

HOLLYWOOD

PRIVATE HOSPITAL



THE JOINT STUDIO

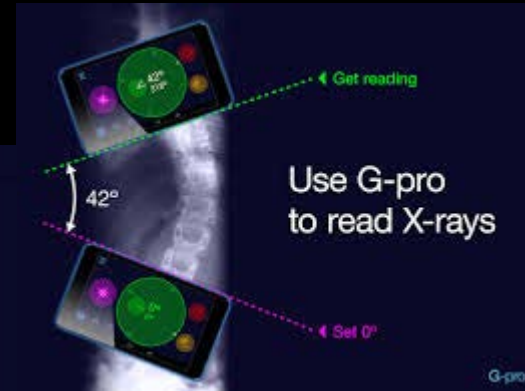
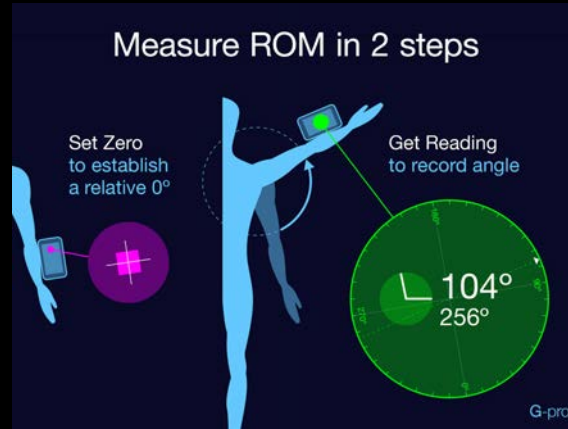
RIAZ KHAN & DANIEL FICK

**Smartphone technology: a reliable and
valid measure of knee movement in knee
replacements**

Hannah Castle

Smartphone Technology

"The revolution of the 21st century"

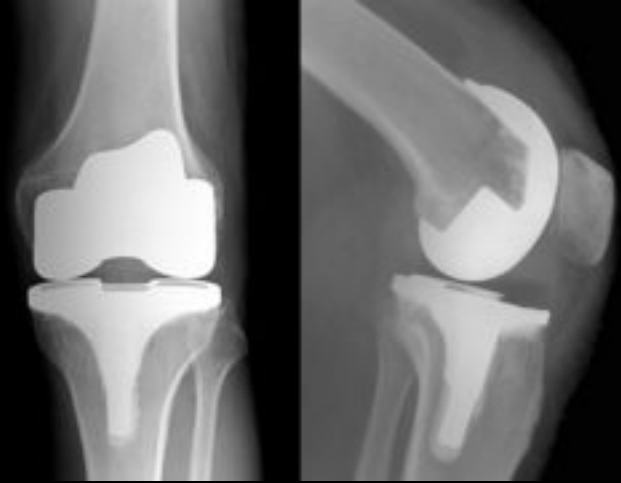


Background

67° knee flexion for swing phase of gait

93° knee flexion for sitting

Lack of extension $>10^\circ$ → increased pain and poorer function



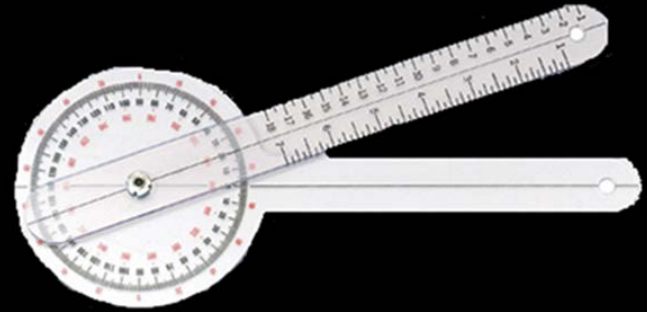


Aims



DrGoniometer










CDM S.r.L.














