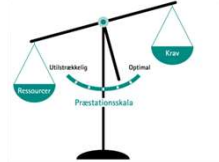


Forudsætninger for en god balance

CareWare præsentationsdag

"Teknologier til en god balance"

11. maj 2023



Uffe Læssøe, Docent, University College Nordjylland

1

Hvorfor er "balance" interessant?

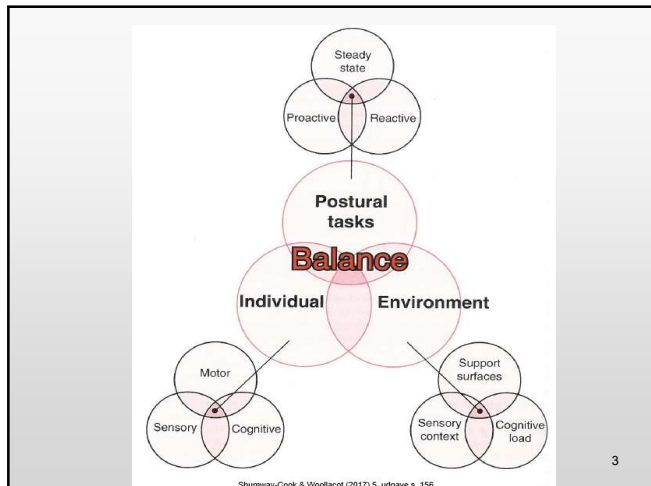


Fald defineres som en utilsigtet hændelse, der resulterer i, at en person kommer til at ligge på jorden/gulvet/et andet lavere niveau.

Sundhedsstyrelsen

Fald \approx at miste balancen

2



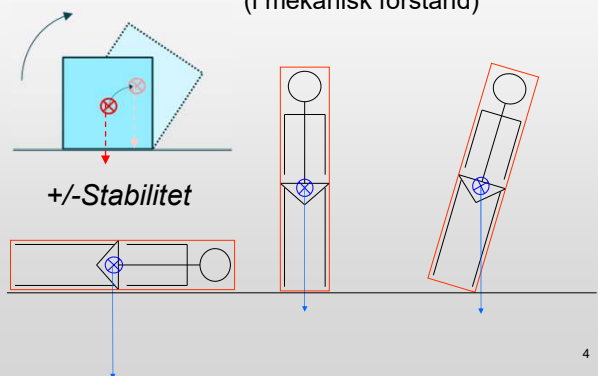
Shumway-Cook & Woolacot (2017) 5. udgave s. 156

3

3

Hvad er balance?

(i mekanisk forstand)



+/-Stabilitet

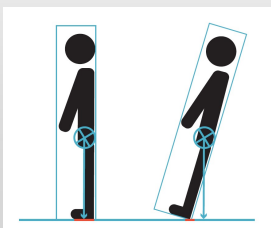
4

4



Stabilitets-optimering???

- Samspil lodlinje/understøttelse
 - Stor understøttelsesflade (form)
 - Fast understøttelse
 - Lavt massemidtpunkt
- Supplerende støtte
- ...



5

Postural kontrol definition

... the act of maintaining, achieving or restoring a state of balance during any posture or activity...

...Postural control strategies may be either "reactive" (compensatory) or "predictive" (anticipatory), or a combination of both...

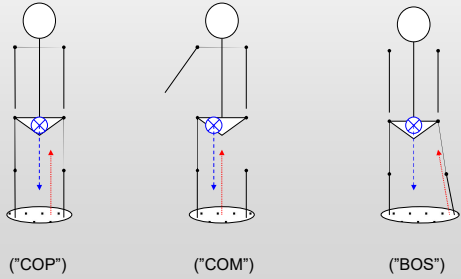
(Pollock et al. 2000)



6

Posturale korrektioner

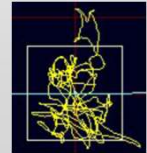
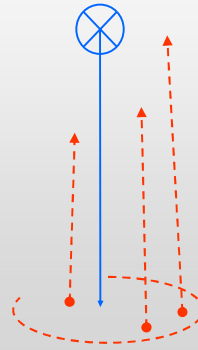
Strategier for at undgå at miste balancen og falde



