Reflection # 2 – Lecture 7 Neurorehab Interventions

This lecture talked about recovery vs. compensation. Recovery is if you are able to execute behaviour just like you used to before you lost motor control. Compensation is when you execute the same behaviour through other means. For example, trunk movement occurs if someone whose had a stroke tries to reach something that originally would have been at arm’s reach. This can be related to transcanal endoscopic ear surgery (TEES) in the following way. Traditional microscopic surgery allows two hands to operate but TEES does not. Tasks that require two hands would have to be completed single-handedly, requiring a degree of compensation. For example, cutting bone within the middle ear. A drill is used to cut bone and it requires irrigation and suction simultaneously to suck up the bone pieces. The drill head provides irrigation, but no suction. Therefore, to compensate the loss of one hand to operate the surgeon has to irrigate/drill a little bit, then take out the drill with endoscope and insert suction with the endoscope, and keep switching tools in such a way to ensure the task of drilling bone is done appropriately.

If the surgeon does this repeatedly, he/she will be able to do this more and more easily, which can kind of be compared to the neurorehab intervention of repeated movements where people do the same movements repeatedly and that helps them learn how to regain motor control.

We also learned that sleep enhances motor control learning after stroke. It would be interesting to explore the question of whether regular sleeping patterns would help the surgeon learn how to perform single handed surgery with higher skill.

As well, instead of task-oriented training, performing movement-oriented training as in asking the surgeon who is learning TEES to just feed the instrument inside the ear canal with the endoscope and explore around the anatomy to see where and how to reach and move effectively inside the surgical field. This follows with the robot-dolphin game simulation therapy to move instead of accomplish a task within the middle ear space to create motor learning of how to do TEES.