



JACEK KOWALCZEWSKI

MDM - rozwiązanie problemu zwichnięć TPB



OGÓLNOPOLSKIE SYMPOZJUM

**BŁĘDY, ALERGIA, POWIKŁANIA I REHABILITACJA W ALOPLASTYCE
KOLANA - STANDARDY POSTĘPOWANIA**

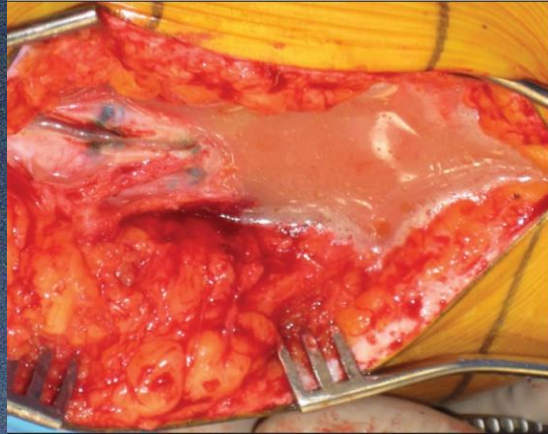
Katowice, 12 kwietnia 2019

Klinika Ortopedii i Reumoortopedii CMKP

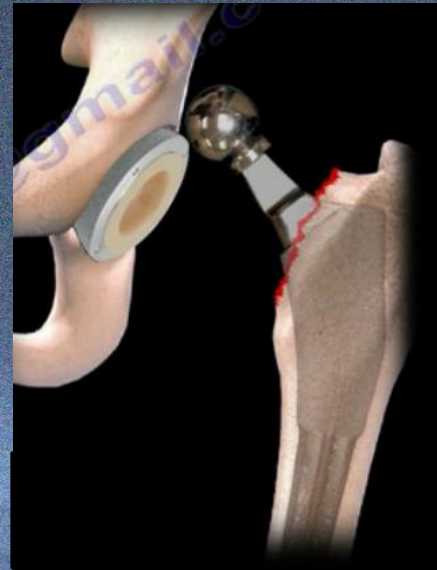


POWIKŁANIA WCZESNE

✓ infekcja



✓ zwichnięcie



✓ złamanie okołoprotezowe



ZWICHNIĘCIA



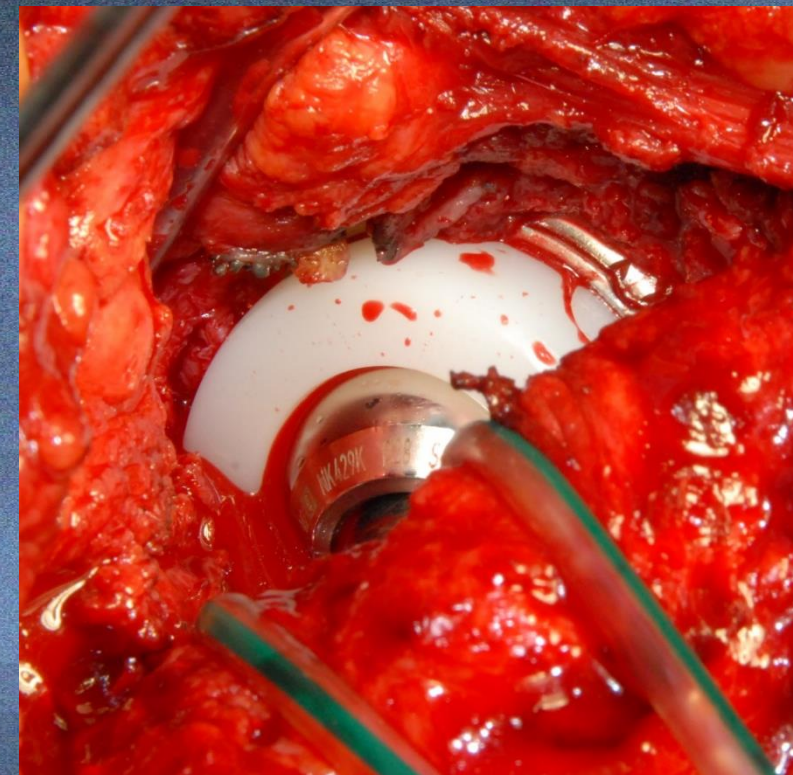
Największe ryzyko w pierwszych tygodniach po TPB