7

7

Omvendt pendul model (COP)

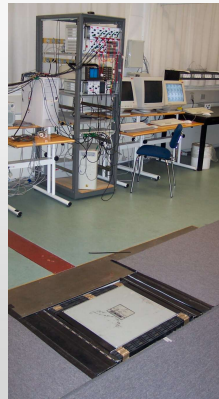
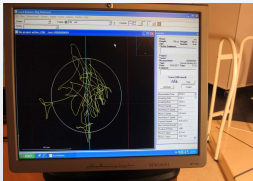


8

8



COP



9

9



COP-feedback

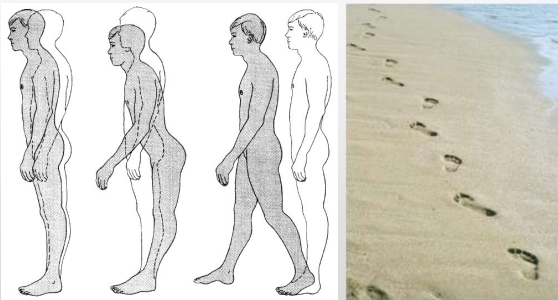


Wii Fit

10

10

Posturale korrektioner



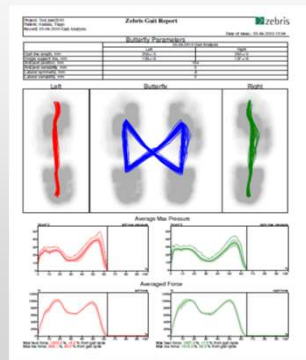
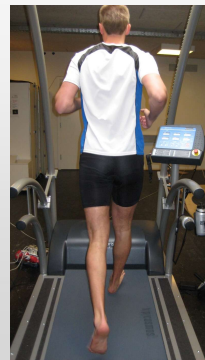
Ankel-, hofte- og skridtstrategier ("COP", "COM", "BOS")

