



Chód: podstawy, terminologia

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Mobilność

Przemieszczanie się z jednego miejsca na drugie w sposób:

- bezpieczny
- szybki
- wydajny

Chód ludzki wypełnia podstawową potrzebę poruszania się



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Parametry chodu

Prędkość chodu:

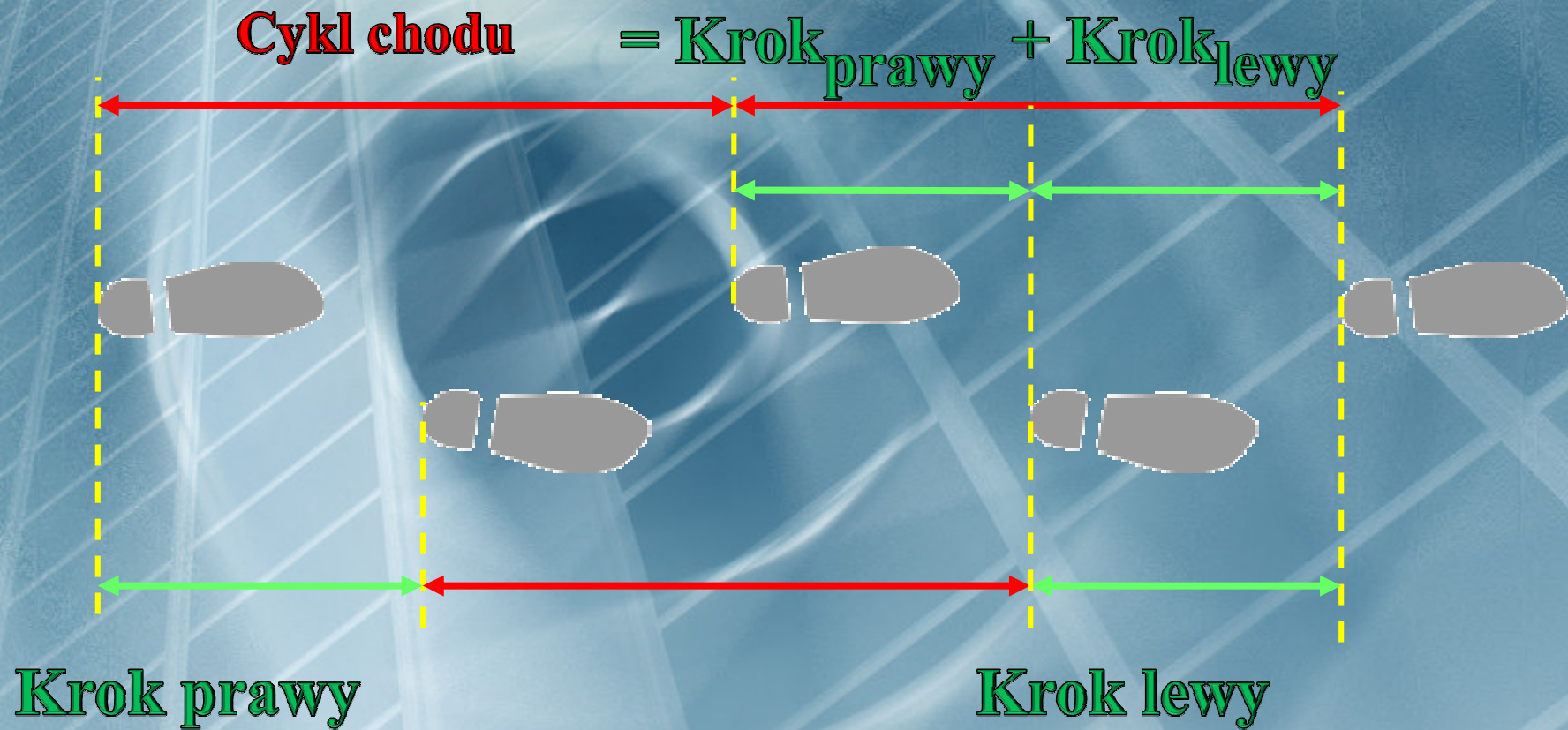
- komfortowa: 1-1,2m/s
- maksymalna



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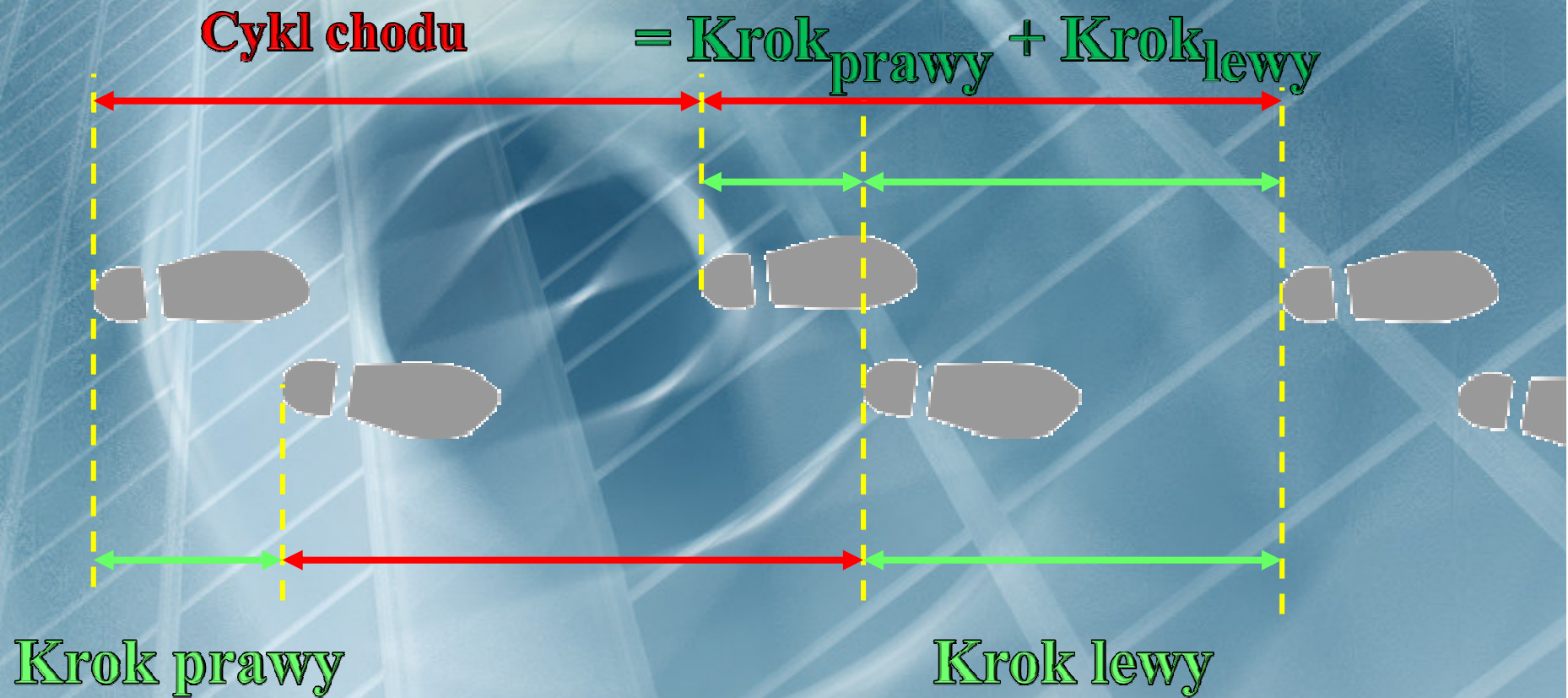
3,6km/h = 1m/s

Krok i cykl chodu



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Kroki asymetryczne



Parametry chodu

Długość cyklu [m]

$$\begin{array}{c} \downarrow \\ \mathbf{x} \longrightarrow /120 = \\ \uparrow \end{array}$$

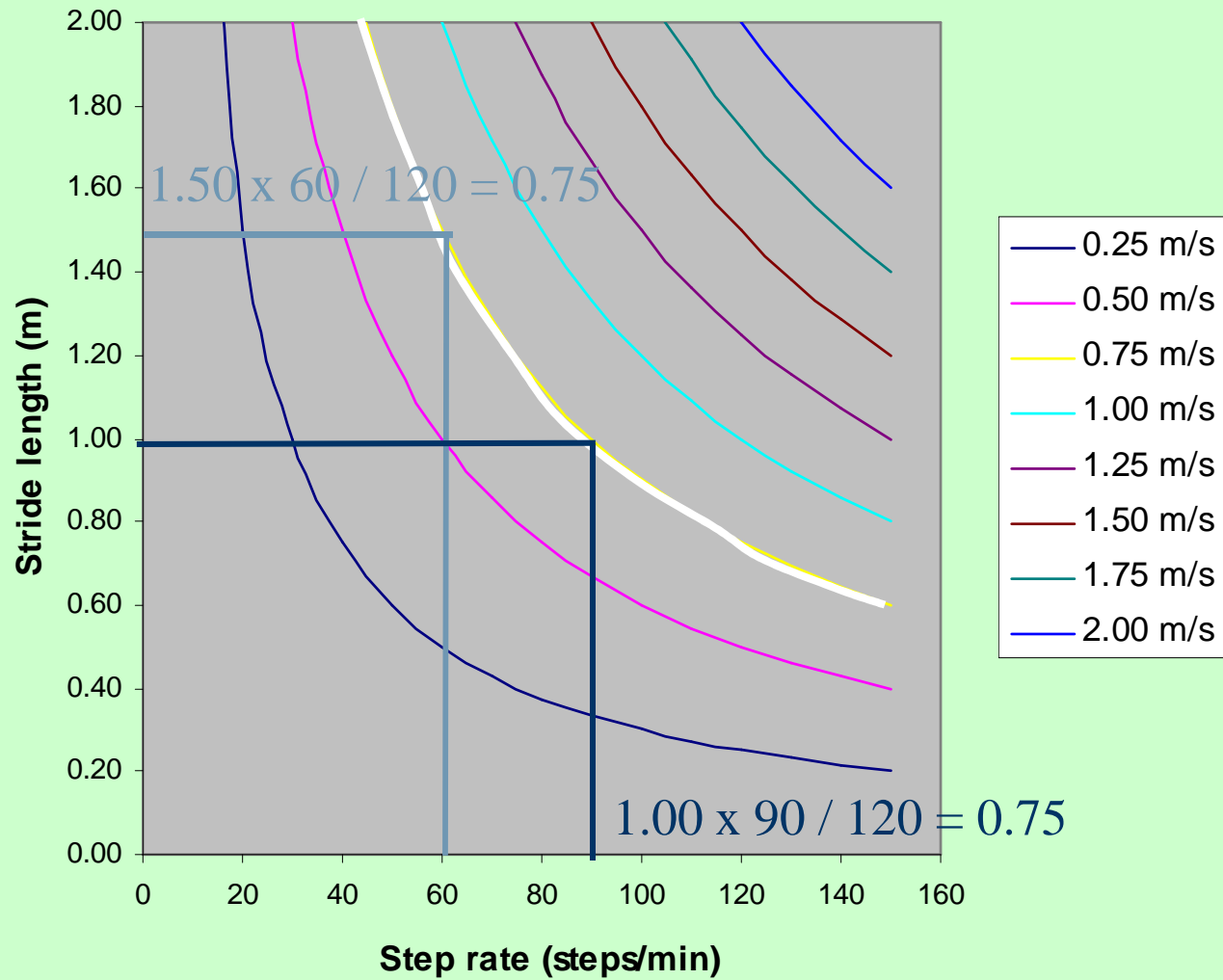
Prędkość chodu [m/s]

