

GIANT SLALOM: ANALYSIS OF COURSE SETTING AND PERFORMANCE OF DIFFERENT AGE GROUPS

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INTRODUCTION

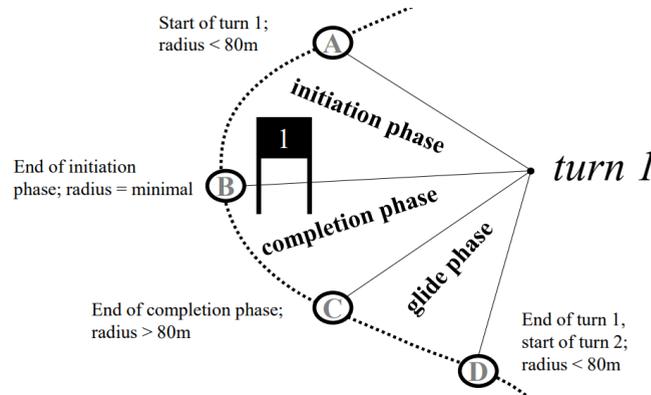
Giant slalom (GS) → core discipline of alpine ski racing. Each race has its own **specific course and terrain characteristics**. These variations may explain differences in **speed** and **time per turn** → essential for performance development and injury prevention.

AIM

This pilot study examines differences in **course setting** and **performance** parameters of different course **sections** (flat – medium – steep) among **younger** (U12, U14, U16) vs. **older** (U18, U21, elite) alpine skiers.

METHODS

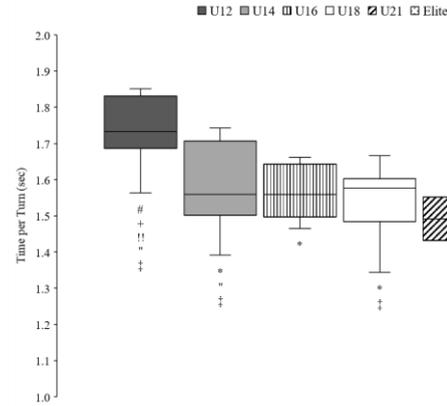
88 GS runs of 57 male athletes were examined. All athletes wore a portable global navigation satellite system (**GNSS**) sensor.



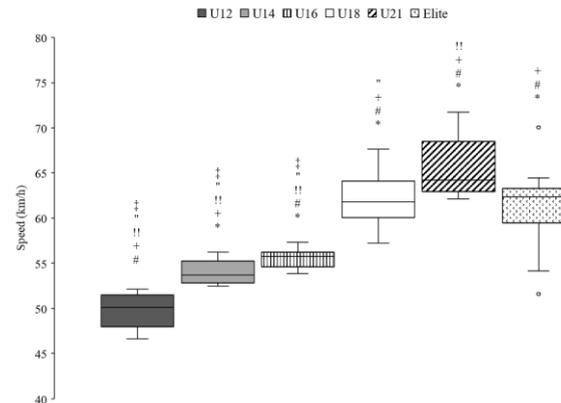
The **turn phases** were predefined. Mean values of **performance** parameters (speed, time per turn, etc.) and **course setting** variables per **section** (flat – medium – steep) were calculated and used for further analysis.

RESULTS

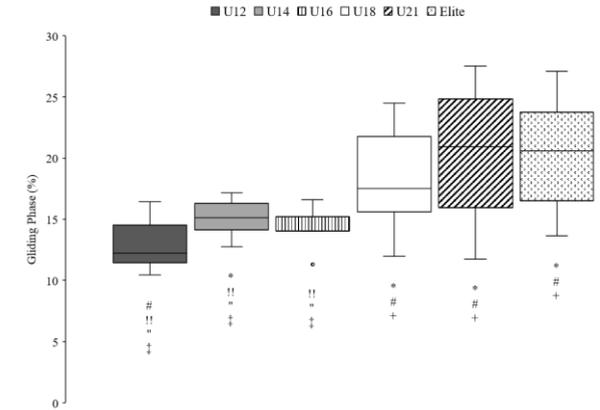
TIME PER TURN



SPEED



GLIDING PHASE



Significant differences between groups in medium terrain sections → group-specific markers (U12[#]; U14[#]; U16[#]; U18^{!!}; U21[#]; Elite[#]). Outliers → circle, filled with the colour of the corresponding group.

DISCUSSION AND CONCLUSION

Given similar course setting and steepness

↑ **speed** and time spent in the **gliding phase** increase

↓ **time per turn** decreases

concurrently with the **technical and tactical skills** of the athlete

Course setting could be critically undermined → should be more **clearly differentiated** between extremes of development (U12 and elite) in order to achieve skill transfer and reduce injury risk.

PRACTICAL APPLICATIONS

Findings are crucial for understanding **technique** and **performance development** from youth to elite level for coaches.