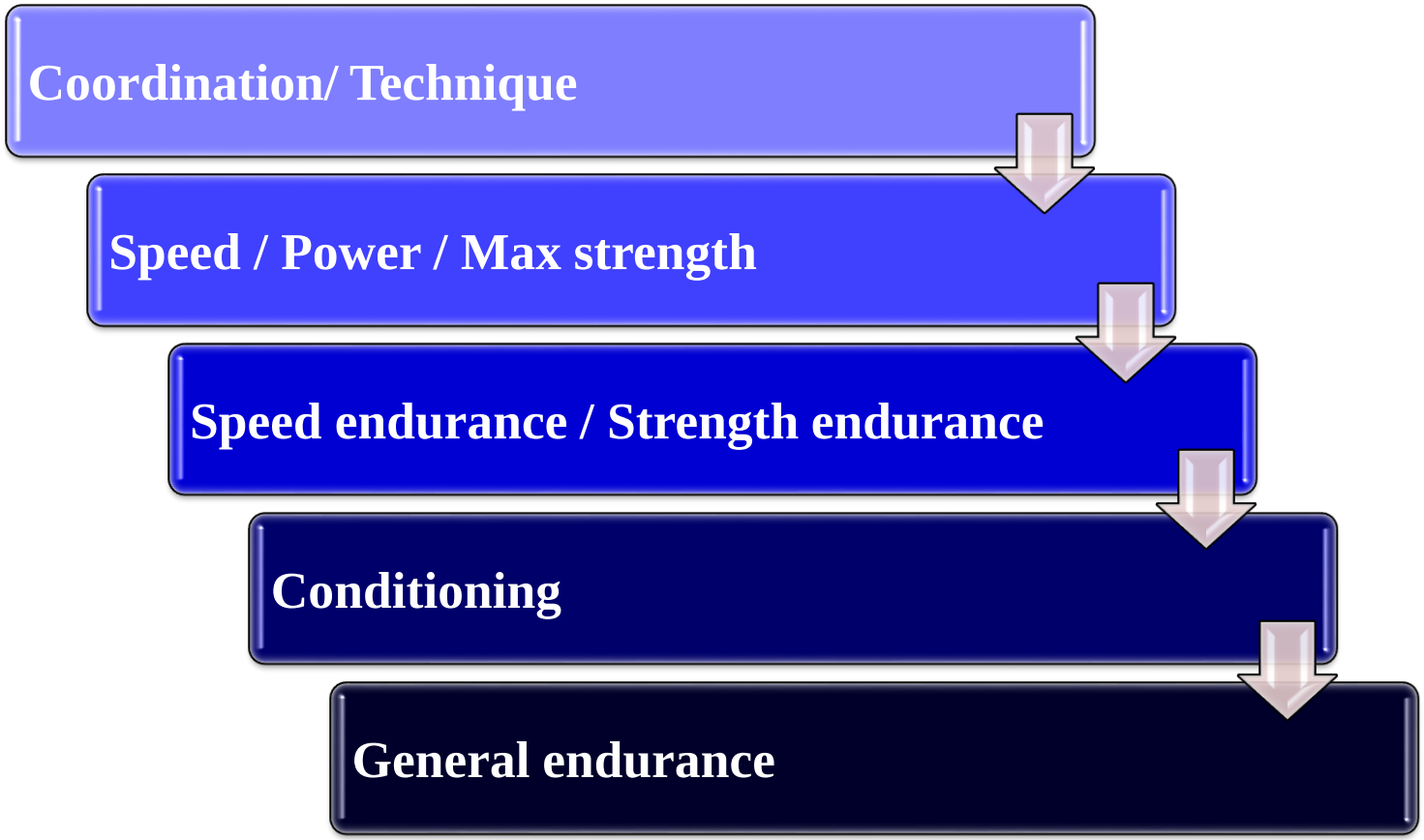
Unit

Fitness components

Fitness components

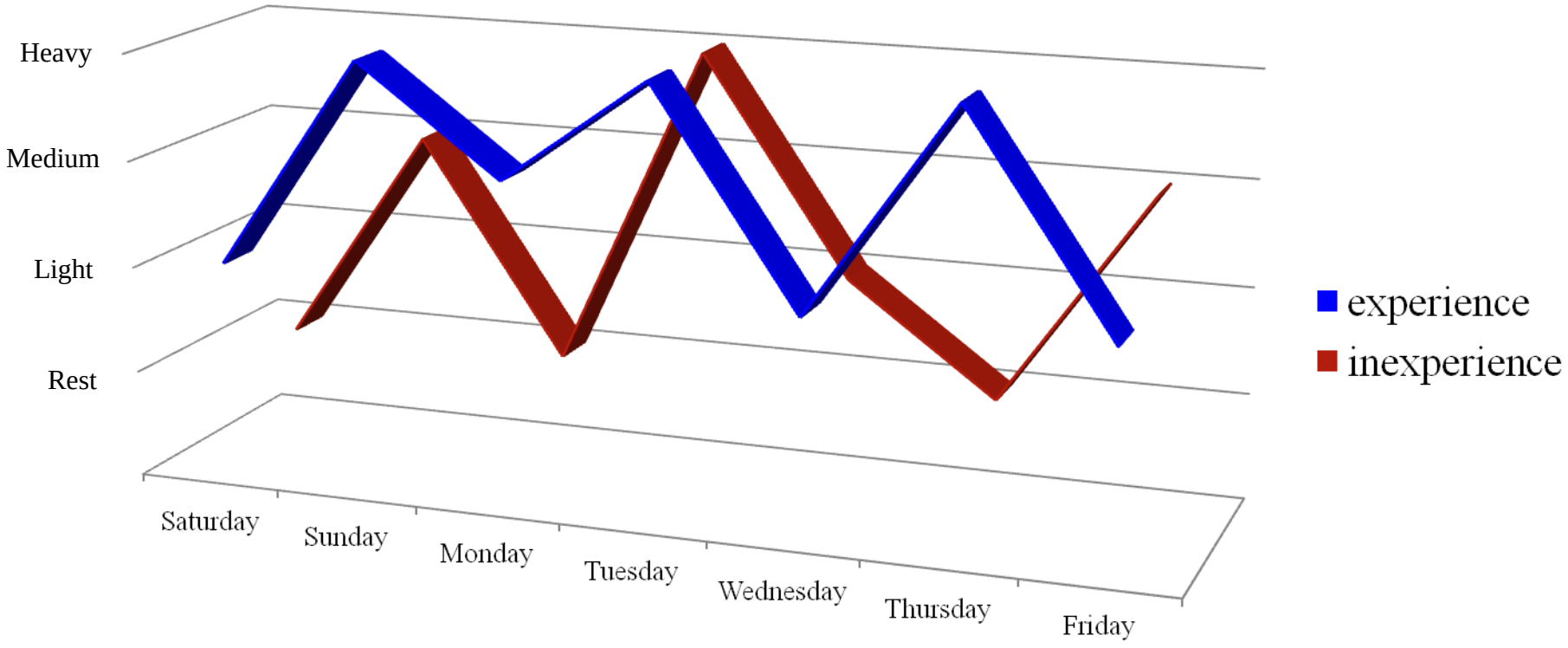


Session


Coordination/ Technique
Speed / Power / Max strength
Speed endurance / Strength endurance
Conditioning
General endurance