Method





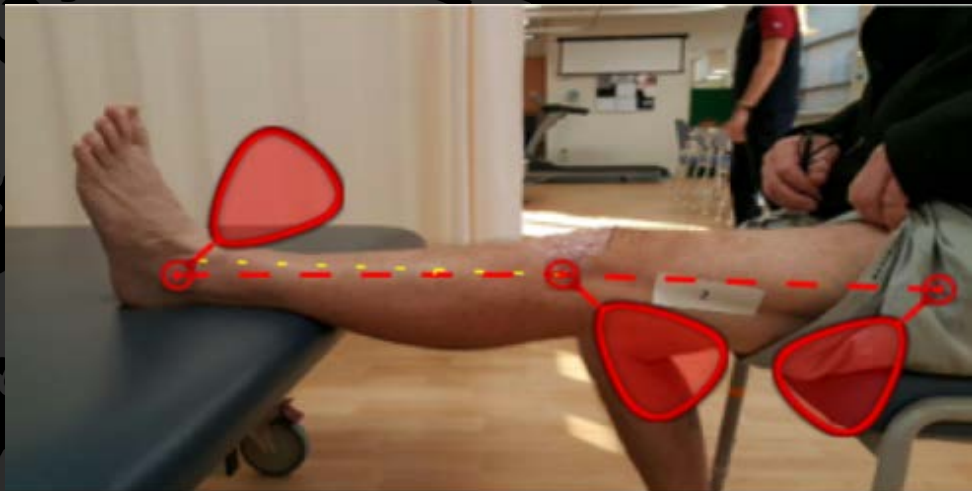
Dr Goniometer

	Patients	Edit
	1 05/25/2015, 14:40	>
	11 05/25/2015, 15:02	>
	12 05/25/2015, 15:05	>
	13 05/25/2015, 15:08	>
	14 05/25/2015, 15:11	>
	15 05/25/2015, 15:15	>
	16 05/25/2015, 15:24	>
	17	>

 Patients  PC access

	Patients	Joints
		Left Knee 2 shots (last: 05/29/2015, 20:03)
		 2  0
		Extension Flexion
		Left Shoulder No Images Saved
		Right Shoulder No Images Saved
		Left Elbow No Images Saved
		Right Elbow No Images Saved
		Left Wrist

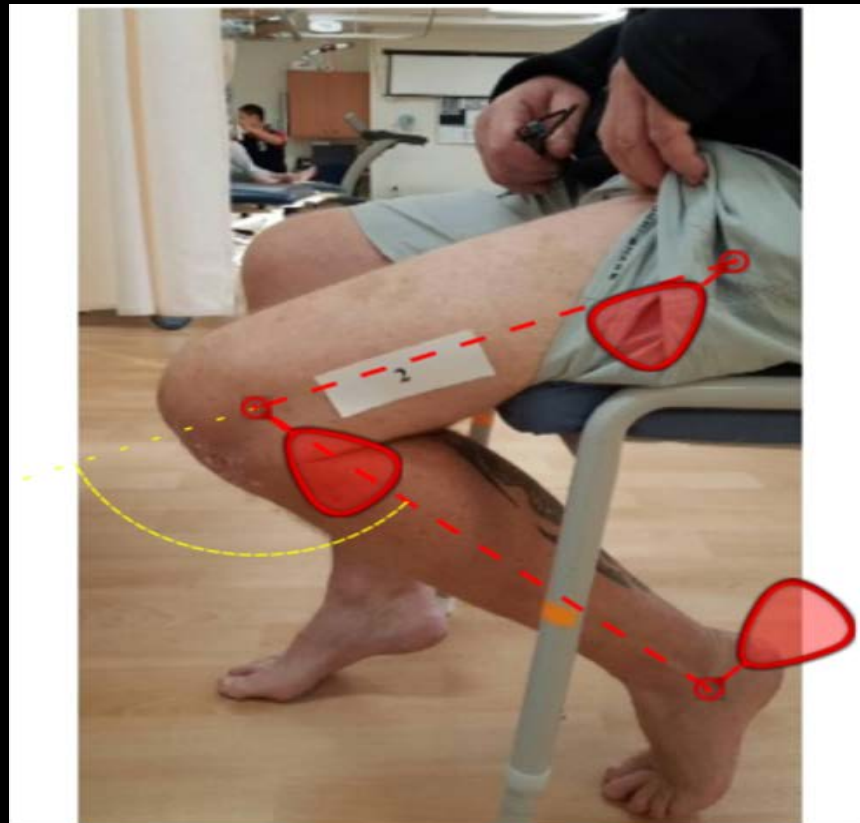
 Patients  PC access



Save

2.3°

Cancel



Save

118.5°

Cancel

Results

- NO significant difference between Dr Goniometer and universal goniometer for both flexion and extension measures
- Excellent intra-rater reliability for all assessors when using Dr Goniometer

Results (Inter-Rater Reliability)

EXCELLENT agreement between raters for flexion

GOOD agreement between raters for extension

Rater	Flexion – Av range	Extension – Av range
1	1.6 (2.0)	1.0 (1.4)
2	5.0 (2.5)	1.7 (1.5)
3	3.5 (2.2)	2.9 (1.4)
4	4.8 (4.5)	2.7 (1.4)

95% of flexion ROMs were within 5° and extensions ROMs within 3°



Patient perspective

- All participants reported the process “very easy” or “easy”
- However, two participants required familiarisation with the smartphone camera
- 100% said YES to using this tool for measuring their knee ROM

Conclusion

- Smartphone technology offers a valid and reliable tool for monitoring ROM in knee replacement patients
 - Avoids travel burden
 - Prioritises need for face-to-face consultation
 - Growing acceptance of technology in healthcare

Thank you

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