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Reflex Traces and Sensory Physiology

Practical 13 / Report and data interpretation

Aim

Interpret a teaching reflex record and compare sensory pathway results.

Principle

A reflex uses a receptor, afferent pathway, central connections, an efferent pathway and an effector. Latency includes travel and synaptic or muscular delays.

Materials and Requirements

- Annotated reflex and sensory records
- Skin territory and spinal pathway diagrams
- Timing ruler

Procedure

1. Identify stimulus onset, response onset and scale on a supplied trace.
2. Confirm tracing units, stimulus channel and response channel. Use two known grid marks to verify the time scale and distinguish the stimulus artefact from the genuine response.
3. Calculate latency and compare matched repeats without using a single trace as a diagnosis.
4. Use the marked onset of the first reproducible deflection and subtract the stimulus time. Convert seconds to milliseconds and record the measured latency for each comparable trial.
5. Compare latencies and response amplitudes only for matching recordings. Identify a noisy or clipped trace, document exclusions and repeat the reading on a valid trace.
6. Map a supplied sensory change to a peripheral nerve, root or spinal tract pattern.
7. Place the fictional sensory change on a body chart. Compare it with a named nerve territory, dermatome and candidate spinal tract using the provided diagrams.
8. Present an explanatory diagram linking stimulus, pathway and response.
9. Diagram receptor, afferent, spinal integration, efferent and response for the assigned reflex. Summarise the observed timing and distribution and state what remains uncertain.

Precautions

- Check sampling and calibration before converting units.
- Use supplied traces for electrically evoked recordings.

Observations and Interpretation

Reflex Traces and Sensory Physiology

Observations and Record

Item	What to record	What it tells you
Trace	Stimulus and response timing	Allows latency calculation
Sensory modality	Touch, vibration or other modality	Relates to the appropriate pathway
Distribution	Side and anatomical boundaries	Suggests a localisation to test

Worked Example

If a supplied trace is marked at 0.10 s for stimulus and 0.14 s for response, latency is 0.04 s or 40 ms. The specific method determines whether this is expected.

Result and Interpretation

State the measured latency and identify the pathway features supported by the scenario.

Viva Questions and Answers

Why record stimulus onset?

Latency is timed from stimulus to response.

What does a reflex latency include?

Conduction and relevant central or effector delays.

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