The neurological and behavioral consequences of dystrophin deficiency in Duchenne muscular dystrophy: insights from mouse models

Verhaeg, M.A.T.

Stellingen behorende bij het proefschrift getiteld:

The neurological and behavioral consequences of dystrophin deficiency in Duchenne muscular dystrophy: Insights from mouse models

1. Cognitive and behavioral impairments in DMD mouse models are closely linked to the number of brain-specific dystrophin isoforms affected by the mutation. (this thesis)

2. Despite clear behavioral deficits, the absence of Dp427 does not consistently result in gross neuroanatomical alterations, suggesting that its role in brain dysfunction lies in more subtle mechanisms. (this thesis)

3. While Dp140 has a subtle influence on emotional reactivity, its broader behavioral impact appears limited in DMD mouse models compared to humans. (this thesis)

4. Dp71 and Dp40 have emerged as key regulators of both behavioral processes and brain pathology, underscoring their central role in CNS function. (this thesis)

5. Preclinical studies using DMD models without corticosteroid treatment risk misrepresenting patient-relevant brain pathology, thereby limiting their translational value. (this thesis)

6. Cognitive challenges are more burdensome to patients and family members than muscle degeneration.

7. Mouse models play a key role in DMD research, but they will never be able to capture the full complexity of human brain involvement.

8. Given that behavior is strongly shaped by environmental conditions, the lack of standardization of preclinical behavioral assays significantly hinders reproducibility in the field.

9. If treating muscle in DMD is a puzzle, then treating the brain is a puzzle where half the pieces are missing and the picture on the box is not provided.

10. The quote "If the brain were so simple that we could understand it, we would be so simple that we couldn't." from Emerson Pugh (1977) speaks to the impossible challenge of trying to use our brain to understand our brain.

11. Designing the perfect experiment is easy, until you factor in time, funding, space, ethics, and the stress level of both the researcher and the subject.

12. While academia often leans toward a culture of overwork, taking time to rest is sometimes the most effective way to maintain productivity.