

### Model for optimising talent development

#### The Athletic Skills Model

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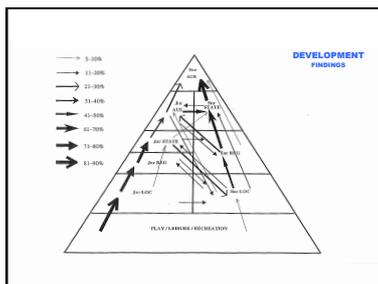
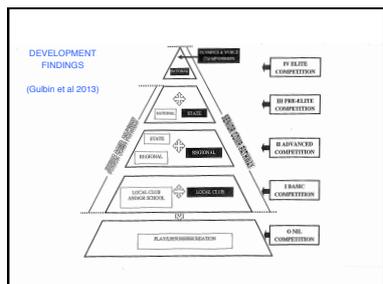
Rene Wormhoudt  
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### Facts

- 1. Coordination problems – Vandorpe e.a. (2011)
- 2. Elite sport – different sport till 14 year, 2,6 til 3,5 different sport (Hill e.a., 2002; Vaeyens e.a., 2009)
- 3. New theories about motor learning
- 4. Positive relationship between sport and cognitive development (Verburgh, 2016; Van der Niet, 2015)

### Pathways

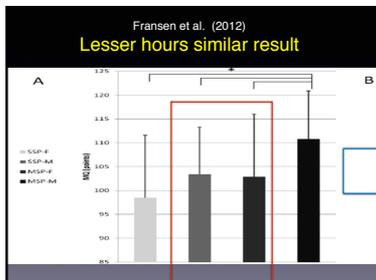
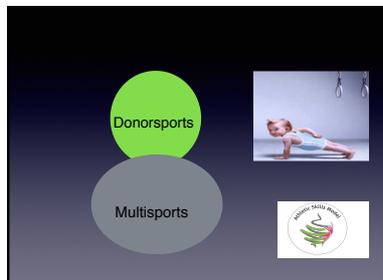
- Early specialization
- Late specialization
- Early engagement
- Diversification



**DEVELOPMENT FINDINGS**

Table 8. Type and frequency of these skills were compared to particular milestones through the Athletic Performance Pyramid (APY) (Gubin, 2013).

Stage	Play	Recreational	Club	Elite
Frequency	High	Medium	Low	Very Low
Quality	Low	Medium	High	Very High
Quantity	High	Medium	Low	Very Low
Intensity	Low	Medium	High	Very High
Duration	High	Medium	Low	Very Low
Structure	Low	Medium	High	Very High
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Efficiency	Low	Medium		



Memmert et al 2010,  
High Ability studies, 21, 3-15  
Hockey, Football, Basketball, handball

	Creative	Less creative player
Total	6843	5455
Practise	3146	3544
Play	2857	1954
<14 Practise	977	888
<14 Play	1341	842

- Implicit learning: performer is better equipped for stress situation and performance under pressure (Masters, 1992)
- Unconscious not skilled
  - Conscious not skilled
  - Conscious skilled
  - Unconscious skilled

Recent insights different than traditional model

unconscious start of learning proces  
*implicit learning*

focus on result / movement outcome  
*external focus*

'repeat without repeat'  
*differential learning*

Stewart (2009)  
Do musicians have different brains?  
Clinical medicine, 9, 304-308

- Motor area larger in RHemi – left hand (fine motor behaviour)

**Transfer of learning**  
Stoel, Wiegelt & Krug, 2011

Training Group A starts with the dominant hand (right hand) , before changing to their non-dominant hand (Left Hand) (D-ND group),

Group B starts with the non-dominant hand (left Hand) , before changing to the dominant hand (right hand) (ND-D group).

The results of a test after training showed **significantly larger learning gains** for the ND-D group as compared to the D-ND group.

Such order-of-practice effects for the acquisition of complex skills can be explained with hemispheric brain asymmetries for the processing of specific task requirements.

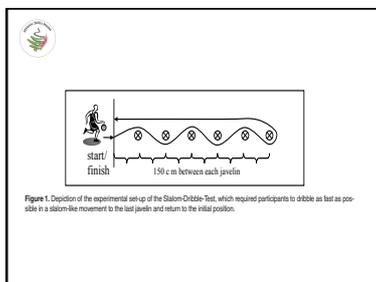


Figure 1. Depiction of the experimental setup of the Sabon-Dixble-Test, which required participants to double as fast as possible in a slalom-like movement to the last jurelin and return to the initial position.

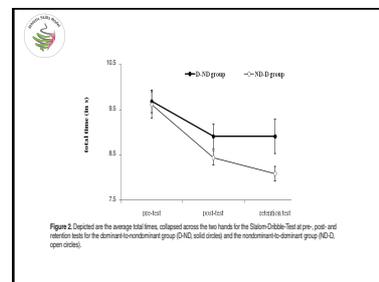


Figure 2. Depicted are the average total times, collapsed across the two hands for the Sabon-Dixble-Test at pre-, post- and retention tests for the dominant-to-non-dominant group (D-ND, solid circles) and the non-dominant-to-dominant group (ND-D, open circles).

Bilateral practice improves dominant leg performance in long jump

European Journal of Sport Science, 2016  
Vol. 16, No. 7, 787-793.

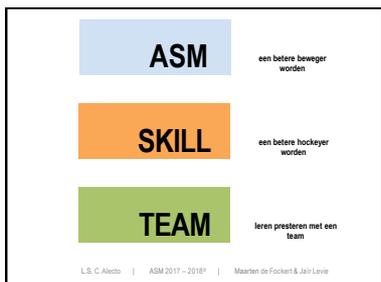
ANNE FOCKE, SINA SPANCKEN, CHRISTIAN STOCKINGER,  
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### ASM-Fases

	Boys	Girls
Early athletic skills	4-6	4-5
Basic athletic skills	7-9	6-7
Advanced athletic skills (P <sub>1</sub> )	10-12	8-10
Transition athletic skills (P <sub>2</sub> , P <sub>3</sub> )	13-14	11-12
Performance athletic skills (P <sub>3</sub> )	15-18	13-18
Elite athletic skills	19- >	18- >



### STRAKS

	BREEDTE (Team)	SCHADUW (Team)	TOP (Team)	
E-lijn	ASM: 00 SKILL: 00 TEAM: 0	ASM: 00 SKILL: 00 TEAM: 0	ASM: 00 SKILL: 00 TEAM: 0	0%
D-lijn	ASM: 60 SKILL: 60 TEAM: 60	ASM: 60 SKILL: 60 TEAM: 60	ASM: 60 SKILL: 60 TEAM: 60	
C-lijn	ASM: 60 SKILL: 60 TEAM: 75	ASM: 60 SKILL: 60 TEAM: 75	ASM: 60 SKILL: 60 TEAM: 75	
B-lijn	ASM: 15 SKILL: 60 TEAM: 75	ASM: 60 SKILL: 60 TEAM: 120	ASM: 60 SKILL: 0 TEAM: 210	
A-lijn	ASM: 15 SKILL: 60 TEAM: 75	ASM: 45 SKILL: 60 TEAM: 135	ASM: 45 SKILL: 0 TEAM: 225	50% 1.5 x (2000)
<b>TOTAAL</b>	<b>770</b>	<b>1.017</b>	<b>1.169</b>	

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