

Exploring the Role of Junior Success in Predicting Senior Success

- A case study in Elite Table Tennis

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Literature

- Some studies have demonstrated a minor relationship between athletes' junior success and senior success in different sports.

tennis

15% junior top20 ranked players reached senior top 20 professional ranking. (Brouwers et al., 2012)

soccer

33% juniors medalists participated in senior major events (Barreiros, 2014)

judo

volleyball

cycling

football

24% juniors players turn to squad member (Gullinch, 2006)

Literature Gaps

- The relationship between junior and senior success varies from sport to sport. Table tennis is not yet examined.
- These studies mainly focused on successes that athletes achieved at junior competitions. Successes that athletes achieved at international senior competitions but at a junior age is ignored.

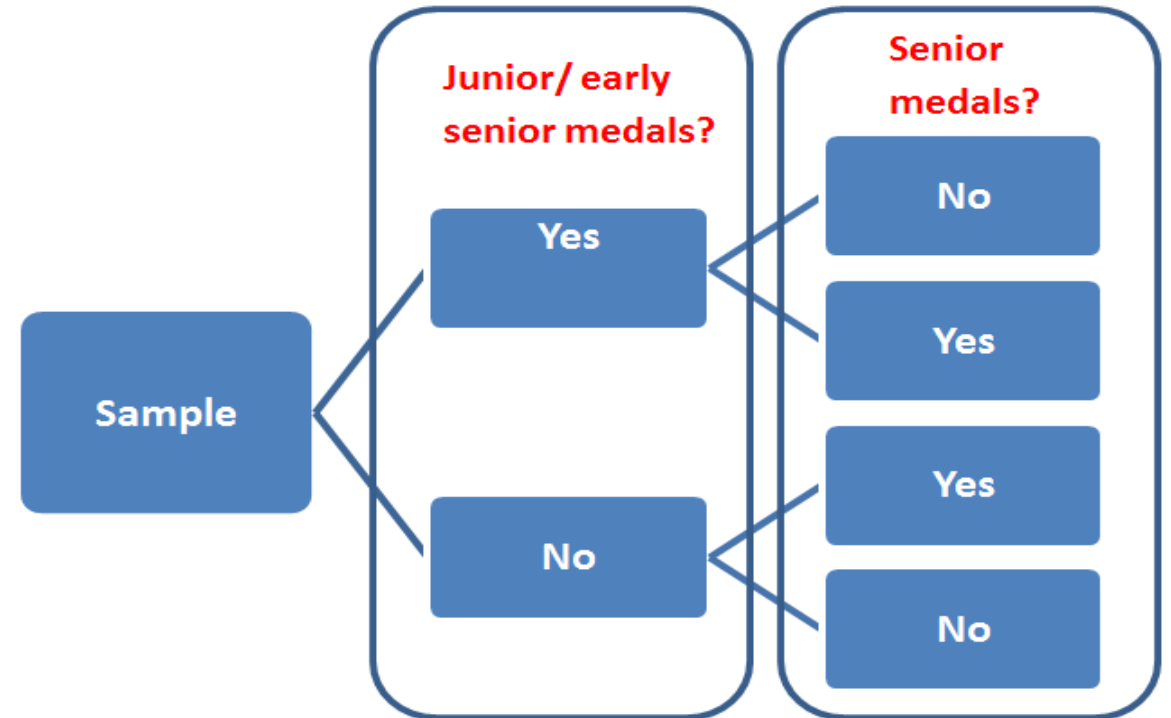
Aim

“Junior success → Senior success?”

