Development of a Skill-Acquisition Periodisation Framework for High-Performance Sport

A	B	C	D	E	F
Constraint	Sub-category		Training	Competition	Specificity
			Total passes		difference
		n	%	%	%
	< 1 sec	24	12	19	-7
Processing time	1-2 sec	54	27	23	4
(prior to pass	2-3 sec	54	27	28	-1
completion)	3 secs+	68	34	30	4
				Specificity	92
	Unmarked (1 v 0)	114	57	23	34
Pass target	2 v 1	66	33	43	-10
(density)	3 v 3	20	10	34	-24
				Specificity	66
	Quarter	20	10	0	10
Pitch size	Half	44	22	0	22
	Full	136	68	100	-32
				Specificity	68
				Specificity (total)	75

Figure 1. Example of how specificity can be assessed in a skill-based training session. Three example skill constraints are provided; quantifying the prevalence of each allows for direct comparison of training with competition conditions. The difference between the two sets of conditions represents the level of training specificity.

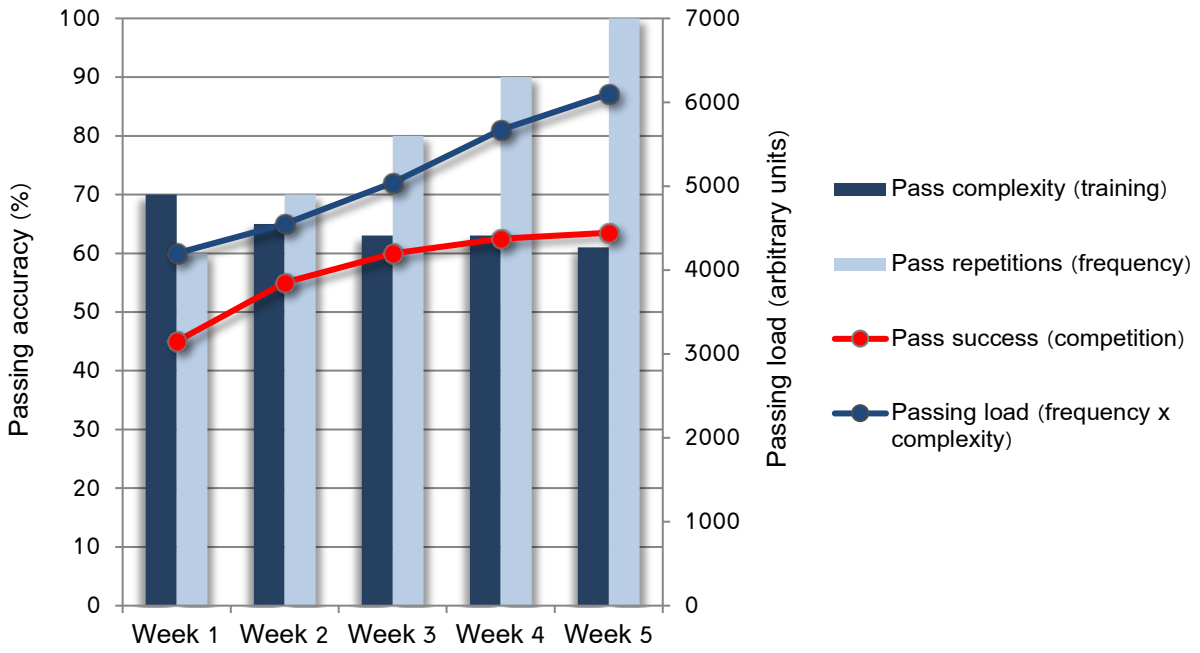

Figure 2. Example of progression during a 5-week training mesocycle. The complexity of the training is progressively reduced and coupled with a concurrent increase in pass repetitions. The function of both metrics can be obtained to determine the pass volume. The relationship between training volumes and competition performance can also be tracked.

