

Back pain amongst school children and physical risk factors in schools

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1 Aims of the study

I identify the extent of back pain experienced by schoolchildren, aged 11 to 14

Establish any physical risk factors, which may be present in schools due to poor posture

Provide advice to prevent problems arising in the future

2 Background to the Study

Strong predictor of future back pain is a previous history of such symptoms (Troup et al. 1987)

Many adult sufferers report onset of back pain in early teenage years or in their twenties (Papageorgiou, et al. 1996)

High rates of back pain, amongst school children 29% report back pain often (Brattberg 1994)

51% cumulative prevalence (Troussier et al 1994)

Possible risk factors in schools include Prolonged poor posture (Mandal 1994) and unsuitable furniture (Troussier 1999)



4 Results: Extent of back and neck pain

Low back pain last month	44%
Low back pain last week	26%
Upper back pain last month	35%
Upper back pain last week	26%
Neck pain last month	51.5%
Neck pain last week	24%

Treatment low back pain last month	3%
Treatment upper back pain last month	1.5%
Treatment neck pain last month	4.5%
Absence low back pain last month	3%
Absence neck pain last month	3%

5 Results: Sitting behaviour of children

Percentage of time spent in postures

PEO category	mean	Std. Dev.
Front edge of seat	11.24	19.15
Trunk flexion > 20°	25.36	20.26
" > 45°	2.55	4.98
" total	27.91	21.97
Trunk rotation > 45°	2.73	5.59
Neck flexion > 20°	33.50	19.84
Neck rotation > 45°	11.45	9.77
Trunk unsupported	12.53	16.21
Work at desk	38.03	25.65

6 Results: Sitting behaviour of children

Number of movements

PEO category	mean	Std. Dev.
Front edge of seat	1.48	2.23
Trunk flexion > 20°	21.35	14.57
" > 45°	3.39	4.55
" total	24.73	17.72
Trunk rotation > 45°	3.09	3.10
Neck flexion > 20°	41.67	20.94
Neck rotation > 45°	32.83	18.67
Trunk unsupported	6.23	5.24
Work at desk	14.41	9.63

In association with the Arthritis Research Campaigns' Epidemiology Unit University of Manchester

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7 Results: Low back pain and associated factors

LBP month	Lesson length (high)	0.039*
LBP month	BMI (high)	0.015*
LBP week	BMI (high)	0.027*
LBP week	TF 20 (% high)	0.012*
LBP week	TF total (% high)	0.014*
LBP week	NF (% high)	0.035*
LBP week	Work at desk (% high)	0.005**

*P<0.05; **P<0.01 Mann-Whitney U

8 Results: Upper back pain and associated factors

UBP month	TF20 (n low)	0.004**
UBP month	TF20 (% low)	0.046**
UBP month	TF total (n low)	0.006**
UBP week	BMI (high)	0.014*
UBP week	TF 20 (n low)	0.025*
UBP week	TF total (n low)	0.033*
UBP week	Unsupported (% low)	0.024*

*P<0.05; **P<0.01 Mann-Whitney U

9 Results: Neck back pain and associated factors

NP month	BMI (high)	0.009**
NP week	TF45 (n low)	0.048*
NP week	TF total (n low)	0.047*

*P<0.05; **P<0.01 Mann-Whitney U

10 Conclusions

High body mass index associated with increased reporting of back and neck pain

Longer lessons may increase likelihood of low back pain

Static postures ie less movements during lessons may increase likelihood of upper back and neck pain

Trunk flexed postures may increase short term low back pain

This study has implications for both the length and structure of lessons and the design of school furniture

Also implications for the future workforce with many young adults entering the workplace with MSD's already present