Miarowość [kroki/min]

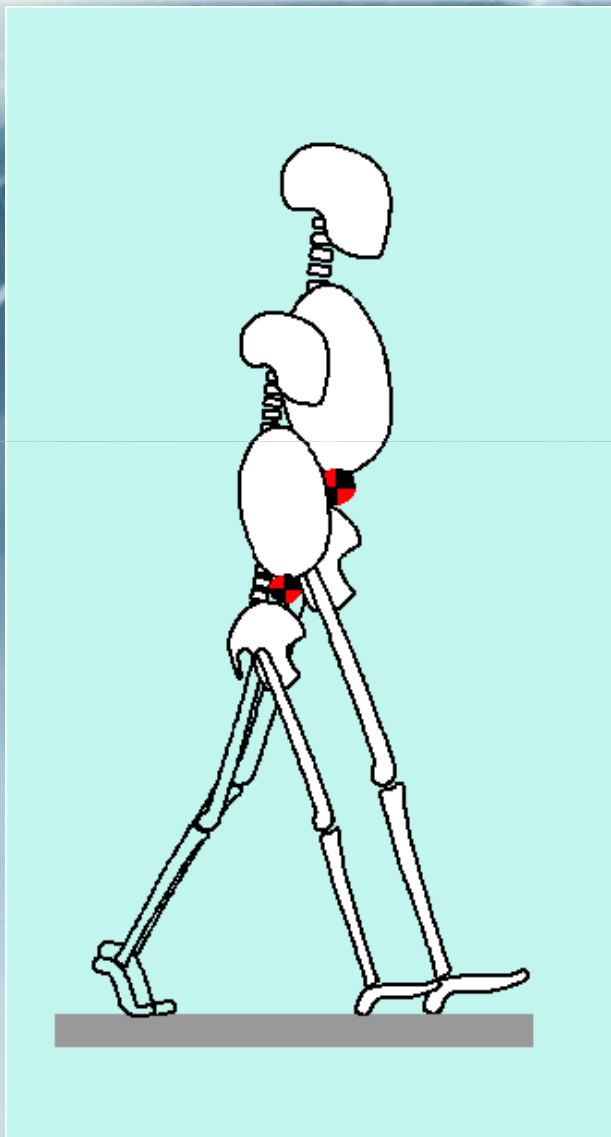
$$3,6\text{km/h} = 1\text{m/s}$$



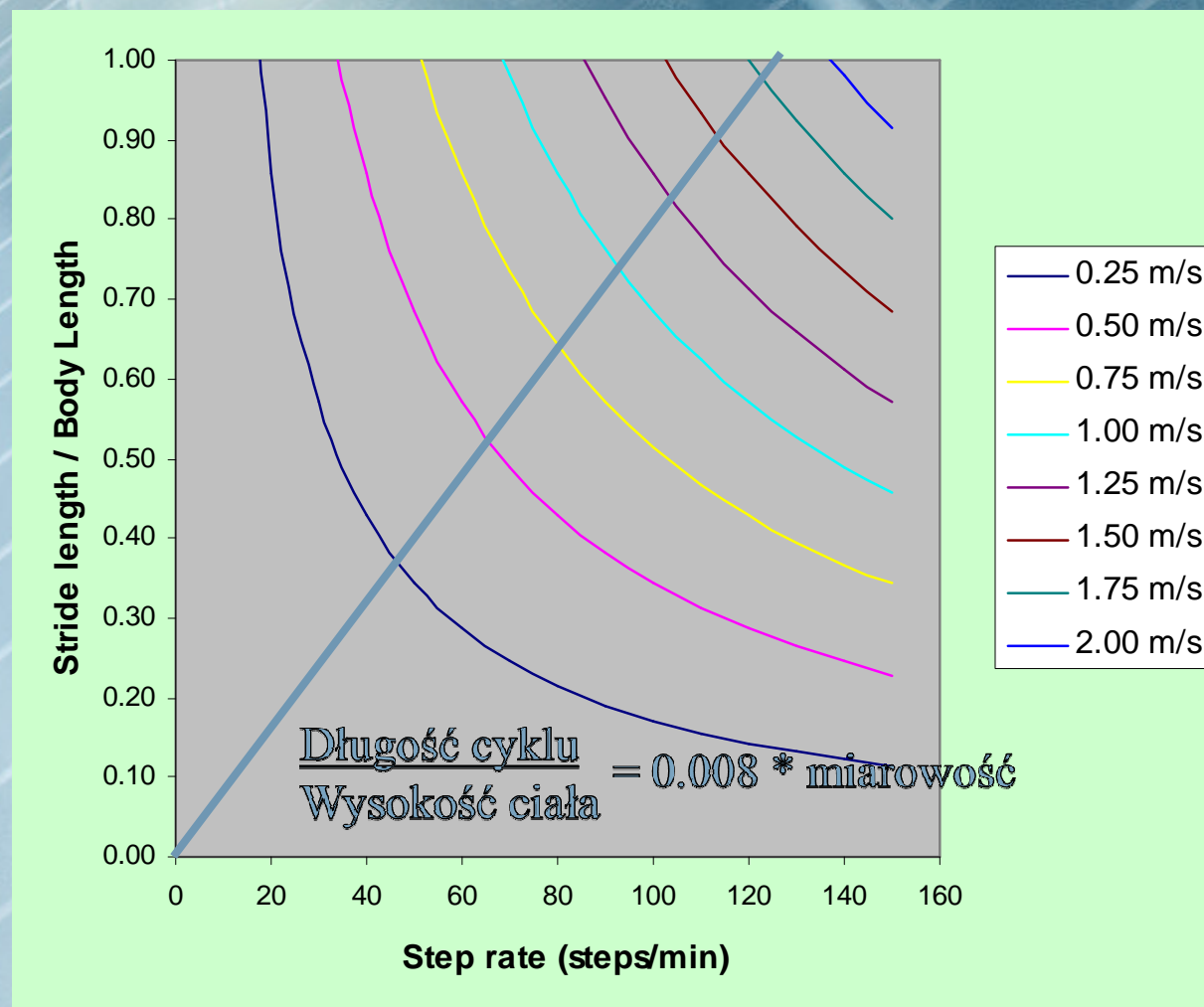
Prędkość chodu = długość cyklu * miarowość / 120