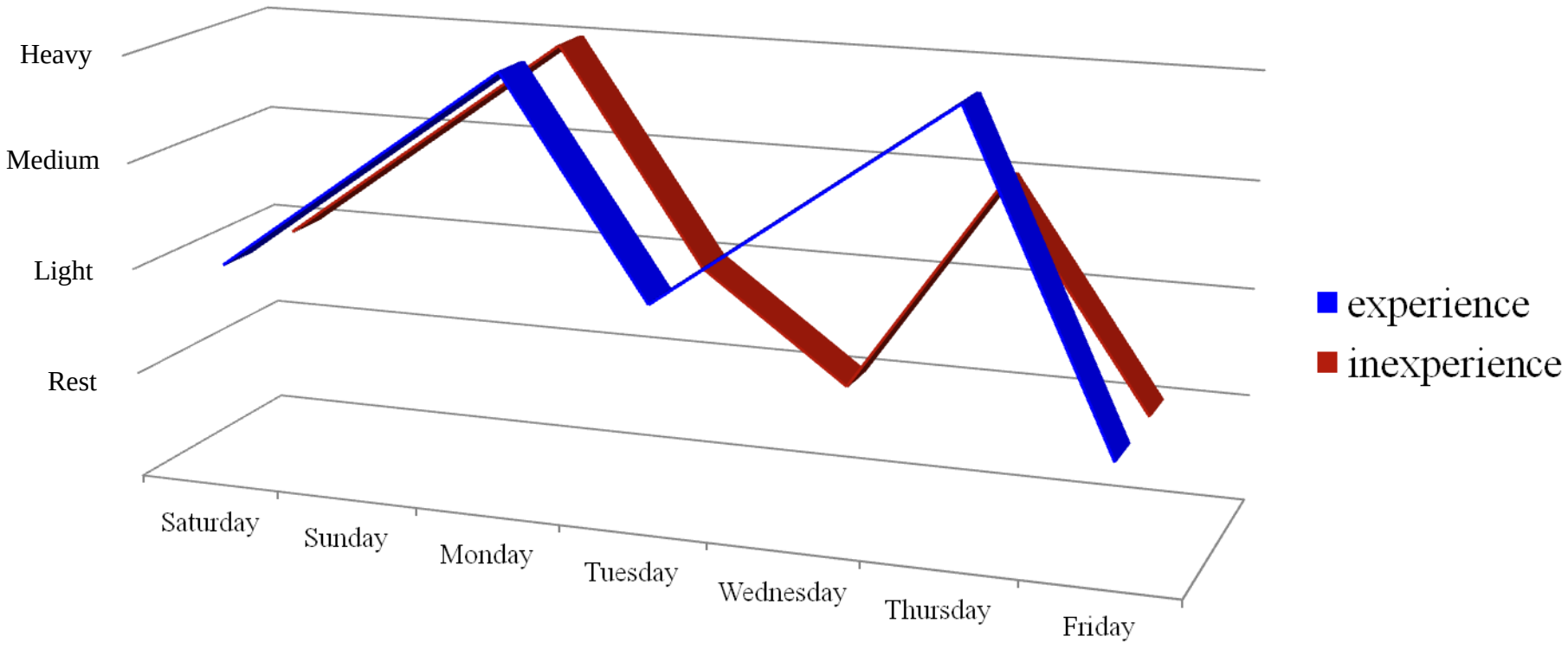
Training periodization

Microcycle – general preparation



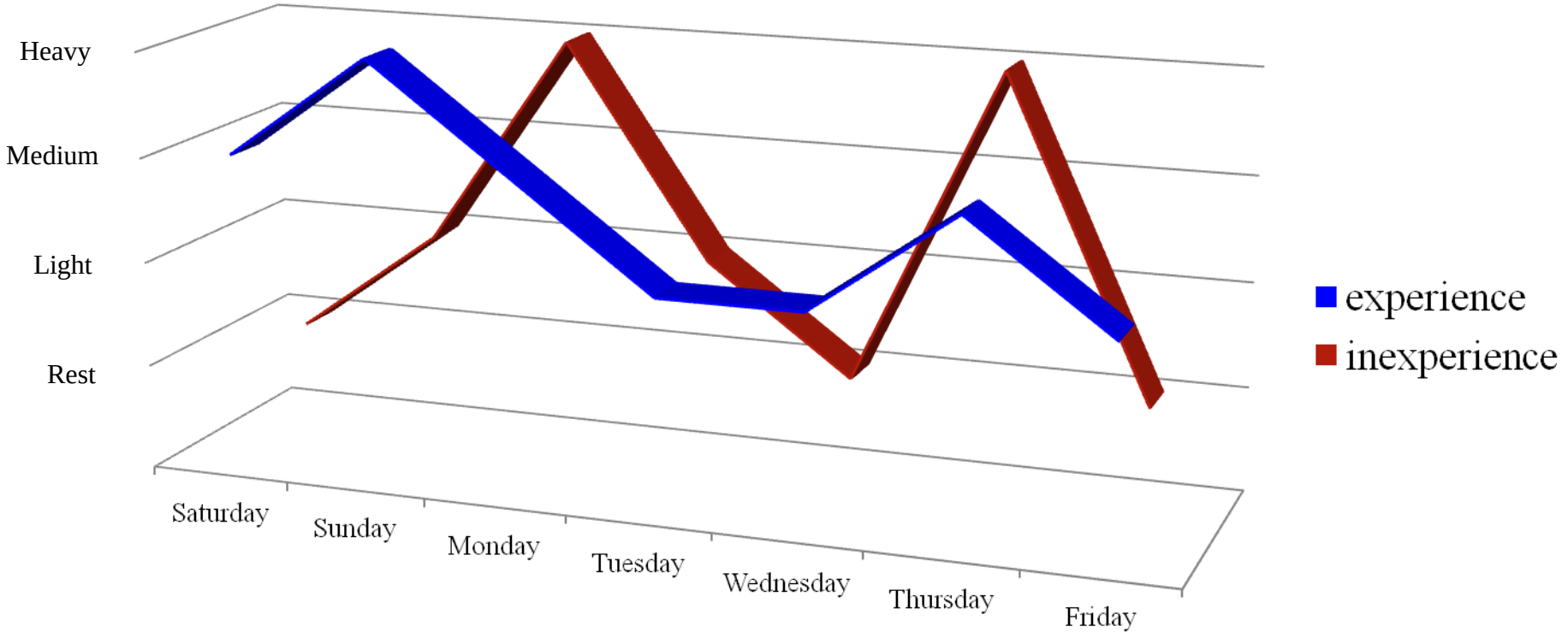
Training periodization

Microcycle – specific preparation



Training periodization

Microcycle - competition



Training periodization

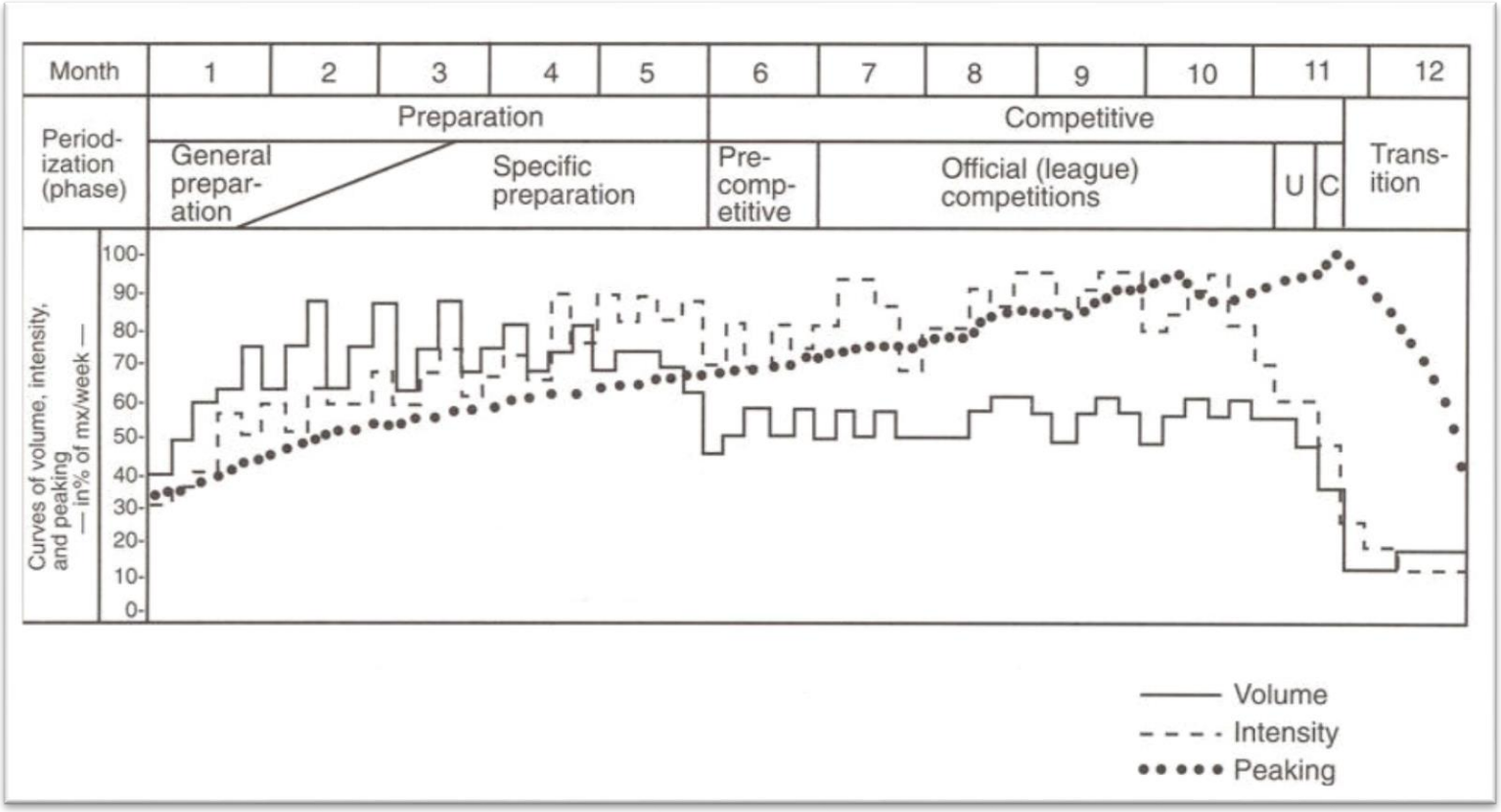
Mesocycle – phase – period - macrocycle

	Preparation		Competition		Tran
	General	Specific	Pre	Main	tran

	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Stamina	75	55	30	25	20	20	15	15	15	15	15	-
Strength	20	20	35	35	35	15	15	10	15	15	15	-
Speed	-	10	15	20	25	40	35	20	15	15	15	-
Skill	-	10	10	10	10	20	30	50	50	50	50	-
Flexibility	5	5	10	10	10	5	5	5	5	5	5	-

