

SCIENTIFIC EVALUATION OF PHYSICAL TRAINING PERIODIZATION IN A SEMI-PROFESSIONAL WOMEN'S VOLLEYBALL TEAM

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INTRODUCTION

01. Multi-quality demand

Volleyball requires explosive power, agility, reaction speed, and high-level motor coordination, with speed-agility-quickness (SAQ) a key determinant of match performance.

02. Science-based standard

FIVB promotes structured, evidence-based periodization to optimize athlete performance and long-term development.

03. What elite teams do differently

Top women's teams (USA, Brazil, Italy) succeed not only through technical-tactical skill but through periodization models that manage load and recovery precisely across the season.

04. Linear periodization as foundation

Progressive load increases build aerobic, strength, and neuromuscular foundations before shifting to specific, competitive training — well suited to semi-professional teams with limited recovery capacity.

INTRODUCTION

Research Gap & Objectives

Research Gap

- Volleyball performance depends on well-planned physical training periodization.
- Most semi-professional volleyball clubs rely on practical coaching experience, while scientific evaluations of actual periodization programs remain limited, particularly in Indonesia.
- As a result, it is still unclear whether existing training programs align with modern periodization principles and evidence-based recommendations.

Study Objectives

1

Describe the distribution of training volume and intensity across one macrocycle.

2

Evaluate the suitability of the training program based on contemporary periodization principles.

1

Identify aspects of the program that can be improved to optimize competitive performance.

METHOD

Quantitative Document Analysis

1

Design

Quantitative descriptive approach using document analysis of an existing training program — no direct intervention or manipulation of variables.

2

Data Source

Periodized training program of Kharisma Women's Volleyball Club: 15 microcycles (~15 weeks), prepared for the 2025 Livoli Premier Division by a certified S&C coach.

3

Variables

Training volume (% of competition demand), training intensity (%1RM / %VO₂max), and load distribution across GPP, SPP, PCP, and CP periods.

4

Analysis

Descriptive statistics (mean, % distribution) per period, benchmarked against Bompa & Buzzichelli (2019) and Haff & Triplett (2016).