60% - 80% w ciągu trzech miesięcy

Najczęstsza przyczyna - nieprawidłowe ustawienie elementów

ZWICHNIĘCIA / LICZBA TPB

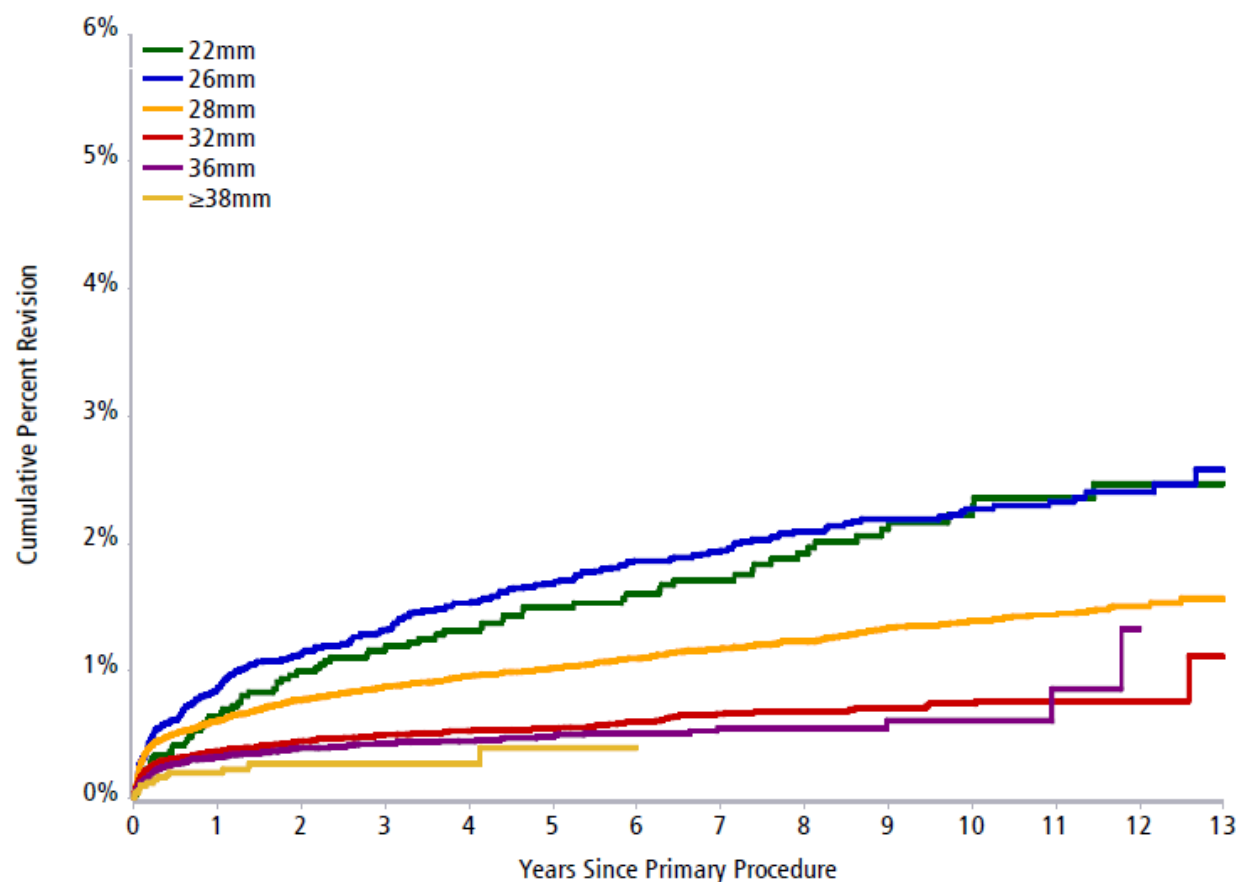
1-5/rok	4.2%
6-10/rok	3.4%
11-25/rok	2.6%
26-50/rok	2.4%
> 50/rok	1.5%