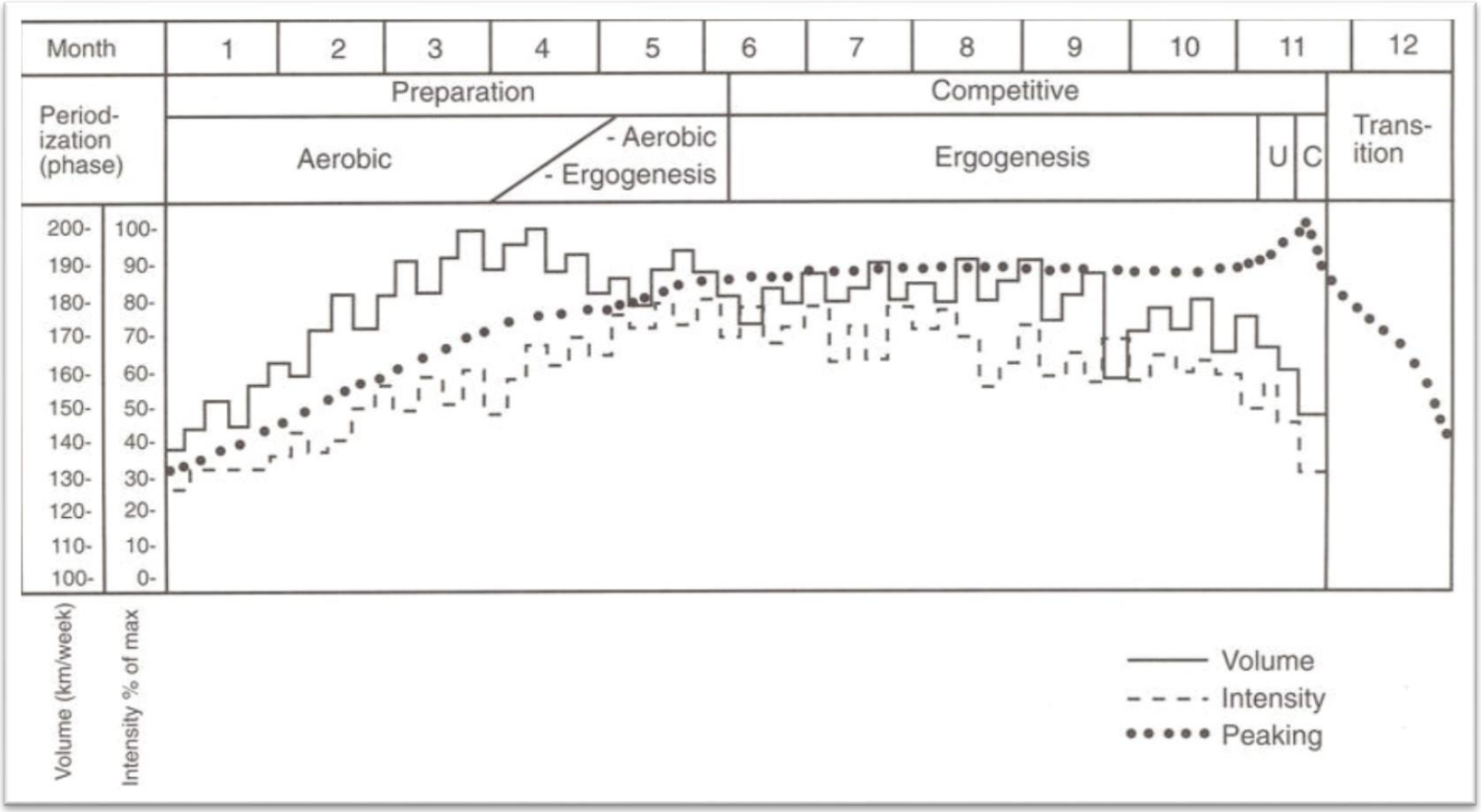
Annual Training Periodization

Monocycle – speed and power sports