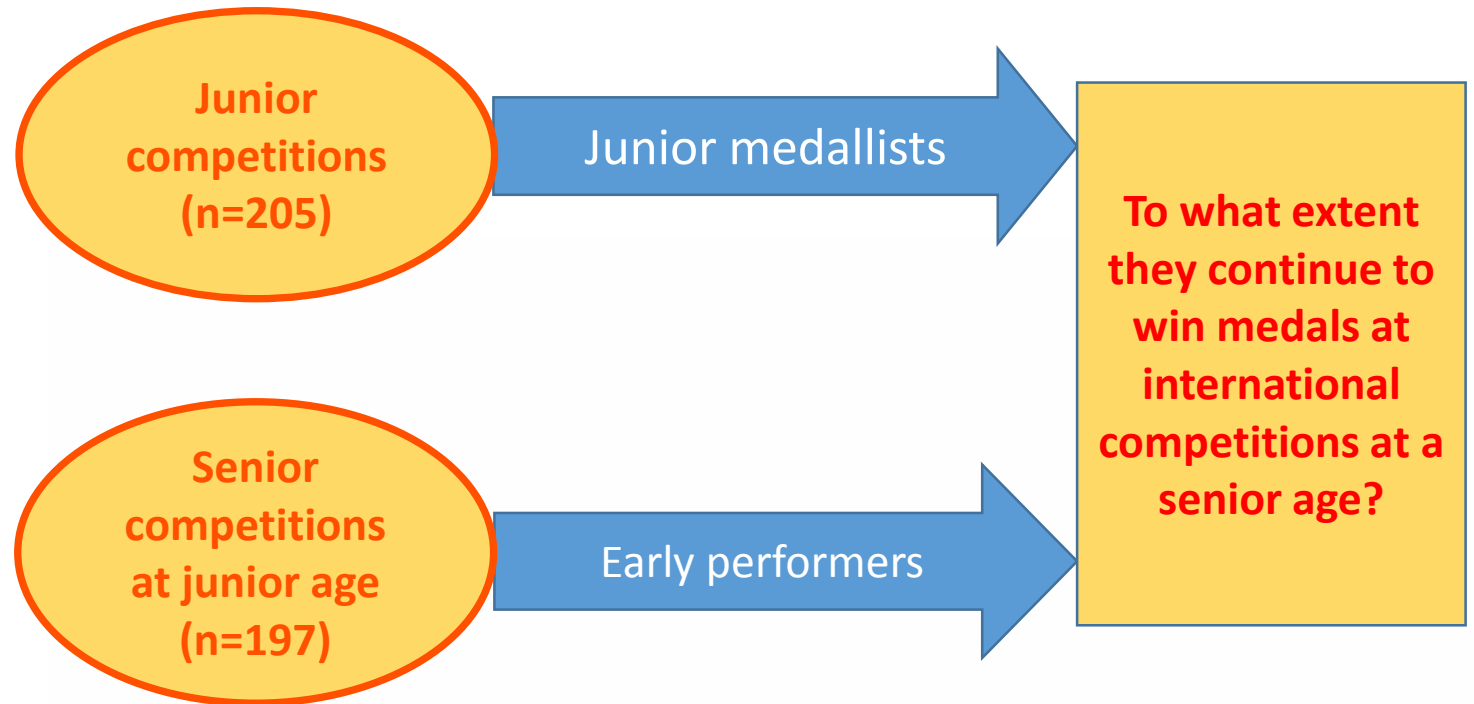
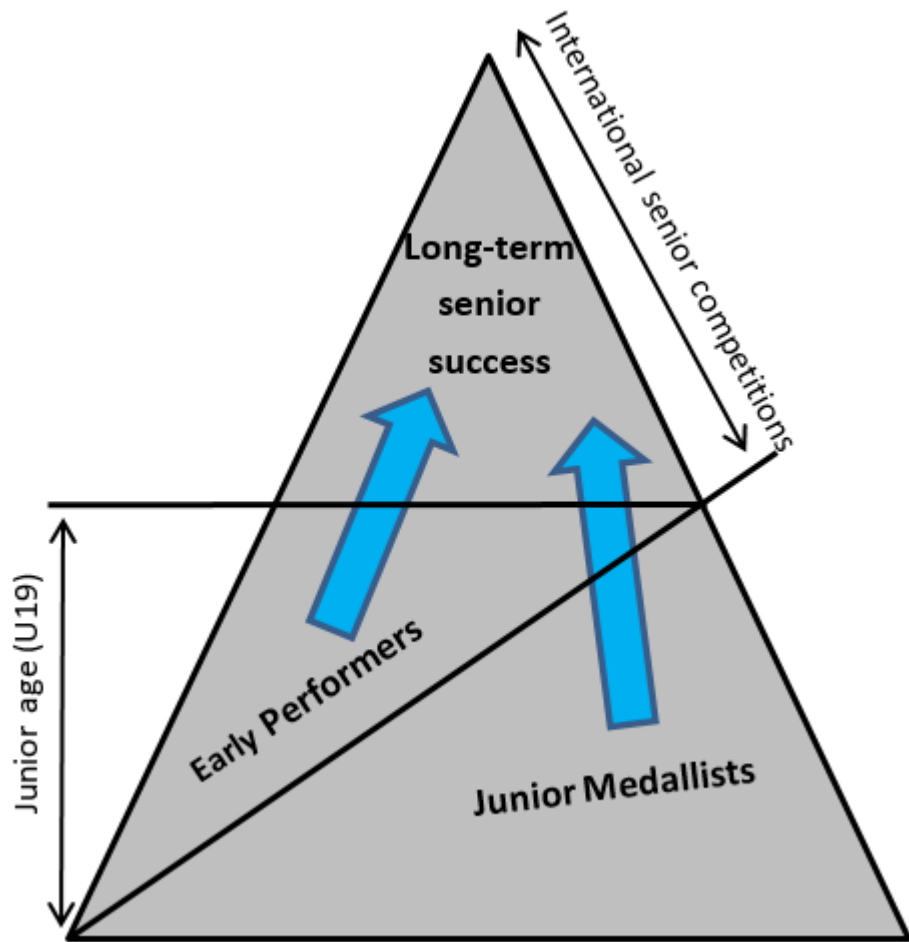
- To explore the role that junior successes (age <19) at different competitive levels in predicting eventual senior international success.
- To inform a better coach education, specifically in assessing, predicting and monitoring player development.

