



Spielholz )

. (et al. 2001

( awkward posture)

.( Jafry and O'Neill 2000; Bernard 1997 )

Johansson 1994 )

(Malchaire et al. 2001; Battenvi 1998

.( Miedema 1997; Aaras and Strandén 1988)

.(OSHA 3125)

(MSDs)

Musculoskeletal Disorders

Shahnavaz 2003 )

.(1987; Maul et al.

Quintana 1999)

; (and Pawlowitz

( LUBA

.(Kee 2001 ; Kemmlert 1994)

US Department of ( BLS)

% labor

(Mattila, Vilkki

. 1999 )

; (Shahnavaz 1987)

( d = % )

%

Postural Loud Index ( PLI )

$$n_0 = \frac{z_{1-\frac{\alpha}{2}}^2 p (1 - p)}{d^2}$$

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( Kuorinka et al. 1987 )

.148mm

12X

NVB

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) LUBA

LUBA

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LUBA

.( Kee 2001)

STATA

SPSS (ver 11/5) (Release 7)

MSDs

MSDs

MSDs

MSDs

(  $p < 1$  )

: MSDs

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MSDs

(Cut off)

;

(% / ) ( % / )

(% / ) ( % / )

(% / )

MSDs

(  $p < 1$  )

Hussain 2004; Bao 1995 )

/

.( Lin 1991 ; Chee and Rampal 2004;

/

:MSDs

(

O'sullivan and Gallwey )

( 2002; Chee and Rampal 2004 .(p< / )

.(p< / ) (OR) /  
:( LUBA) ( / ) /

.(% / )

.(p< / ) /  
(Bernard 1997; Bao 1995 )

MSDs /

Malchaire )  
et al. 2001; Battenvi et al. 1998; Johansson  
(1994; Lin 1991; Chee and Rampal 2004

.(Hussain 2004)

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P-value < /

Chi-squar Test:





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