EYFS Handwriting Foundations Research Base

The sequence Shoulders → Arms → Wrists → Hands → Fingers → Pencil is a practical summary used by occupational therapists, early years specialists and handwriting programmes to describe the developmental progression of motor control needed for handwriting. The research base comes from several overlapping fields:

1. Developmental Motor Control Theory

Children typically gain control from proximal to distal muscles:

Proximal = close to the body's centre (shoulders and trunk)

Distal = further away (hands and fingers)

This developmental pattern is well established in child development literature.

2. Occupational Therapy Research

Paediatric occupational therapists emphasise that handwriting depends upon:

- core stability
- shoulder stability
- bilateral coordination
- wrist stability
- hand strength
- fine motor precision

Without these foundations, pencil control is difficult.

3. National Handwriting Association

The National Handwriting Association work to raise awareness of handwriting as a crucial component of literacy. They promote and foster good practice in the teaching of handwriting and provide support for those working with children and adults who have handwriting difficulties.

https://nha-handwriting.org.uk/teaching-handwriting-in-the-early-years

- develop core strength, balance and coordination
- build spatial awareness and body control
- strengthen gross motor skills
- use whole-arm movements
- improve fine motor control and hand–eye coordination through smaller controlled movements
- provide regular opportunities for finger manipulation to develop precision, control and confidence with small tools and equipment (e.g. tweezers, scissors, paintbrushes and pencils)

- before formal handwriting becomes fluent.

4. UK Writing Framework (DfE, 2021)

"Children need to develop the gross and fine motor skills necessary for writing before they are expected to write fluently."

The framework specifically highlights:

- core strength
- gross motor control
- fine motor development
- pencil grip
- letter formation

as prerequisites for successful writing.

5. EEF

Teaching the Skills Needed for Mark-Making and Letter Formation

- fine motor and gross motor skills are the foundations of mark-making and letter formation
- teaching these skills works best when adults provide purposeful, developmentally appropriate experiences
- modelling, prompts and feedback help children refine their movements
- mark-making and letter formation should be viewed as part of wider physical development
- building gross motor skills, stability, coordination and sensory awareness provides physical foundations that later support handwriting and literacy success

Practicalities for EYFS

The research broadly supports this progression:

Physical Development	Typical Activities
Core & Shoulder Stability	Climbing, balancing, wheelbarrow walks
Arm Control	Painting easels, ribbon dancing, chalking walls
Wrist Stability	Playdough, squeezing tools, tongs
Hand Strength	Pegs, threading, construction
Finger Dexterity	Tweezers, finger games, bead work
Pencil Control	Mark making and letter formation

This is why our highly effective Nursery and Reception provision appears to spend a large amount of time on movement, climbing, dough, construction and fine motor activities: these are not separate from handwriting development; they are the foundations that make fluent handwriting possible.

Leadership Conversations

When monitoring Nursery and Reception:

✓ Daily fine motor provision

✓ Consistent letter formation language

✓ Correct pencil grip being taught

✓ Opportunities for large-scale mark making

✓ Handwriting linked to phonics

✓ Immediate correction of misconceptions

✓ Children applying skills independently in play

✓ Progression from gross motor → fine motor → mark making → letter formation → fluent writing

One of the most useful quotes from the Writing Framework for EYFS leadership is:

"Children need to develop the gross and fine motor skills necessary for writing before they are expected to write fluently."

For Birkwood to achieve strong writing outcomes in Key Stage 1, we need to invest heavily in these foundations during Nursery and Reception.