Duke University School of Medicine
Doctor of Physical Therapy

Do Core Muscle Characteristics Differentiate an Amateur from a Professional Soccer Player? A Systematic Review

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Background

Core strength is thought to be associated with an increase in performance among athletes, but not enough research supports this idea.

Soccer was chosen in order to study the effect of core muscles on trunk and pelvic stability, and how it affects performance in running and kicking power production.

Purpose

The purpose of this study was to determine **<u>if</u>** core and trunk characteristics differentiate an amateur from a professional soccer player.

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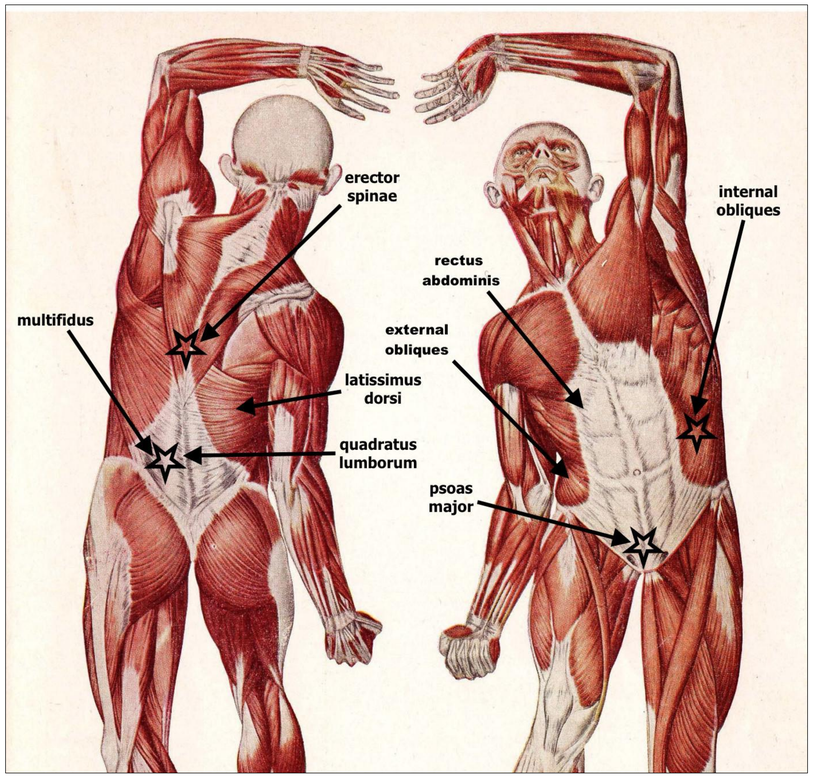
http://www.ottawacitizen.com/sports/Real+Cristiano+Ronaldo+kicks+ball+during+Champions+League+round+last+first+soccer+match+between+Schalke+Real+Madrid+Gelsenkirchen+Germany+Wednesday+2014+Photo+Frank+Augstein/9555082/story.html

Methods

This Study follows **PRISMA** guideline Criteria. Utilizing a MeSH Search using PubMed, CINAHL, EMBASE.

One hundred-ten studies were found and screened by abstract. **Sixty abstracts** were assessed for eligibility.

Three studies deemed appropriate for analysis. **QUIPS** assessed quality of these studies.



Results

Trunk Muscle Strength and Flexibility Differences Between Professional and Amateur Soccer Players

Trunk Muscle Strength	p-value
Sagittal Plane: **Trunk Flexion, Trunk Extension**	**p = (0.014 – 0.003)**
Frontal Plane: **Lateral Right, Lateral Left**	**p= (0.001-0.003)**
Transverse Plane **Rotation Right, Rotation Left**	**p < 0.001**

Trunk Muscle Flexibility	p-value
Sagittal Plane: **Trunk Flexion,** Trunk Extension	p = (0.001 – 0.73)
Frontal Plane: Lateral Left, Lateral Right	p = (0.19-0.63)
Transverse Plane **Rotation Left, Rotation Right**	p = (0.002-0.02)

Conclusions

1. There is **limited research** on core strength and athletic performance in professional and amateur soccer players.
2. Greater soccer exposure **can increase** core strength which affects trunk flexibility and pelvic stabilization.
3. Current research **does not** show the direct impact of core training on performance.

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Clinical Relevance

Current literature suggests a positive correlation between core strength and injury prevention in research. It is unknown, however, how core characteristics specifically discriminate athletic level or performance.

Acknowledgements / References

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Table adapted from: Kubo, T, et al. "Profiles of Trunk and Thigh Muscularity in Youth and Professional Soccer Players." *Journal of Strength and Conditioning Research.*, U.S. National Library of Medicine, June 2010, www.ncbi.nlm.nih.gov/pubmed/20508447.