Clark, Heckman: Volume versus outcomes in orthopaedic surgery: a proper perspective is paramount. JBJS. 2001, 83-A (11)

ZWICHNIĘCIA

Figure D3: Cumulative Percent Revision for Dislocation of Primary Total Conventional Hip Replacement by Head Size (Primary Diagnosis OA)



HR - adjusted for age and gender

22mm vs 32mm

0 - 3Mth: HR=1.24 (0.71, 2.17), $p=0.440$

3Mth+: HR=3.75 (2.84, 4.95), $p<0.001$

26mm vs 32mm

0 - 2Wk: HR=1.43 (0.78, 2.65), $p=0.251$

2Wk - 3Mth: HR=2.25 (1.61, 3.13), $p<0.001$

3Mth+: HR=3.55 (2.90, 4.34), $p<0.001$

28mm vs 32mm

0 - 6Mth: HR=1.65 (1.41, 1.92), $p<0.001$

6Mth+: HR=1.95 (1.66, 2.29), $p<0.001$

36mm vs 32mm

Entire Period: HR=0.88 (0.75, 1.03), $p=0.105$

≥38mm vs 32mm

Entire Period: HR=0.62 (0.38, 1.02), $p=0.062$

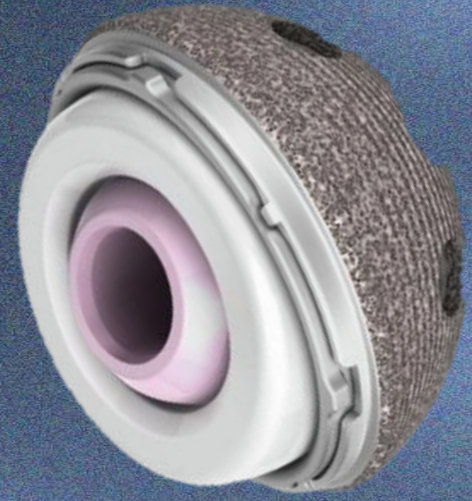
ZWICHNIĘCIA / ROZMIAR GŁOWY

Zwichnięcie	22 mm	28 mm	32 mm
przednie	2.6%	1.3%	2.1%
tylne	6.8%	6.0%	3.5%

Woo, Morray: Dislocations after total hip arthroplasty. JBJS. 1982, 64-A(9)

ZWICHNIĘCIA

- **Zwichnięcia od 1 % do 3 %**
- **DM od 0 % do 2 %**



Vasukutty N.L. i wsp.: A double mobility acetabular implant for primary hip arthroplasty in patients at high risk of dislocation. *Ann.R.Coll.Surg.Engl.* 2014,96(8)

Combes A. i wsp.: Low rate of dislocation of dual-mobility cups in primary total hip arthroplasty. *CORR* 2013, 471(12)

Plummer D.R. i wsp.: Dual mobility in total hip arthroplasty. *Orthop Clin North Am.* 2014, 45(1)

Hamadouche M. i wsp.: The use of a cemented dual mobility socket to treat recurrent dislocation. *CORR* 2010, 468

Guven O. i wsp.: Use of a dual mobility socket to manage total hip arthroplasty instability. *CORR* 2009, 467(2)