11

11



Gang- / løbe-strategier



12

12

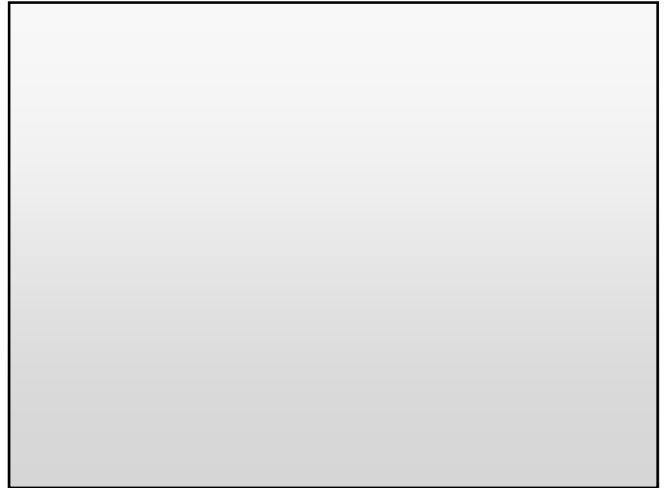
 Gangtræning for ung og gammel



Body-weight-support


13

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14

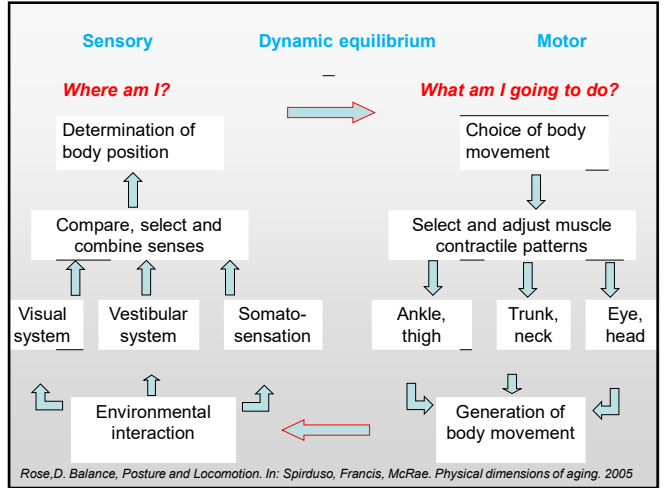
Forudsætninger



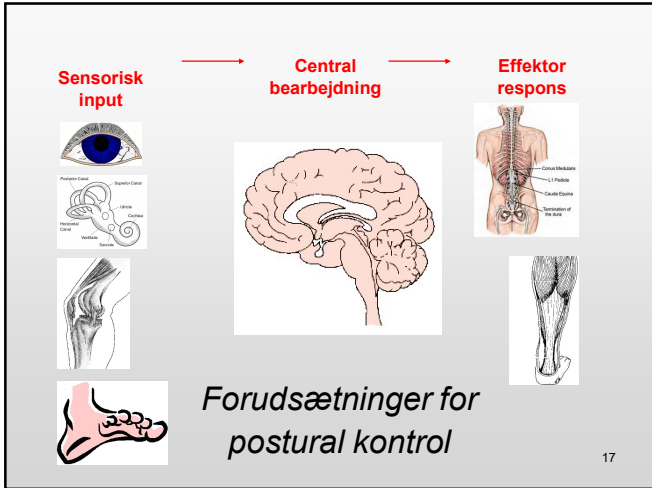
Hvad kræves der for at opretholde postural kontrol?

15

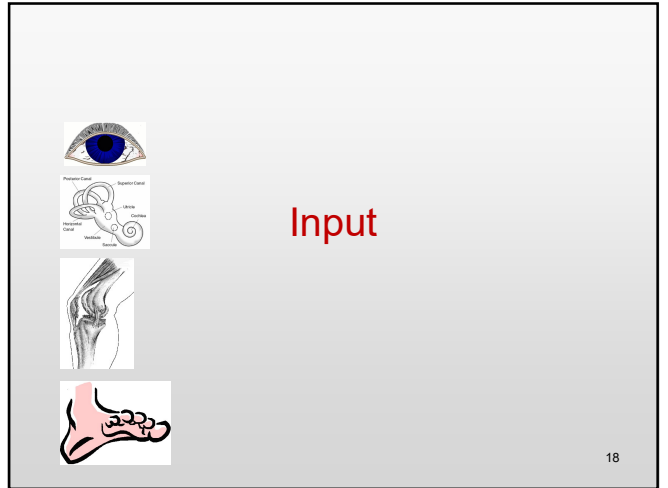
15



16



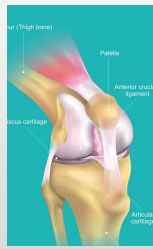
17



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Sensoriske referencesystemer

- Egocentrisk
- Exocentrisk
- Geocentrisk



Jones GM. Posture. In: Kandel ER, Schwartz JH, Jessell TM, editors. Principles of Neural Science. 4th. ed. New York: McGraw-Hill; 2000. p. 816-30.