Wysokość ciała \leftrightarrow długość kroku

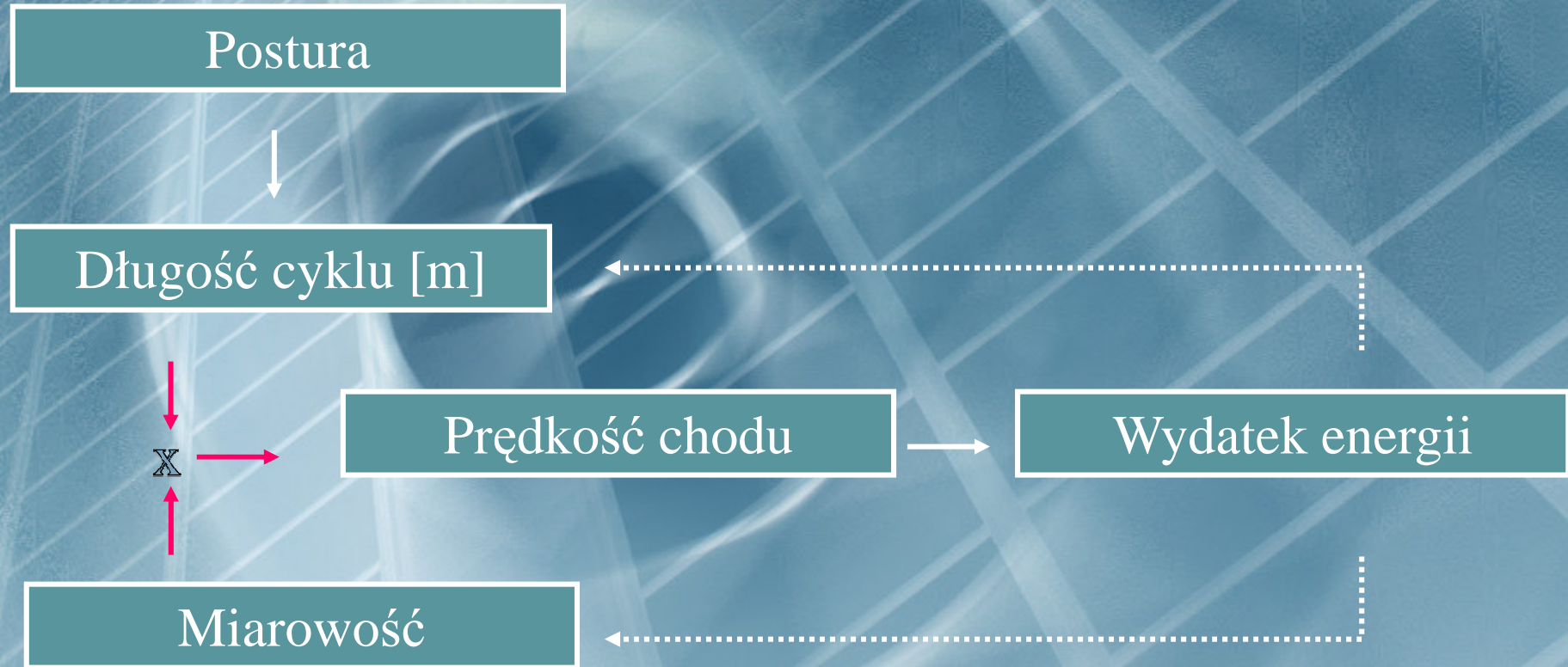


Optymalna długość kroku



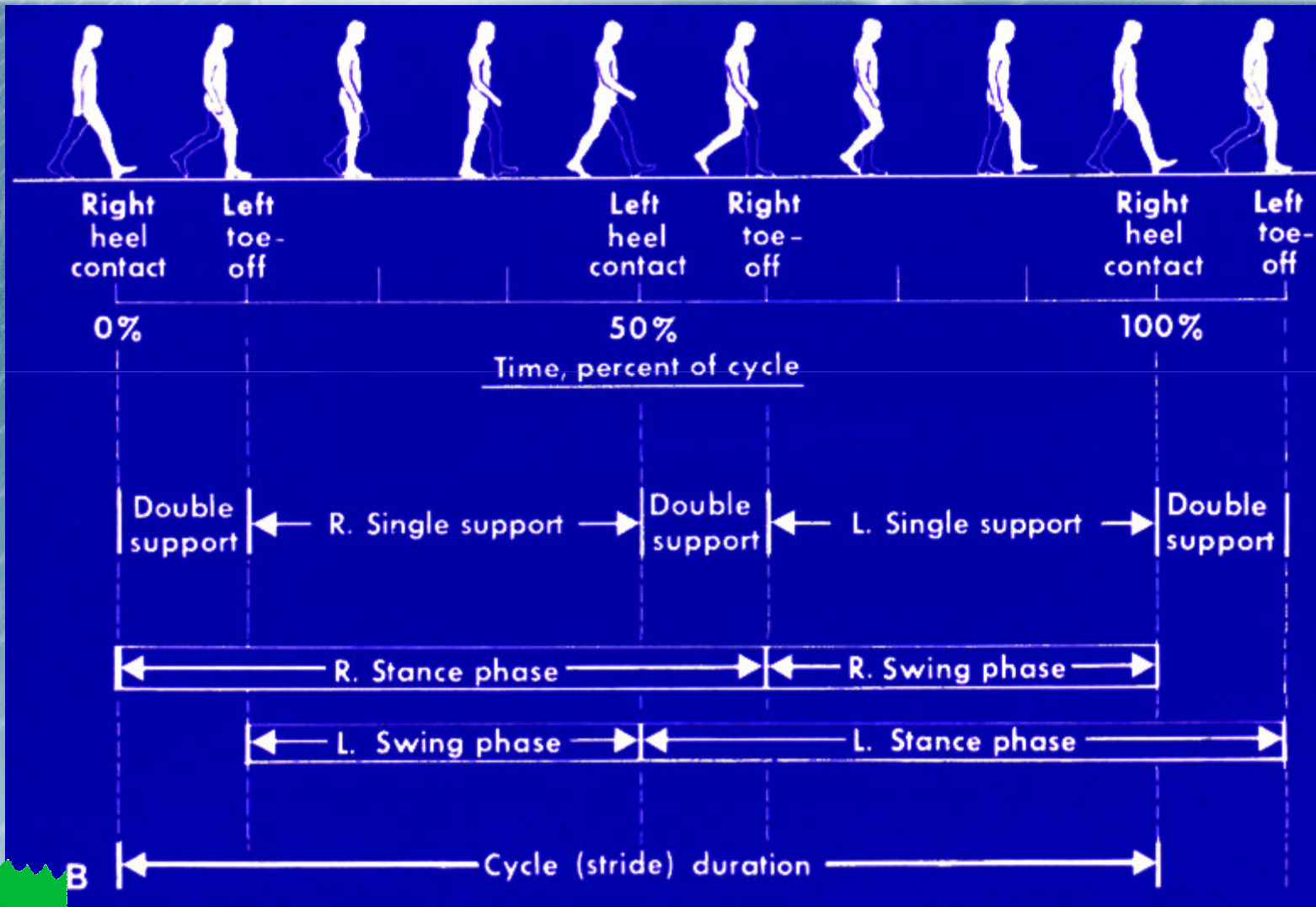
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Energia



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Cykl chodu



Cykl chodu



Right
heel
contact

Right
heel
contact

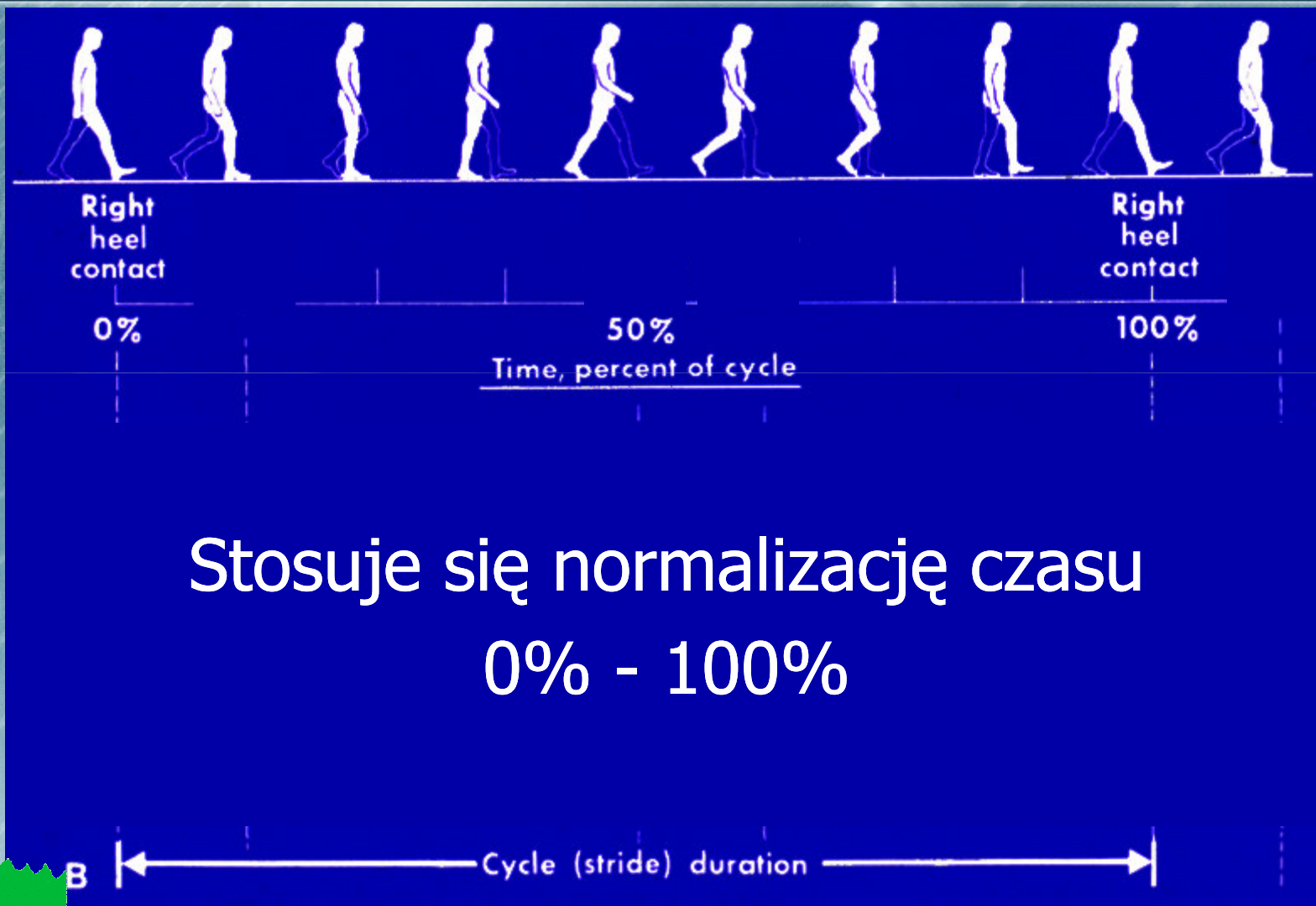
Cykl chodu trwa od kontaktu z podłożem do ponownego kontaktu z podłożem tej samej (ipsilateral) stopy (pięty)