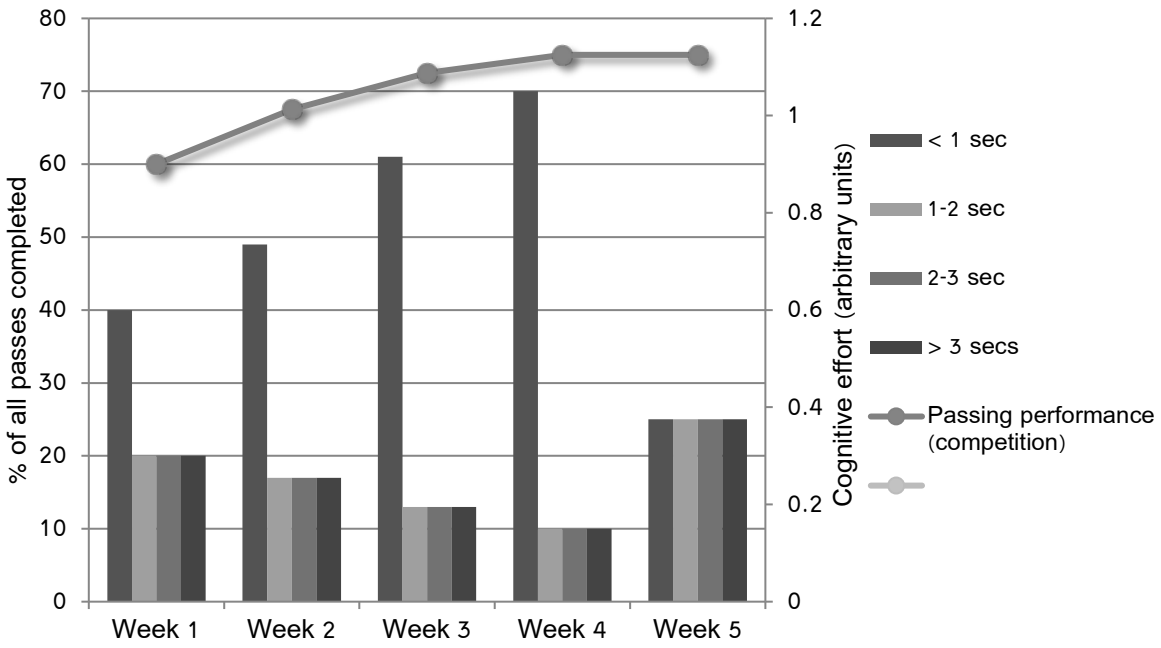

Figure 3. A longitudinal example of overload over multiple weeks. A single constraint (processing time prior to pass completion) is intentionally overloaded on the athlete during the 4-week period in order to elicit a skill improvement. The overload period is ceased once adaptation to the stimulus is reduced (i.e., passing accuracy is no longer meaningfully improving).

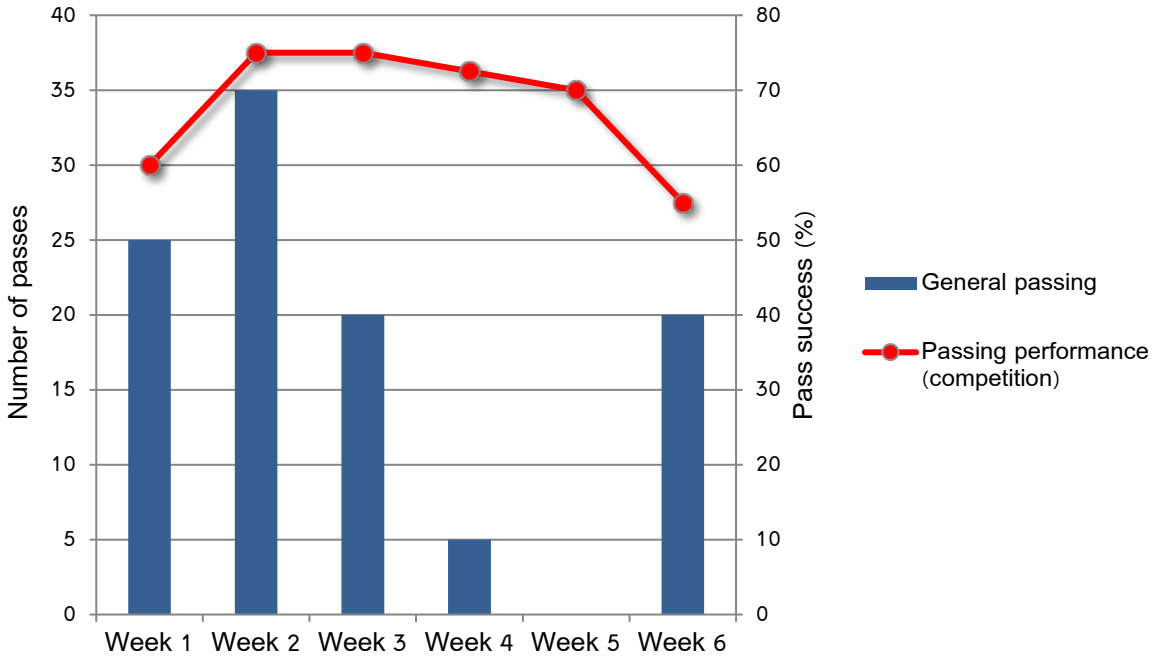

Figure 4. Reversibility example for total passing frequency in training. Following an initial increase in general passing volume a progressive reduction (de-loading) is shown; a hypothetical drop-off in competition performance is noted once volume is decreased to below a certain threshold.

Tedium continuum	HIGH				LOW
	Constant practice	Blocked practice	Variable practice	Random practice	Differencial practice
Skill practice approach	Repeat the same skill in the same manner on each repetition	2 or more skills practised in blocks (i.e., kick, kick, kick, volley, volley, volley)	Vary the one skill via changes in distance, force etc.	2 or more skills randomly interpsersed across practice (kick, volley, volley, kick…)	Vary the one skill every practice repetition (i.e., kick using different approaches to the ball)
Environmental demand	Low representative / controlled / drill		Semi-controlled / drill-game		Representative / open-ended game
	No defence		Passive defence		Active defence
	Unrestricted time in ball possession		Time limted ball possession		Severe time limits on ball possession
	Large amount of playing space		Reduced playing space		Varying playing space
Cognitive effort / load	SIMPLE LOW				DIFFICULT HIGH
Performer	UNSKILLED				SKILLED

Figure 5. Example of a method to quantify tedium (variety) on a continuum. The level of tedium, practice format and approach, environmental demand, cognitive load and skill level of the performer are all considered. While each of the qualities are described separately they are interactive in nature. For example, one could prescribe a low representative / controlled drill with random practice.