Cornell Guided Notes

Human Anatomy & Physiology (Human Body Systems) | 2027-02-22

Name	Period	Date	Lesson
		2027-02-22	

Lesson focus

Sensor and range-of-motion lab

Key words and questions	Prepared details and student notes
Essential question **What is today's target?**	Collect EMG or range-of-motion data and record results in a data table. Big idea: Collecting accurate physiological data requires correct sensor setup, consistent trial protocol, and careful unit recording before analysis can begin. **My notes, examples, and questions**
Key words **What vocabulary unlocks the lesson?**	- fatigue - EMG - range of motion - flexion - extension - biomechanics - kinesiology **My notes, examples, and questions**

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Must-know ideas **What should I understand by the end?**	- A goniometer measures joint angle in degrees; EMG sensors measure muscle electrical activity in millivolts. Both require zeroing before data collection. - A data table must include: trial number, measured value (with units), and any qualitative observation (pain, tremor, noticeable fatigue). - Identifying the fatigue-onset trial requires looking for a consistent downward trend in force or angle, not a single low value. **My notes, examples, and questions**
Process notes **What happens during class?**	- 0-10: Safety and sensor setup; zero baseline and practice trial - 10-20: Protocol review: number of trials, rest intervals, recording format - 20-50: Run trials; record force or angle and time in data table - 50-62: Mark fatigue-onset trial; add qualitative observations column - 62-75: Peer-check: does each row have units? Is fatigue-onset trial marked? - 75-80: Submit raw data table; clean up sensors **My notes, examples, and questions**

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Steps and evidence **What do I do and turn in?**	- Set up the EMG sensor or goniometer and zero the baseline. - Run repeated trials of a grip or joint movement until fatigue appears. - Record force or angle and time for each trial in your data table. - Note the trial where performance clearly dropped. - Submit your raw data table with units and the fatigue-onset trial marked. Evidence: Data table - Raw data table with trial number, measured value (mV or degrees, with units), time, and fatigue-onset trial clearly marked. **My notes, examples, and questions**
Checks for understanding **How do I know I got it?**	- You can collect clean motion or EMG data with units. - You can identify the trial where fatigue begins. **My notes, examples, and questions**

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Key words and questions	Prepared details and student notes
Lab or safety notes **What must I handle carefully?**	Safety: - Confirm no skin allergies to electrode gel or adhesive before applying EMG electrodes. - Do not apply electrodes over broken skin, rashes, or open wounds. - Stop the trial immediately if a participant reports sharp pain rather than muscle fatigue. - Dispose of single-use electrode pads in regular trash; do not reuse. Supplies: - EMG sensor or hand dynamometer (grip-force device), OR goniometer (joint-angle measurement) - Data collection software or printed data table template - Timer or stopwatch - Lab notebook - Electrode gel and disposable electrode pads (if using EMG sensor) **My notes, examples, and questions**

Summary

Today's lesson focused on Sensor and range-of-motion lab. The main target was: Collect EMG or range-of-motion data and record results in a data table. The evidence of learning is Data table: Raw data table with trial number, measured value (mV or degrees, with units), time, and fatigue-onset trial clearly marked.. In my own words, the most important idea from today is:

My summary

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My final question or connection