← Cycle (stride) duration →



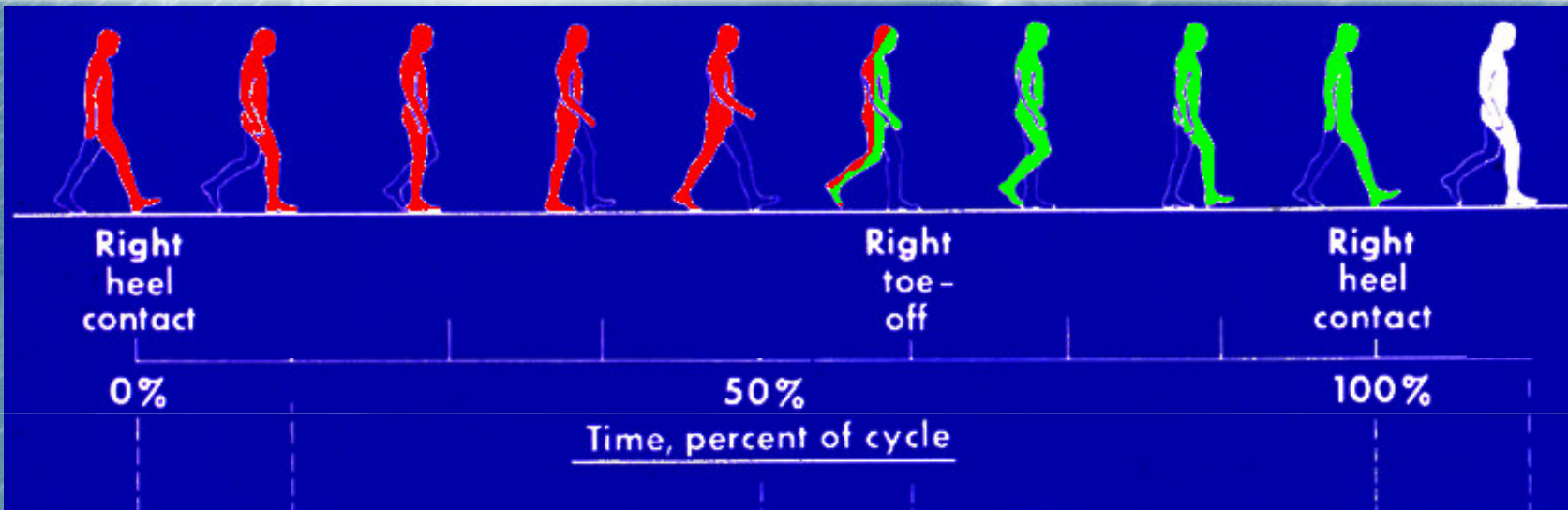
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Cykl chodu

