CONSIDERATIONS REGARDING THE SIMPLIFIED THEORETICAL MODEL ELABORATION FOR HUMAN LOWER LIMB KINEMATIC AND DYNAMIC STUDY

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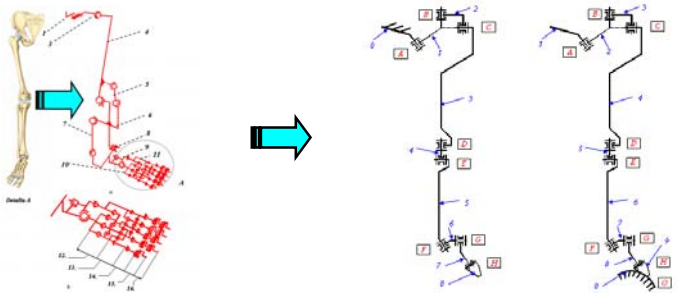
The human lower limb structure is a very complex one and almost impossible to study on theoretical way.

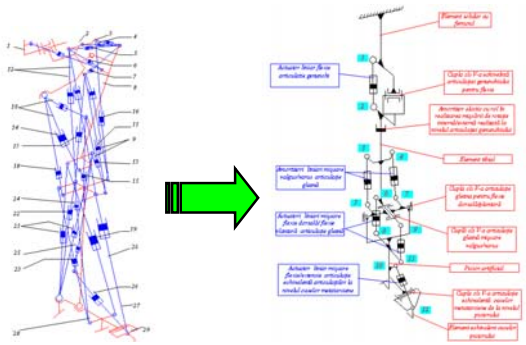
Many researchers have developed diverse theoretical models equivalent to human lower limb, in the sight of some mechanical systems elaboration used in biped robots structure.

In this paper we follow to obtain two simplified theoretical models, one is an oste-articular model (figure 1) and the other is an osteo-artro-muscular model (figure 2). We start from the existing ones in the biped robots structures. These simplified models can be studied from a kinematic and dynamic viewpoint in the sight of some mechanical systems elaboration used in human lower limb prosthesis.



a. *b.* *c.* *d.*

Figure 1. The simplified osteo-articular model: a-the anatomic human lower limb; b-the equivalent osteo-articular model [1]; c-the simplified osteo-articular model without ground contact [2]; d- the simplified osteo-articular model with ground contact [2].



a. *b.*

Figure 2. The simplified osteo-artro-muscular model: a-the equivalent osteo-artro-muscular model [1]; b-the simplified osteo-artro-muscular model [2].

References

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