RESULTS

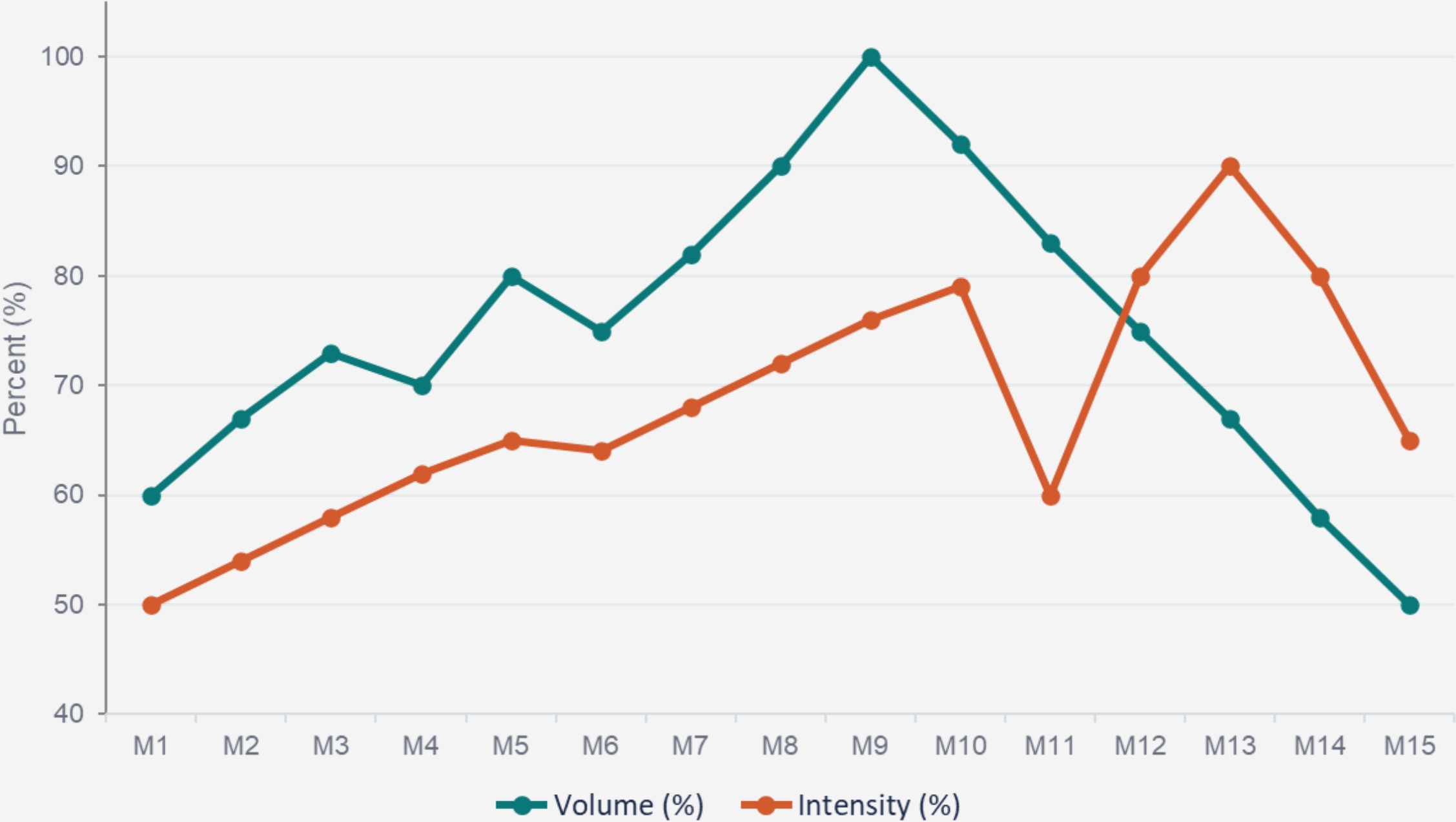
Average Volume & Intensity per Period

Period	Microcycles	Mean Vol (%)	Mean Int (%)	Vs. Theory
GPP – General Preparation	1–5	70.0	57.7	Aligned (lower bound)
SPP – Specific Preparation	6–10	87.7	71.7	Aligned, peak load steep
PCP – Pre-Competition	11–14	70.8	77.5	Taper too gradual
CP – Competition	15	50.0	65.0	Below standard (85–90%)

Volume peaked at microcycle 9 (100%) then tapered to 50% by microcycle 15, generally following the classic build-and-taper pattern. **Intensity** rose to ~79% by microcycle 10, dipped at the start of PCP, peaked at 90% (microcycle 13), then dropped sharply to 65% during the competition period.

Distribution of Training Volume and Intensity

Volume and intensity across all 15 microcycles of the Kharisma training program



VOLUME

- ↑ increases from Microcycle 1
- peaks at Microcycle 9 (100%)
- ↓ decreases toward competition

INTENSITY

- ↑ gradually increases
- peaks before competition (M13)
- ↓ drops during competition

The training volume progressively increased from Microcycle 1 and reached its highest point in Microcycle 9 before decreasing toward competition. Training intensity gradually increased across the preparation phase and reached its peak before competition.

Descriptive only — evaluation follows in the next slide

Comparison with Theory

Period	Theory (Recommended)	Kharisma Program	Status
GPP	Vol 70–80% / Int 50–65%	Vol 70.0% / Int 57.7%	✓ Appropriate
SPP	Int 65–75%, high volume	Vol 87.7% / Int 71.7%	✓ Appropriate
PCP	Tapering, rising intensity	Vol 70.8% / Int 77.5%	✓ Mostly Appropriate
Competition	Intensity 85–90%	Intensity 65.0%	✗ Intensity Too Low

65%

Actual competition intensity

VS

85–90%

Recommended theoretical range

Overall, the Kharisma program generally follows the linear periodization model.

However, the competition period showed an intensity of only 65%, considerably lower than the recommended 85–90%.

This finding suggests reduced neuromuscular readiness before competition.

Where the Program Falls Short

01

Competition intensity too low

65% intensity in the competition period is 20–25 points below the 85–90% standard, risking a partial detraining of explosive and neuromuscular capacity right when it matters most.

02

No early stabilization phase

The macrocycle jumps straight into hypertrophy/SAQ work in microcycle 1 without a 2–4 week neuromuscular stabilization block — a factor linked to 1.8× higher overuse-injury rates in women's team sports.

03

Tapering is too gradual

The pre-competition taper spans four microcycles; literature recommends a sharper 1–2 week taper for optimal supercompensation and neuromuscular readiness.

CONCLUSION

The Kharisma program partially mirrors classic linear periodization — volume peaks in the specific preparation period (87.7%) and intensity builds through pre-competition (77.5%), broadly consistent with theory.

- 01** Add a 2–4 week neuromuscular stabilization block at the start of the macrocycle.
- 02** Raise competition-period intensity into the 80–90% range.
- 03** Sharpen the pre-competition taper to 1–2 weeks.
- 04** Factor the menstrual cycle into weekly load planning.

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