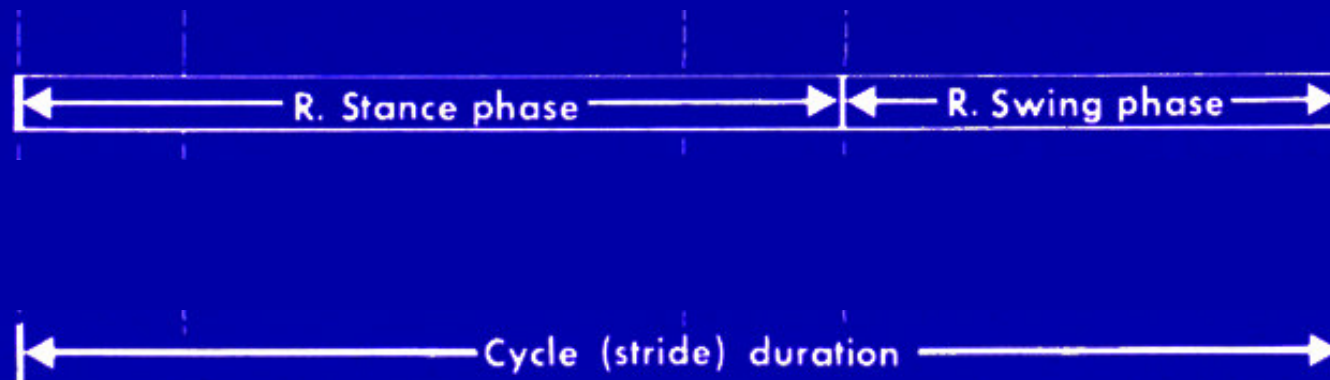


Stosuje się normalizację czasu
0% - 100%

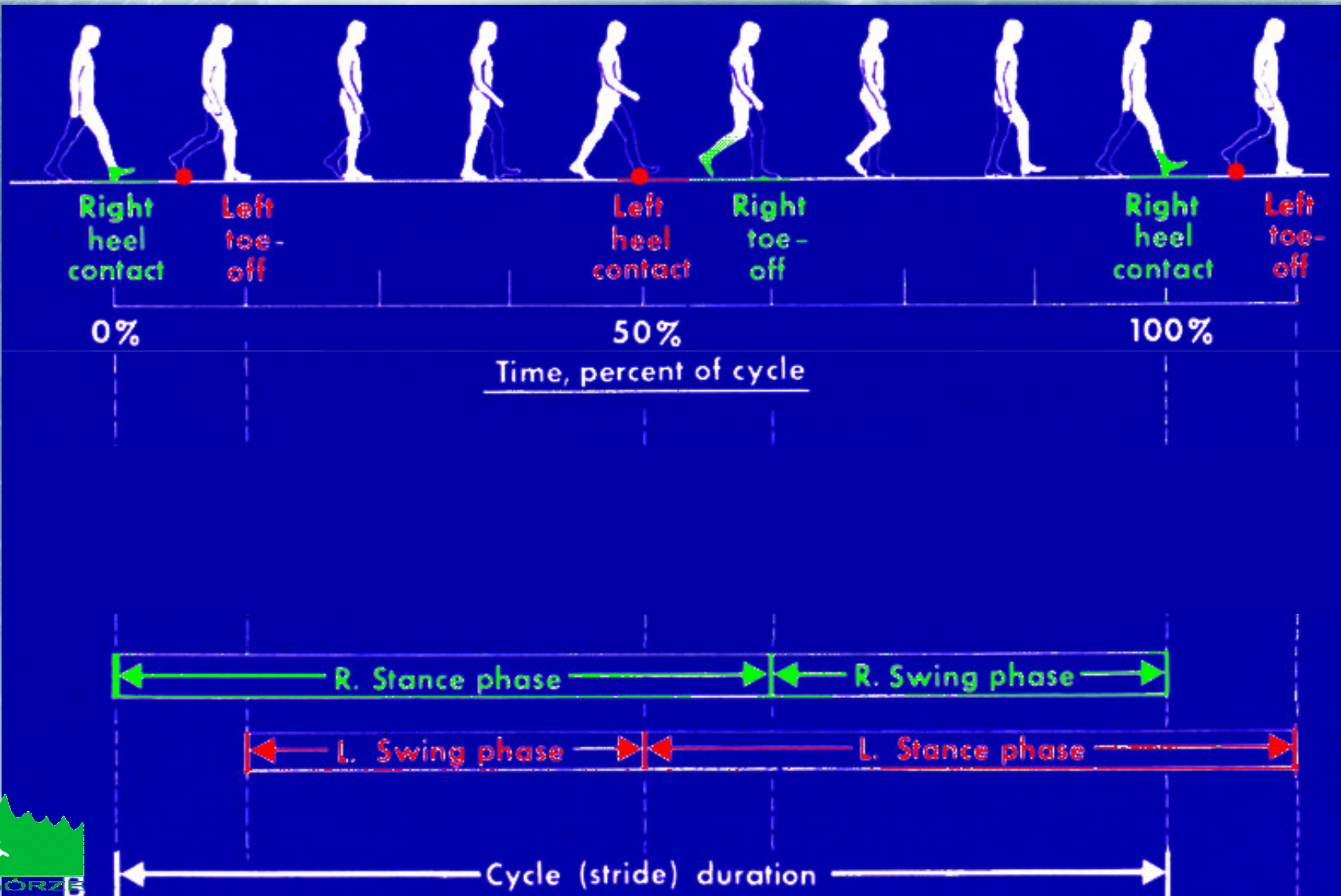
Cykl chodu



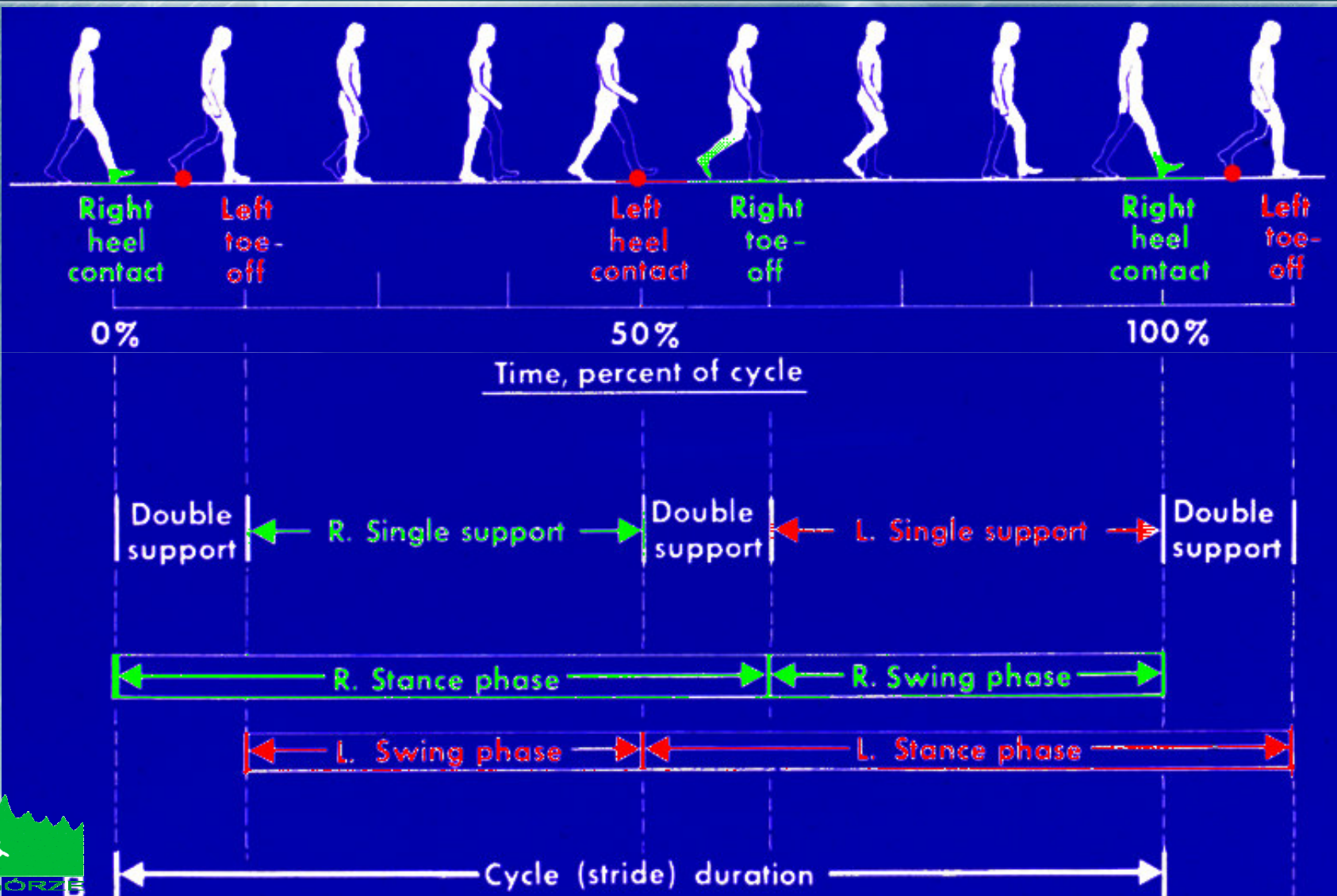
0% --- podparcie --- 60% -wymach- 100%



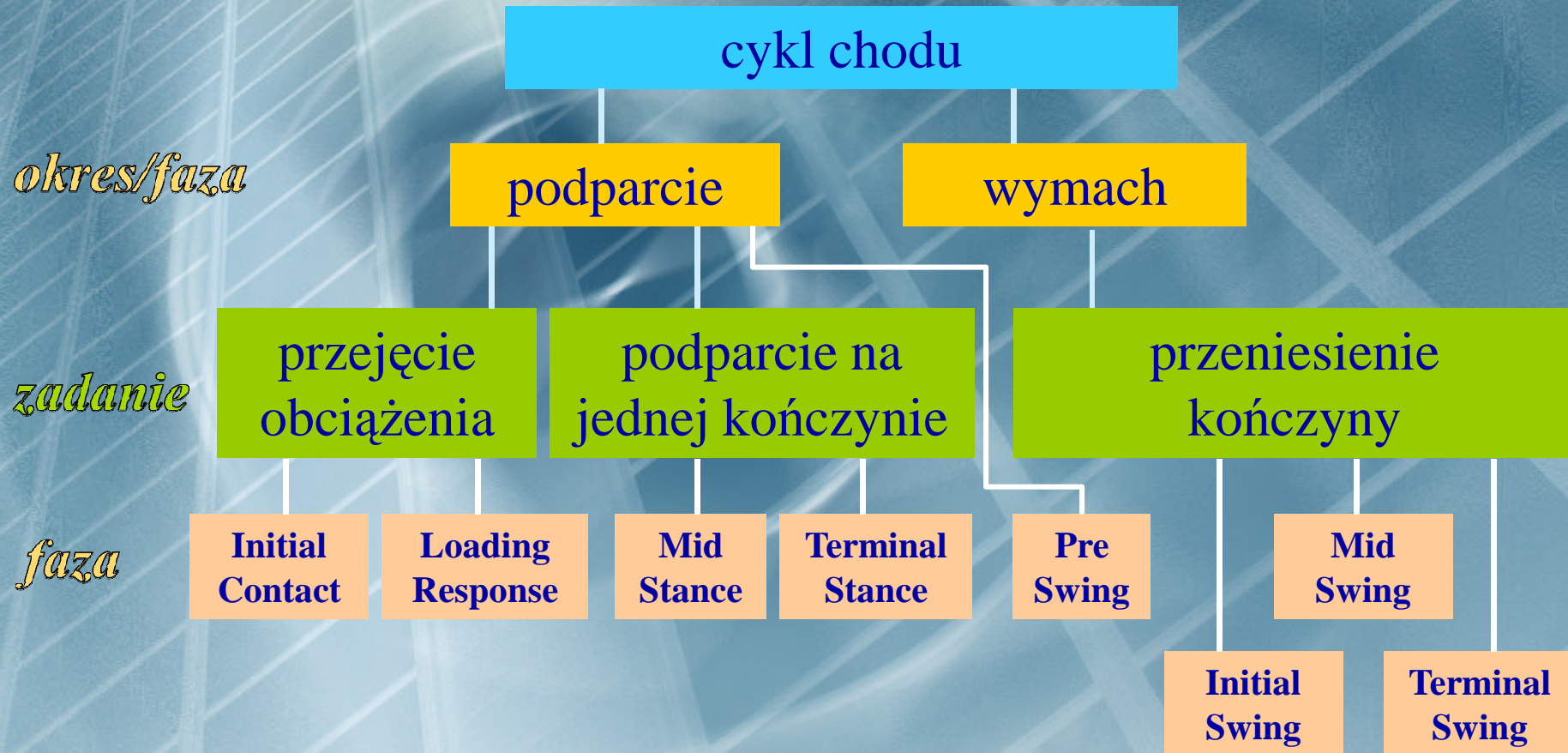
Cykl chodu: prawa ↔ lewa



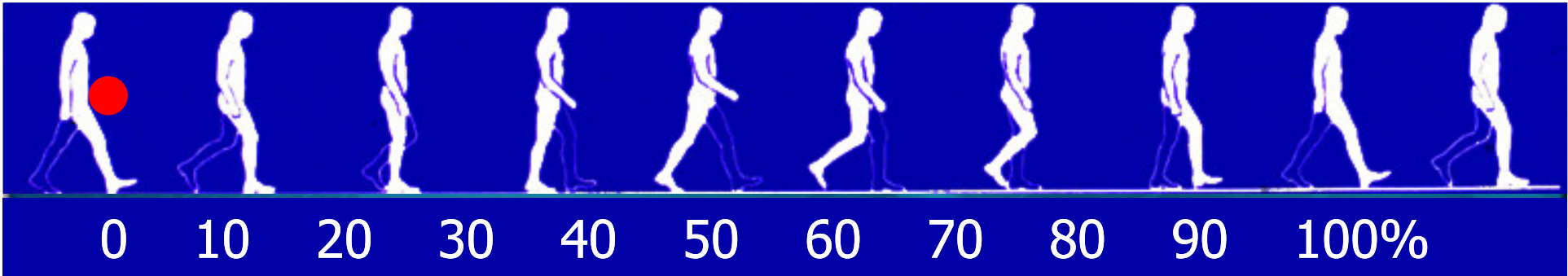
Cykl chodu: prawa ↔ lewa



Podział funkcyjny faz chodu (J. Perry)

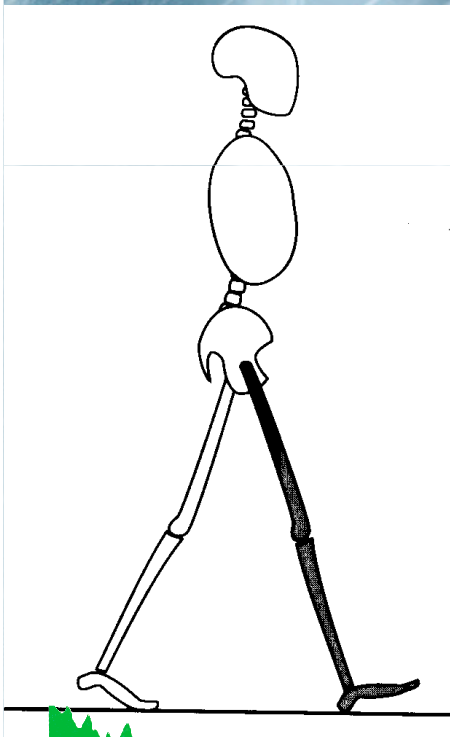


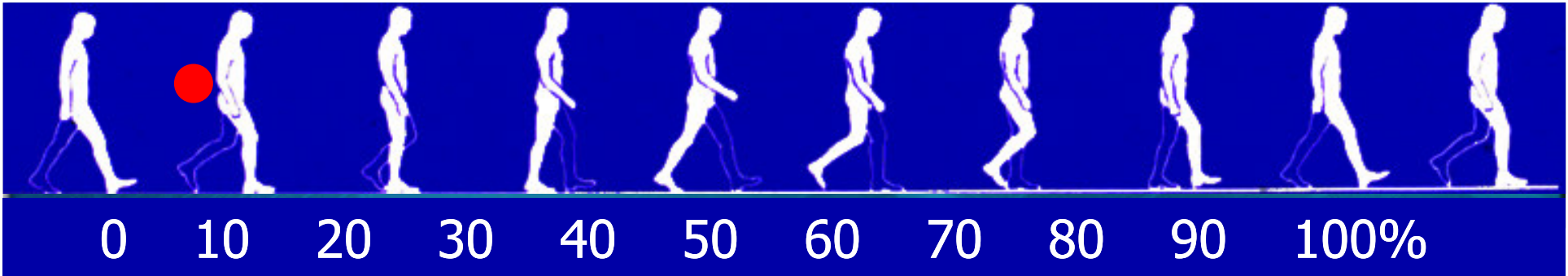
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Initial Contact