Research questions

1. How many successful junior players continued to win international senior medals.
2. To what extent can we predict winning senior medals based on competition results at a junior age?



Methods



Data set

Junior competitions

- Junior Olympic Games
- Junior World championship
- Junior Continental Championships i.e., African, Asian, European, Oceania, Pan American

Major senior competitions

- Olympic Games
- Senior World championships
- Senior Continental Championships

Timespan: 1990 to 2016

Method (statistics): descriptive & discriminant analysis

- Research questions 1, **Descriptive analysis:**
- To calculate the number of athletes that won medals at a junior age (<19) continued winning medals at a senior age.

- Research question 2, **Discriminant analysis:**
- To predict whether athletes can win senior medals based on competition results at a junior age.

Discriminant analysis

Table 1. The overview of the independent variables and grouping variables used in DA

	independent variables (results from early performance)					grouping variables	
	TG	TS	TB	M. Code	Total. M	M/No M	S. M/NoM
Participant 1	0	2	0	2	1	1	0
Participant 2	0	0	0	0	0	0	0
Participant 3	0	2	3	2	2	1	1
Participant 4	1	0	3	1	2	1	0
Participant 5	0	2	3	2	2	1	0
Participant 6	1	2	3	1	3	1	1
Participant x	0	2	3	2	3	1	1