19

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SensBalance

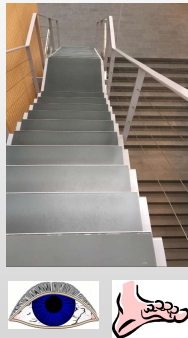
Ankelstabilitet
- feedback

20

20

Sensoriske referencesystemer

- Egocentrisk
- Exocentrisk
- Geocentrisk



21

21

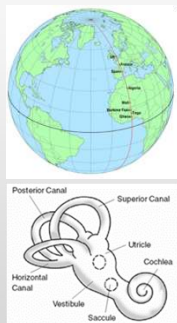


22

22

Sensoriske referencesystemer

- Egocentrisk
- Exocentrisk
- Geocentrisk

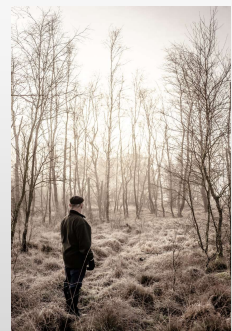


23

23



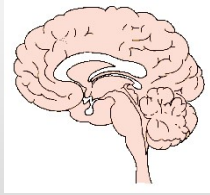
sanseintegration
+/-



24

24

Central bearbejdning

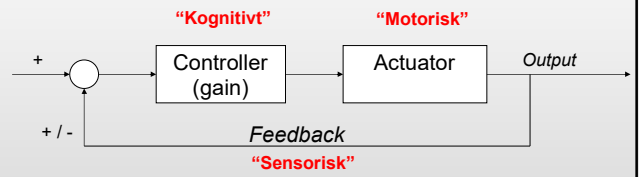


Sanseintegration – motorisk planlægning

25

25

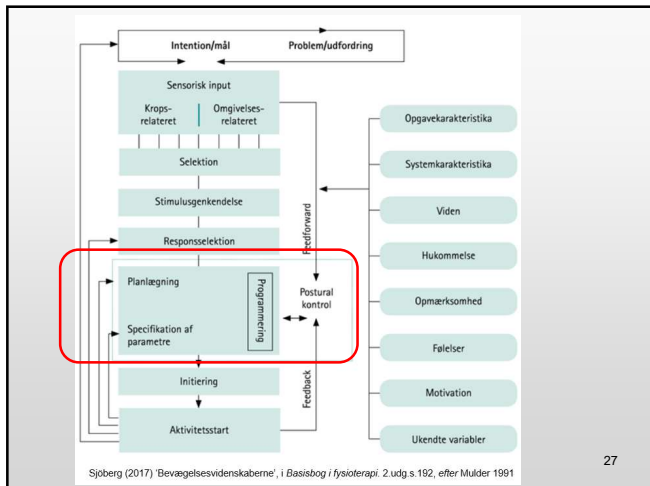
Feedback og feed forward



Mekanisk "closed loop" model

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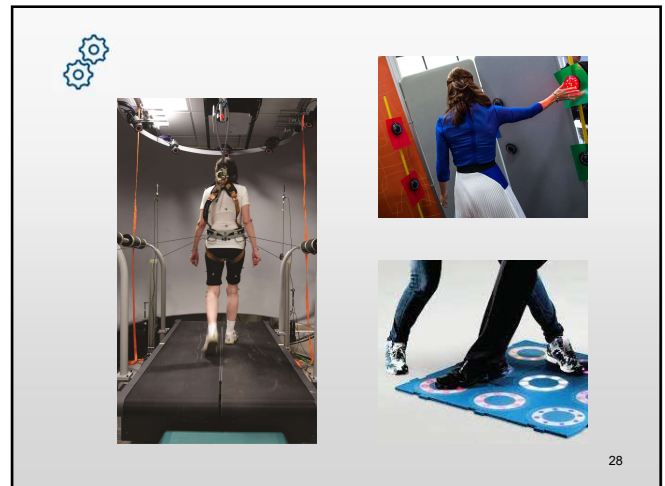
26



Sjøberg (2017) 'Bevægelsesvidenskabene', i Basisbog i fysioterapi. 2. udg. s.192, efter Mulder 1991

27

27



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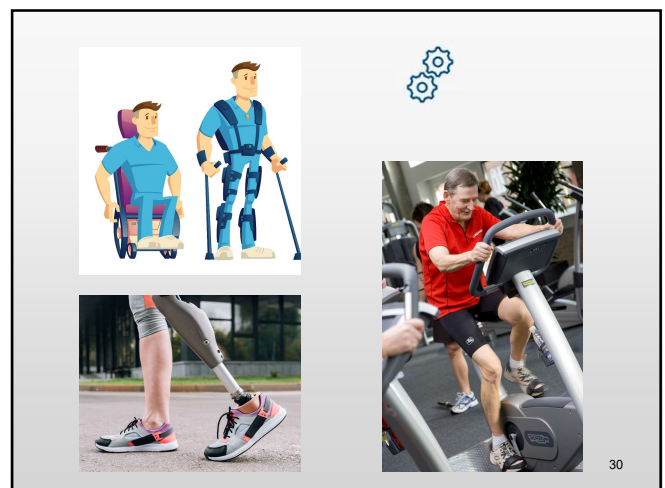
28

Output



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Opsamling

Shumway-Cook & Woollacott (2017) s. udgave s. 154

Elementer i den posturale kontrol

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Intervention

33

Litteratur forslag

- Shumway-Cook, Woollacott. Motor Control (2017)
- Trew and Everett. Human movement (2005)
- SST. Faldpatienten i den kliniske hverdag (2006)
- Læssøe. Balance – Postural kontrol (2021)

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