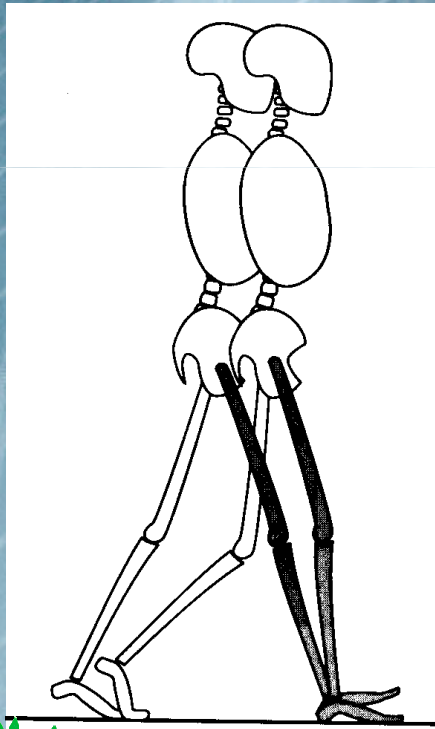
0%



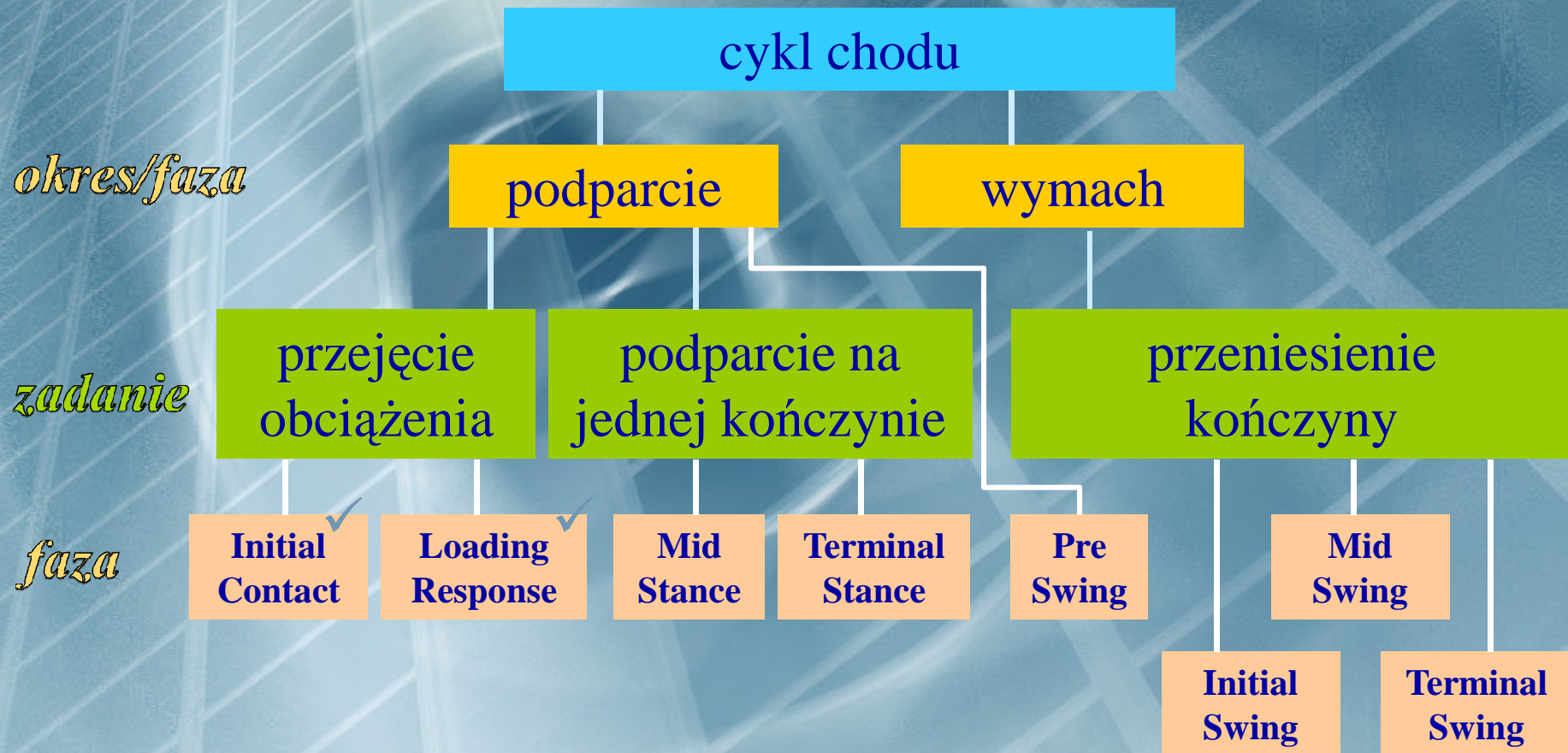


Loading Response

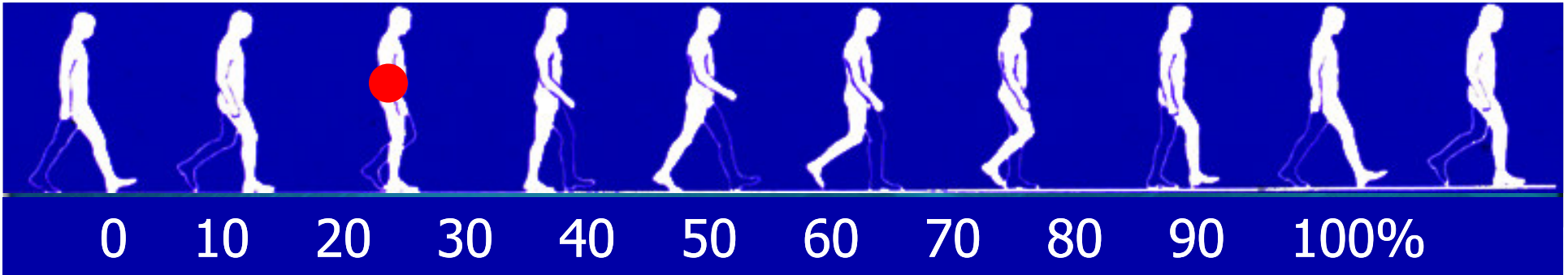
0-10%



Podział funkcyjny faz chodu (J. Perry)

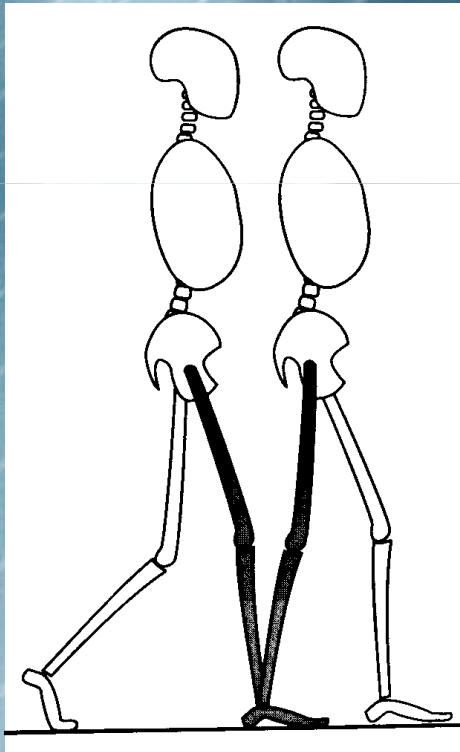


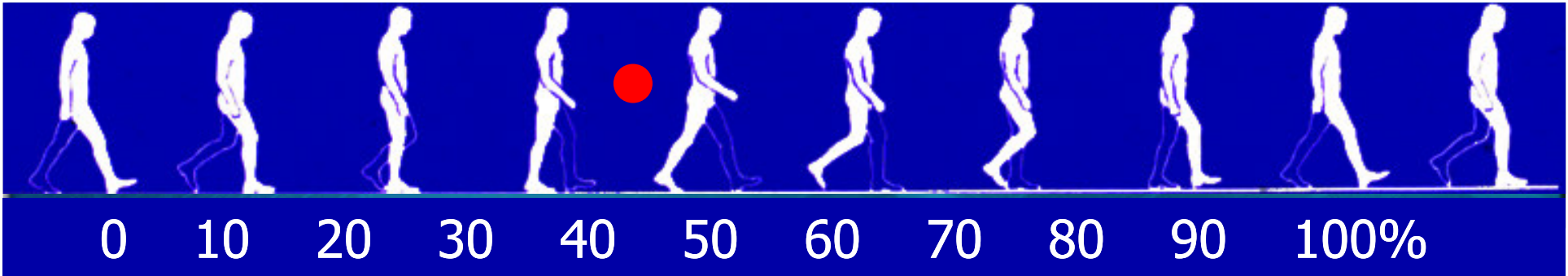
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Midstance