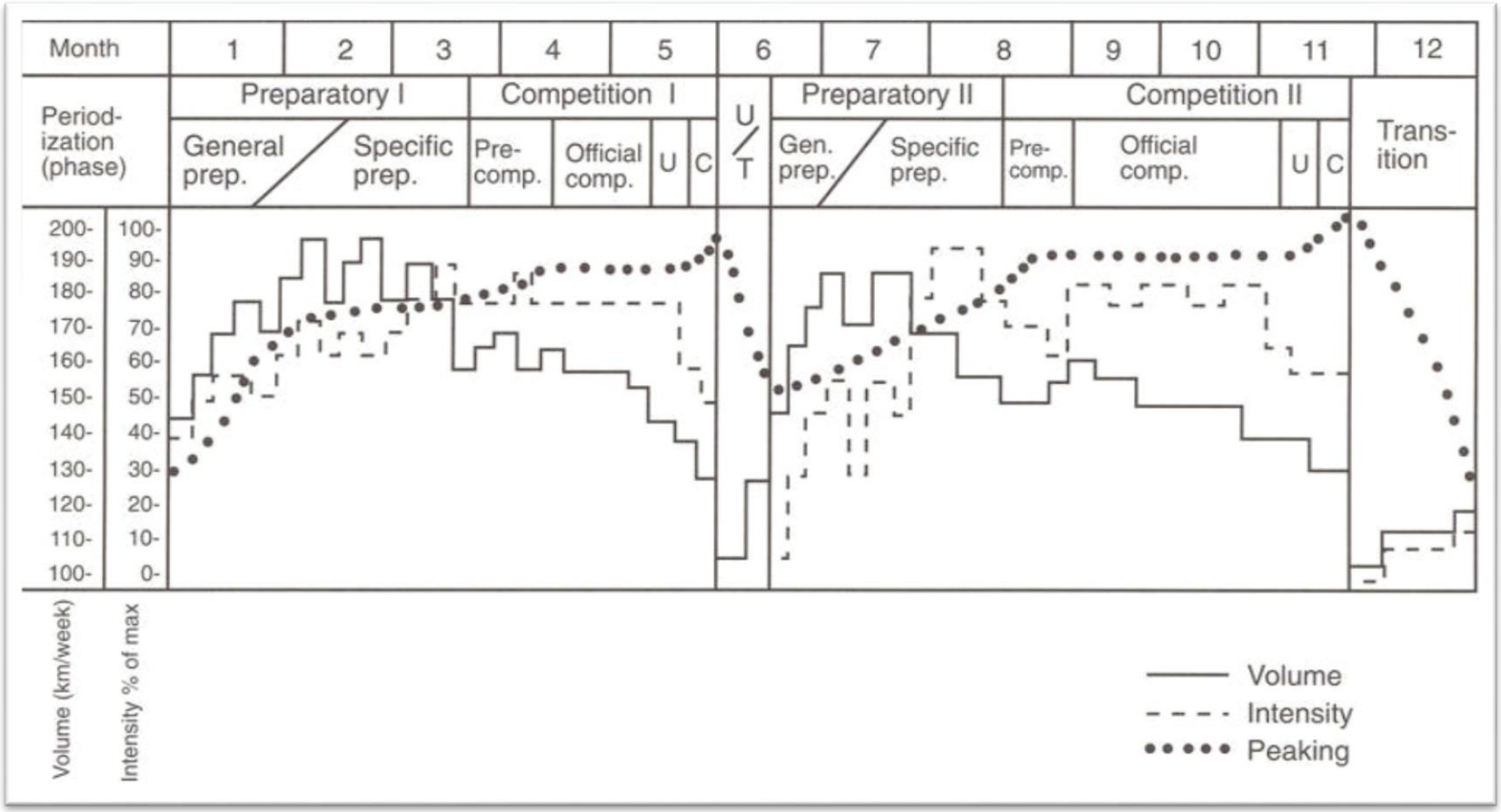
Annual Training Periodization

Monocycle – endurance sports



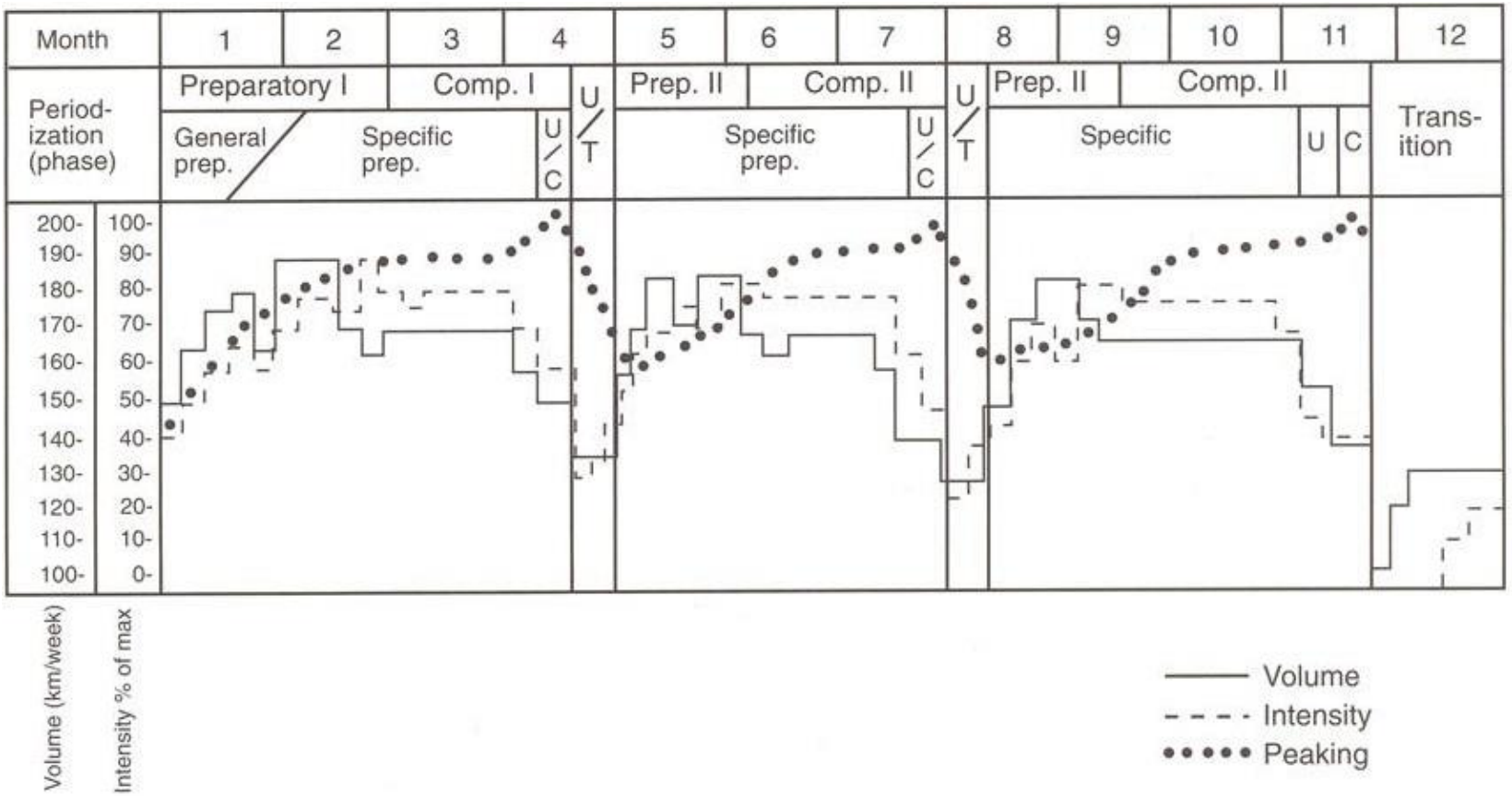
Annual Training Periodization

bicycle – speed and power sports



Annual Training Periodization

tricycle



Thank you