Results: Descriptive Analysis

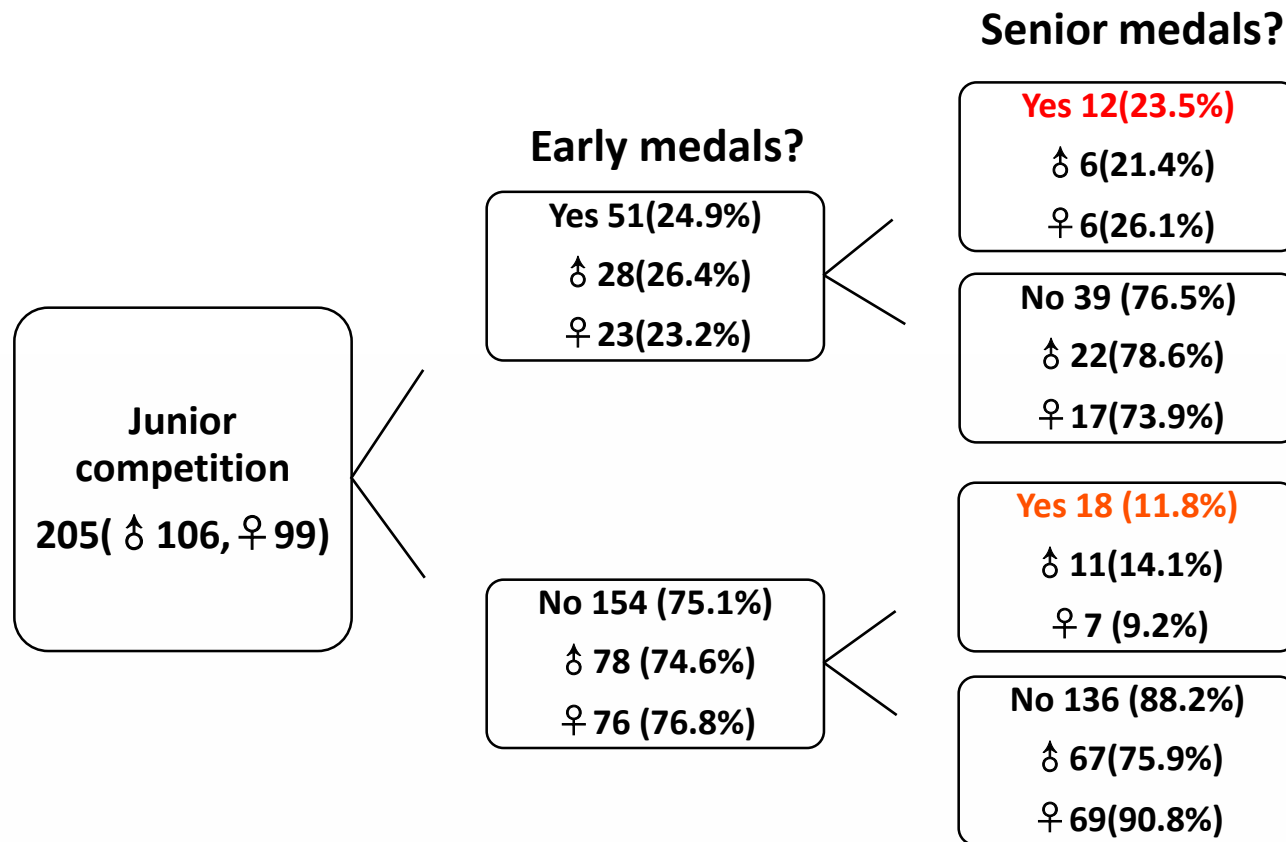


Figure 2. (a) The transition map from junior competition to competitions at adult age.