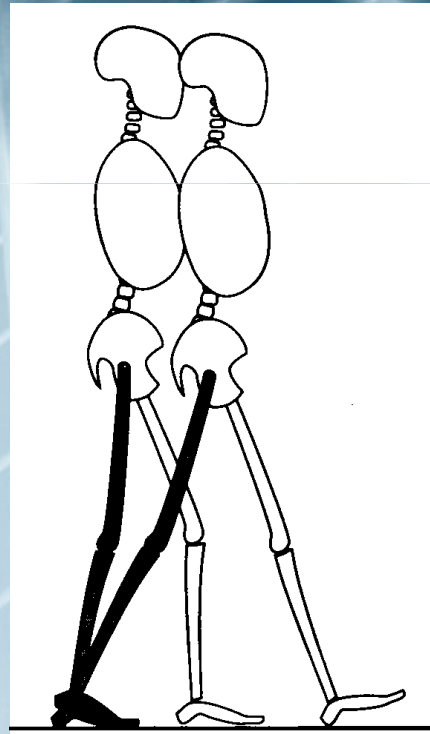
10-30%



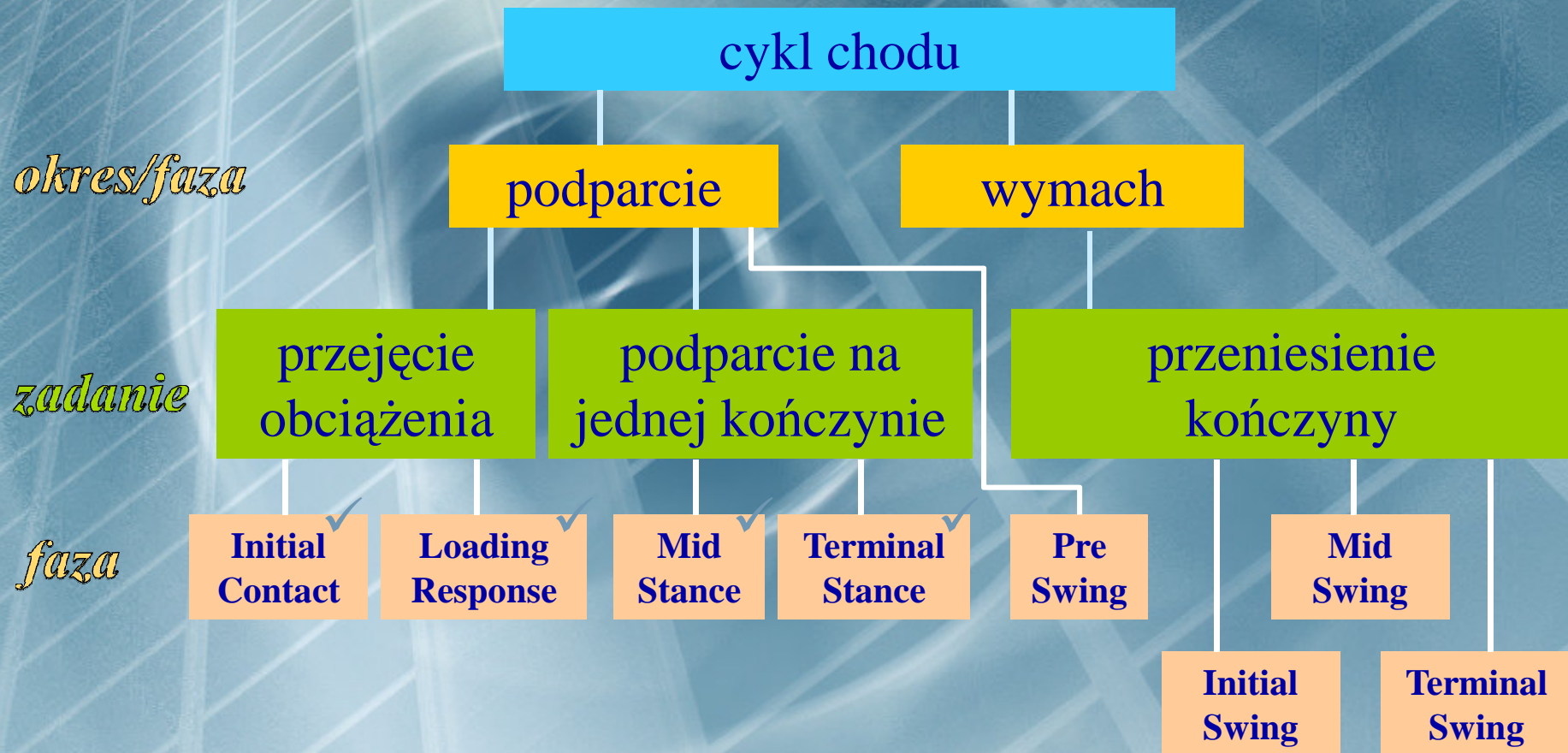


Terminal Stance

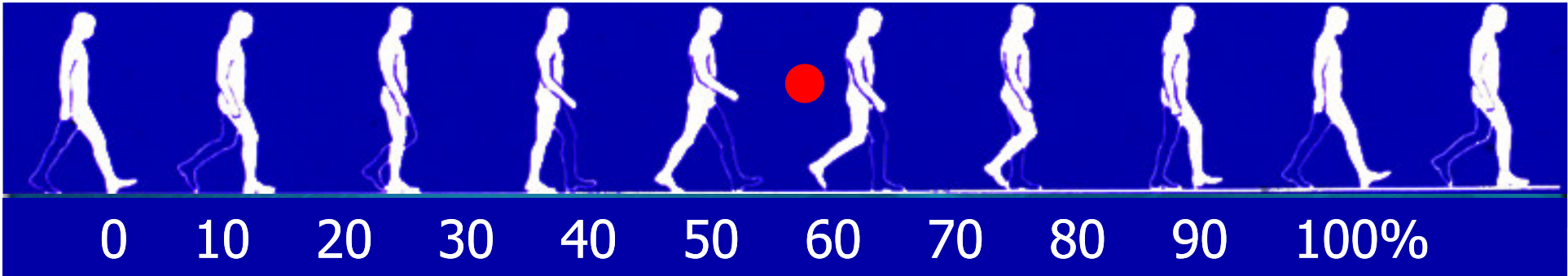
30-50%



Podział funkcyjny faz chodu (J. Perry)

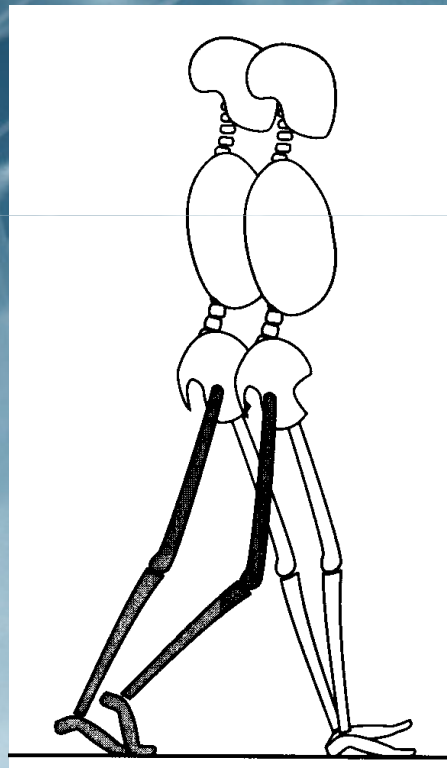


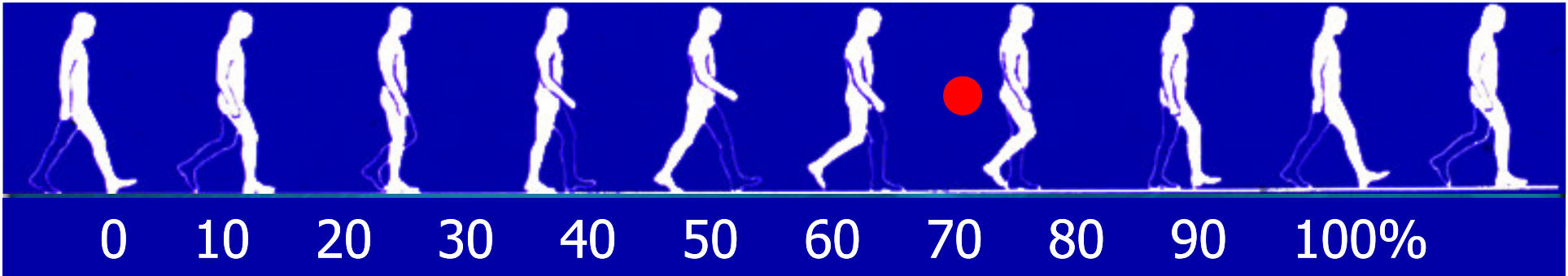
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Pre-Swing