ZWICHNIĘCIA DM

Table 6. Reports of series related to dual-mobility cups in primary THA

Study	Number of hips	Mean followup (years)	Dislocation (large articulations) (%)	Intraprosthetic dislocation (small articulations) (%)	Overall dislocation rate (small + large articulations) (%)	Cup loosening (%)	Survival (%)
Guyen et al. [14]	167	3	0	0	0	0	
Hamadouche et al. [15]	168	6	0	2.4	2.4	0	94.2
Lautridou et al. [20]	437	16.5	1.1	0.7	1.8	12	88.4
Leclercq et al. [21]	175	6	0	0	0	0	100
Philippot et al. [29]	106	10	0	1.9	1.9	1.9	94.6
Philippot et al. [30]	1960	9*		4.1	4.1		
Philippot et al. [31]	384	15.3	0	3.6	3.6	3.3	94.6
Philippot et al. [32]	438	17	0	5.2	5.2	3	89.2
Vielpeau et al. [36]	231	5.2	0	0	0	9	
Current study	2480	7	0.6	0.28	0.88	1.7	95.8

* Mean followup of intraprosthetic dislocation.

ZWICHNIĘCIA DM

pierwotne

Table 1. Dual mobility implants in primary total hip arthroplasty

Year	Authors	Study	No. hips	Patients	Follow-up	Dislocation rate	Survivorship
2015	Vigdorchik et al. ²⁵	Multicentre retrospective	485	Unselected	Min 2yrs	0%	–
2015	Epinette et al. ²⁷	Prospective comparative	143	Unselected	2-6 yrs	0%	100% at 4.1 yrs
2014	Caton et al. ³⁰	Retrospective comparative	105	Unselected	Min 10 yrs	0.9%	97.9% at 10 yrs
2014	Epinette et al. ²⁶	Prospective multicentre	437	Unselected	2-5 yrs	0%	99.7% at 4 yrs
2014	Bensen et al. ³¹	Retrospective	175	At risk for dislocation	–	4.6%	–
2014	Vasukutty et al. ³²	Retrospective	65	At risk for dislocation	Mean 5 yrs	0%	100% at 5 yrs
2013	Sanders et al. ³³	Retrospective	10	At risk for dislocation	Mean 3.2 yrs	0%	–
2013	Leclercq et al. ³⁴	Multicentre prospective	200	Unselected	10-13 yrs	0%	99% at 10 yrs
2013	Prudhon et al. ³⁵	Retrospective	105	At risk for dislocation	Mean 7.5 yrs	0.9%	95% at 10 yrs
2013	Combes et al. ³⁶	Retrospective multicentre	2480	Unselected	Min 7 yrs	0.6% (0.28% IPD*)	93% at 10 yrs
2012	Hamadouche et al. ³⁷	Retrospective multicentre	168	Unselected	5-8 yrs	2% (IPD*)	94.2% at 7 yrs
2008	Bauchu et al. ³⁸	Retrospective multicentre	150	Unselected	Mean 6.2 yrs	0%	97.4% at 7.1 yrs
2007	Guyen et al. ³⁹	Retrospective	167	At risk for dislocation	Mean 3.4 yrs	0%	96.4% at 5 yrs

*IPD: intra-prosthetic dislocation.