Results: Descriptive Analysis

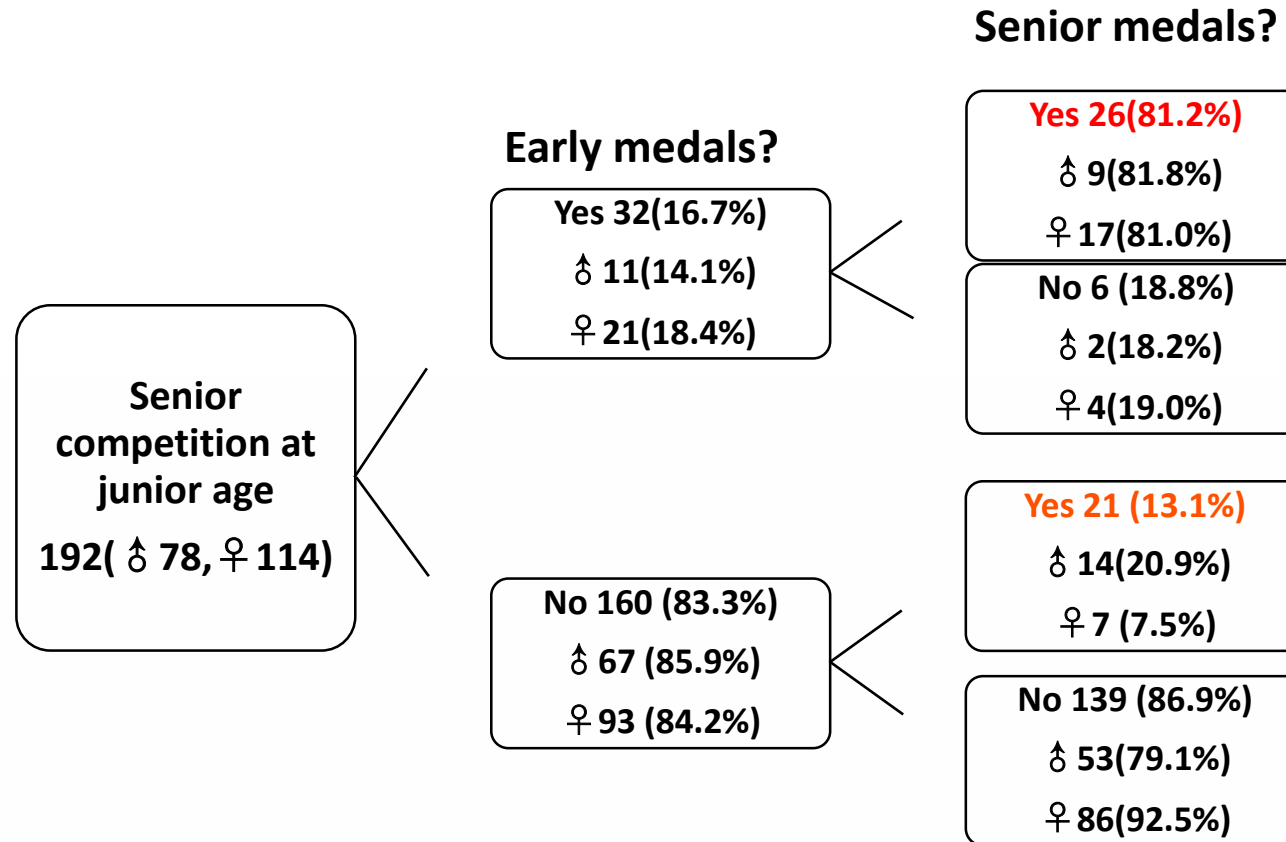


Figure 2. (b) The transition map from junior senior competition at junior age to competitions at adult age

Results: Descriptive Analysis

Table 1. The % of successful junior players that maintained their success to senior competition by age category

Age	Junior medallists (n)	Senior medallists (n)	Success rate
U16	23	9	39.1%
U18	29	12	41.4%
U19	31	27	54.8%

Results: discriminant results

Table 2. The classification of players in predicting winning senior medals of two groups

	Player Classification	Predicted to win medals at a senior age (%)
Junior medallists	No medals	17.7
	Won medals	36.7
Early performers	No medals	4.1
	Won medals	55.3

Conclusions

- The results of this study suggest that success achieved by junior players at international senior competitions plays a significant role in predicting winning medals at a senior age. Specifically, 37% medallists in junior competitions and 55% of the early achievers in senior competitions could be predicted to win international medals at an adults age.
- With regard to this study's methodology, the utilization of discriminant analysis appeared to be an efficient way (i.e., classification of group membership) to discriminate medallists from non-medallists in international competitions.

Limitations and future studies

Quantitative studies:

- It mainly provides basic facts, it has limited implication in give the explanation for the causality.

Qualitative studies: answering “why” question

- High performance managers’ perspectives on how to maintain junior successes to senior level.

Thank you for your attention



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