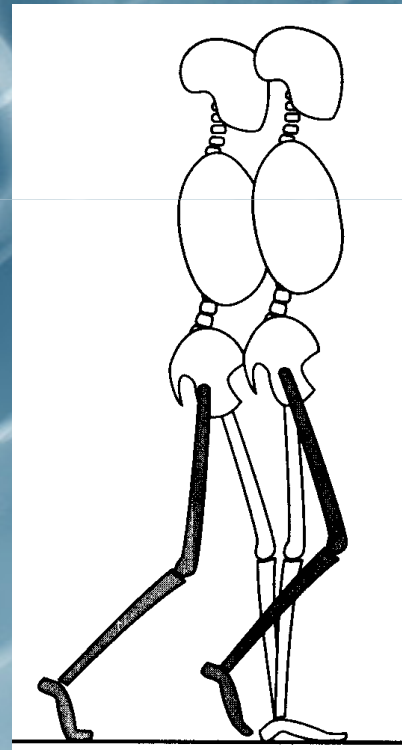
50-60%



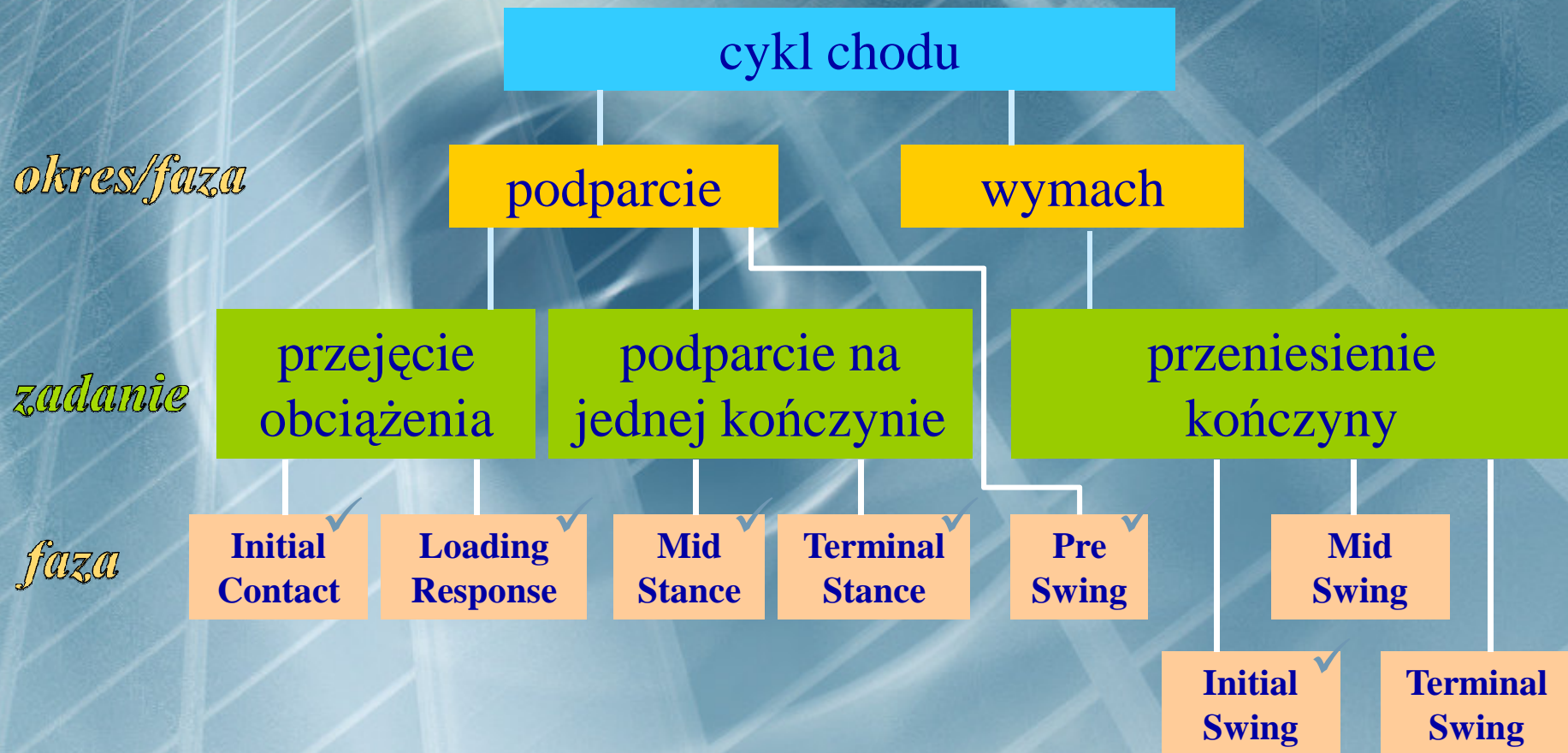


Initial-Swing

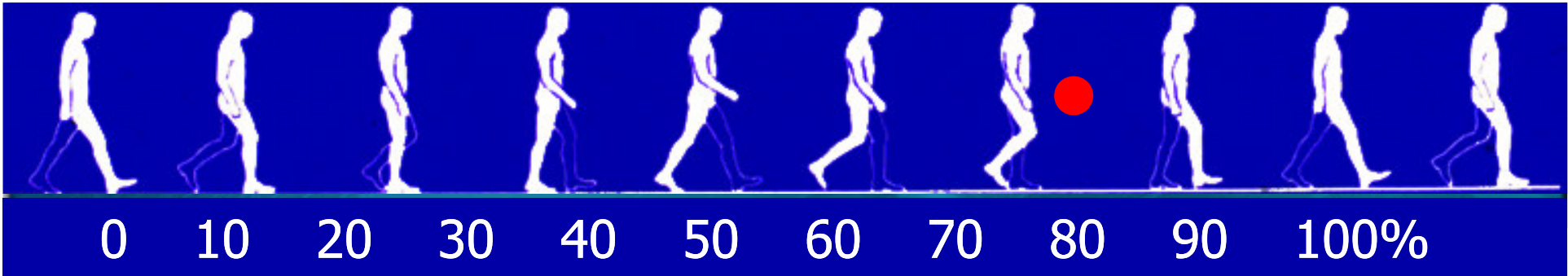
60-73%



Podział funkcyjny faz chodu (J. Perry)

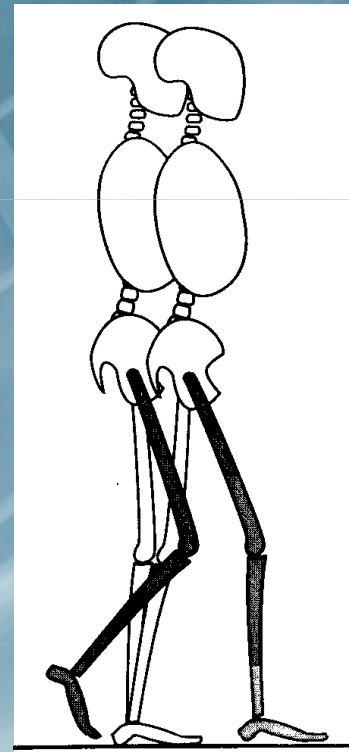


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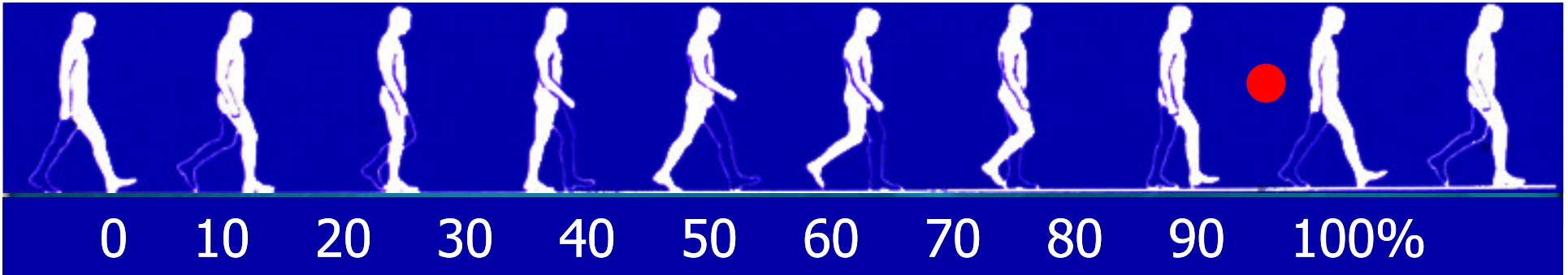


Mid-Swing

73-87%

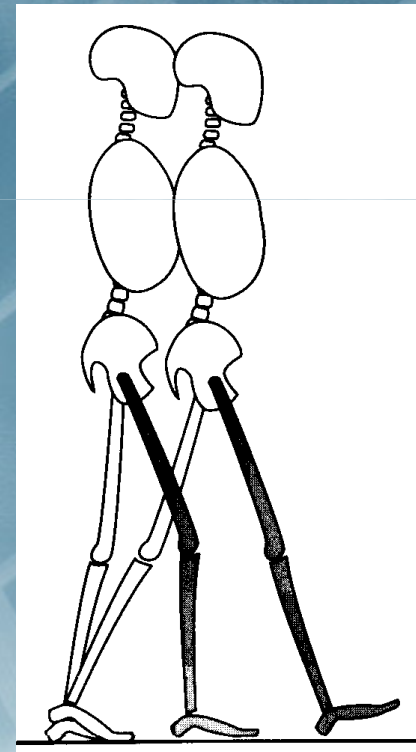


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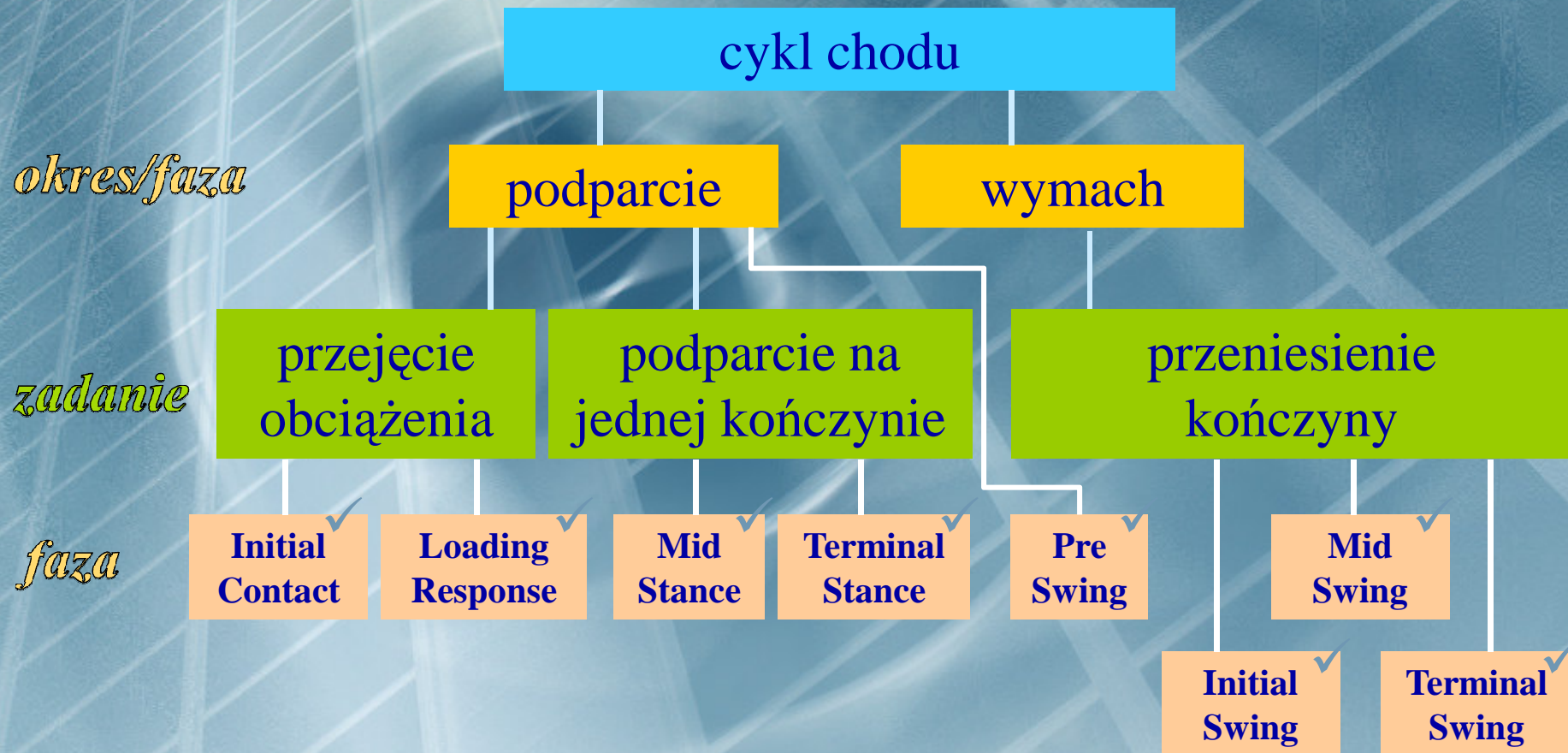


Terminal-Swing

87-100%



Podział funkcyjny faz chodu (J. Perry)



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