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CONDYLAR DISPLACEMENT ON THREE DIFFERENT BIOTYOLOGICAL FACIAL GROUPS

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ABSTRACT

This work intended to investigate centric slide (CS) on different facial skeletal groups. With this aim in mind, three different groups hyperdivergent, hipodivergent and an intermediate one were studied and compared. The tests performed allowed to identify a statistically more significant vertical displacement in hyperdivergent group while the sagittal displacement was more pronounced in hypodivergent group with a relative level of significance. Regardless of the facial type, vertical displacements were more marked than sagittal. The results allow concluding that CS is independent of facial types and that in the special case of hyperdivergent it should be carefully evaluated and considered in the study of clinical cases.

INTRODUCTION

Orthodontic diagnosis and treatment related to the orthopedic position of centric relation (CR) requires a comprehensive study of the condylar position (Roth, 1981; Cordray, 2006). The diagnostic differences between facial types is a permanent matter of study and interest in orthodontics (Girardot, 2001). The mandible is posteriorly connected to cranial base by temporomandibular joint (TMJ) and in front by dental joint and it is the condilar vertical growth that allows an important adaptation between those two parts of the face. According to the craniofacial architecture, the hyperdivergent group seems to be more prone to condyle displacement than other facial groups. This statement is related to TMJ mechanisms of compensation attempting to neutralize unbalanced and disproportionate growth that occurs in the front and rear parts of the face (Stockli, 1994). Therefore, it was put into hypothesis that it is on the hyperdivergent facial type that the condyle displacement is more frequent and wider. The displacement from CR to CO namely CS was assessed on the vertical (ΔZ) and sagittal (ΔX) plans with a mandible position indicator MPI[®] on mounted models in a semi-adjustable articulator SAM[®] 2P. The cases were selected from a sample of 742 orthodontic patients submitted to sequential criteria that allowed coming to an asymptomatic orthodontic population that surpassed growth peak and were divided in three groups according to cephalometric criteria (Girardot, 2001). Three groups of 36 elements each, an hyperdivergent, an hypodivergent and an intermediate were created.

RESULTS AND CONCLUSIONS

The results demonstrated that CS is more common and generally wider on the hyperdivergent group, being likely to occur in rear-bottom direction on hyperdivergent and intermediate groups and front-bottom on the hypodivergent. In any of the groups it was possible to verify

that vertical displacement was wider than sagittal (figure 1), being the vertical displacement significantly higher (table 1) on the hyperdivergent ($p = 0,003$).

Figure 1. Description of the sum of displacements on XX' and ZZ' axis in the three groups.

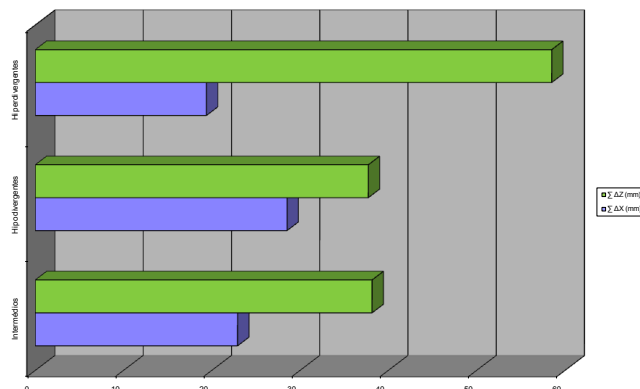


Table 1. Values of vertical and sagittal displacements in the three groups.

	ΔX			ΔZ		
	Hiperdivergente	Hipodivergente	Intermediária	Hiperdivergente	Hipodivergente	Intermediária
Somatório	19.395	28.515	22.925	58.5	37.725	38.15
Média	0.539	0.792	0.637	1.625	1.048	1.060
Desvio padrão	0.440	0.720	0.585	0.711	1.021	0.829
Teste - <i>t</i>						
<i>Hiper-Hipo</i>		0.038472245			0.003574006	
<i>Hiper-Inter</i>		0.212261515			0.001386724	

Although the condyle displacement is more frequent on the hyperdivergent, this study reinforces the need of mounting the models on articulator in CR and performing the evaluation of the condyle position as protocol in the study of any orthodontic case. These procedures supply relevant and mandatory information on the orthodontic decision.

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