Evidens i konteksten af hjernerystelsesrehabilitering

Cervellos rehabiliteringsforløb, målrettet mennesker med senfølger efter hjernerystelse, bygger på et solidt forskningsbaseret fundament. Når man i sundhedsvidenskaben taler om evidens, bliver ordet evidens ofte brugt snævert - næsten som om evidens udelukkende betyder "et randomiseret kontrolleret studie (RCT) på præcis denne metode." Men det er en misforståelse af, hvordan videnskab fungerer. RCT'er er vigtige, men de er kun ét led i en langt bredere proces. I dette dokument har Cervello samlet en række videnskabelige referencer, der udgør en del af fundamentet for Cervellos arbejde med hjernerystelsesrehabilitering.

Evidens findes i flere lag. Direkte evidens fra RCT'er er ét lag. Indirekte evidens - dvs. viden, der er afledt af veldokumenterede mekanismer, neuroanatomi, fysiologi, psykologi, metakognitive processer og konsistente observationer - er et andet. De to former er ikke modsætninger, men forudsætter hinanden.
Uden den teoretiske forståelse og de indirekte beviser, ville et RCT slet ikke give mening.
Historien giver os tydelige eksempler. Einsteins generelle relativitetsteori blev udviklet i 1915 og brugt som grundlag for hele vores forståelse af universet, længe før dens prædiktioner kunne måles direkte. Den var ikke "mindre evidensbaseret" af den grund - dens indirekte evidens var så robust, at man kunne bygge videre på den, indtil de direkte målinger kom hundrede år senere.
Det samme gælder i rehabilitering. En øvelse eller behandling kan bygge på veldokumenteret viden om muskler, reflekser, psykologiske mekanismer eller sensoriske systemer, og den evidens er ikke svagere, blot fordi der ikke findes et RCT på netop den øvelse. Den hviler på logiske og biologisk plausible mekanismer, som er en fuldgyldig del af evidensbegrebet.

Cervellos indsats bygger på solid evidens. Hos Cervello er vores screenings- og rehabiliteringsindsats udviklet ud fra netop denne forståelse. Vi har ikke opfundet ny viden, men deduktivt anvendt den eksisterende forskning i neuroanatomi, netværksvidenskab, sensorisk integration samt psykologiske og metakognitive processer i en sammenhængende model for hjernerystelsesrehabilitering.
Det betyder, at rehabiliteringsforløbet bygger på solid evidens, også selvom der endnu ikke findes et RCT på præcis denne samlede tilgang.
Samtidig er vi nu på vej ind i det direkte lag. Cervellos forskningsprojekt FYTECH (Jay et al. 2025, in review) - den indledende version af den nuværende Cervello-rehabilitering - er netop gennemført som et randomiseret kontrolleret studie (RCT) og ligger i øjeblikket i peer review.
Resultaterne viser, at målrettet visuel-vestibulær træning kombineret med aerob træning har en signifikant positiv effekt på senfølger efter hjernerystelse. Det er et af de første RCT-beviser for, at en sådan tilgang kan gøre en forskel. Siden FYTECH har Cervellos neurospecialister udbygget screeningsmodellen yderligere. Ved at integrere nye lag af komplekse neurofunktionelle teorier, psykologiske mekanismer og metakognitive observationer, kan vi nu målrette en rehabiliteringsindsats endnu mere præcist, end det var muligt i FYTECH.
På den måde kombinerer vi et voksende fundament af direkte evidens med et bredt og robust teoretisk grundlag.

På de efterfølgende sider har vi samlet en række videnskabelige referencer, der udgør en del af fundamentet for Cervellos arbejde med hjernerystelsesrehabilitering. De viser, hvordan indirekte og direkte evidens tilsammen danner den videnskabelige basis for den tilgang, vi anvender i neuro-klinikken.

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Cervello, september 2025.

CERVELLO

Referencer, Cervellos tværfaglige hjernerystelsesprogram

Rehabiliteringsprogrammet er tværfagligt og har fokus på at øge funktionsevnen indenfor fem primære funktioner: Visuel funktion, vestibulær funktion, kognitiv funktion, mental funktion samt proprioceptiv funktion. Nærværende dokument gennemgår den forskning og litteratur, der har bidraget til udviklingen af den tværfaglige rehabiliteringsmodel. (Bemærk, at de angivne temaer er vejledende, og at enkelte artikler med fordel kan placeres under andre temaer).

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