ZWICHNIĘCIA DM

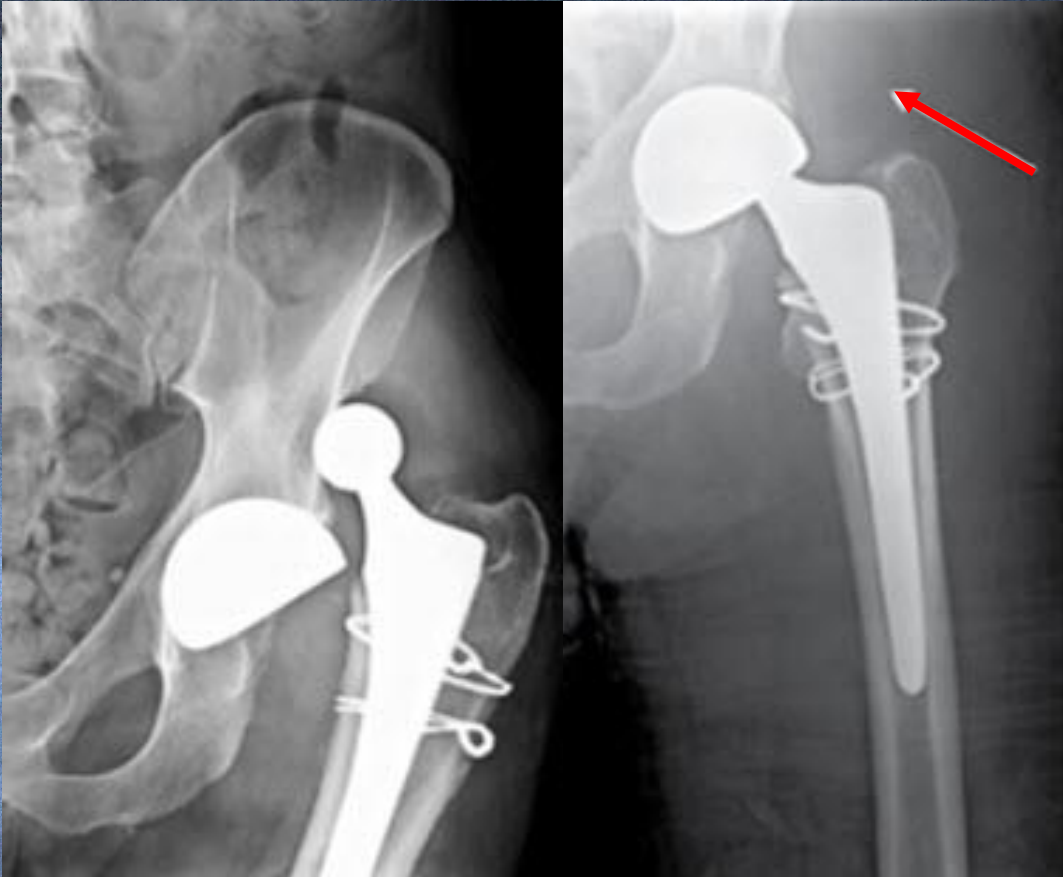
rewizje

Table 2. Dual mobility implants in revision procedures for instability

Year	Authors	Study	No. hips	Follow-up	Dislocation rate
2015	Van Heumen et al. ⁴⁴	Retrospective	50	2.5 yrs	0%
2014	Jakobsen et al. ⁴⁵	Retrospective	56	3.6 yrs	1.8%
2013	Saragaglia et al. ⁴⁶	Retrospective	29	3.8 yrs	3.4%
2012	Mertl et al. ⁴⁷	Retrospective multicentre	180	7.7 yrs	4.8%
2012	Hailer et al. ⁴⁸	Retrospective multicentre	228	2 yrs	2%
2011	Leiber-Wackenheim et al. ⁴⁹	Retrospective	59	8 yrs	1.7%
2010	Hamadouche et al. ⁵⁰	Retrospective	51	4.3 yrs	4.3%
2009	Guyen et al. ⁵¹	Retrospective	54	Mean 4 yrs	5.5% (2 IPD*)

*IPD: intra-prosthetic dislocation.

ZWICHNIĘCIA WEWNĄTRZPROTEZOWE



**2%-4% zwichnięć DM
pierwszej generacji**

Cvetanovich G.L. i wsp.: Intraprosthetic dislocation of Dual-Mobility bearings associated with closed reduction. A report of two cases. JBJS 2015, 5(1).

Lecuire F. i wsp.: Intra-prosthetic dislocation of the Bousquet dual mobility socket. Rev.Chir.Orthop.Reparatrice Appar.Mot. 2004, 90(3)

Fabry C. i wsp.: Intra-prosthetic dislocation of dual-mobility cups after total hip arthroplasty: potential causes from a clinical and biomechanical perspective. Int.Orthop. 2016, 40(5)

ZWICHNIĘCIA

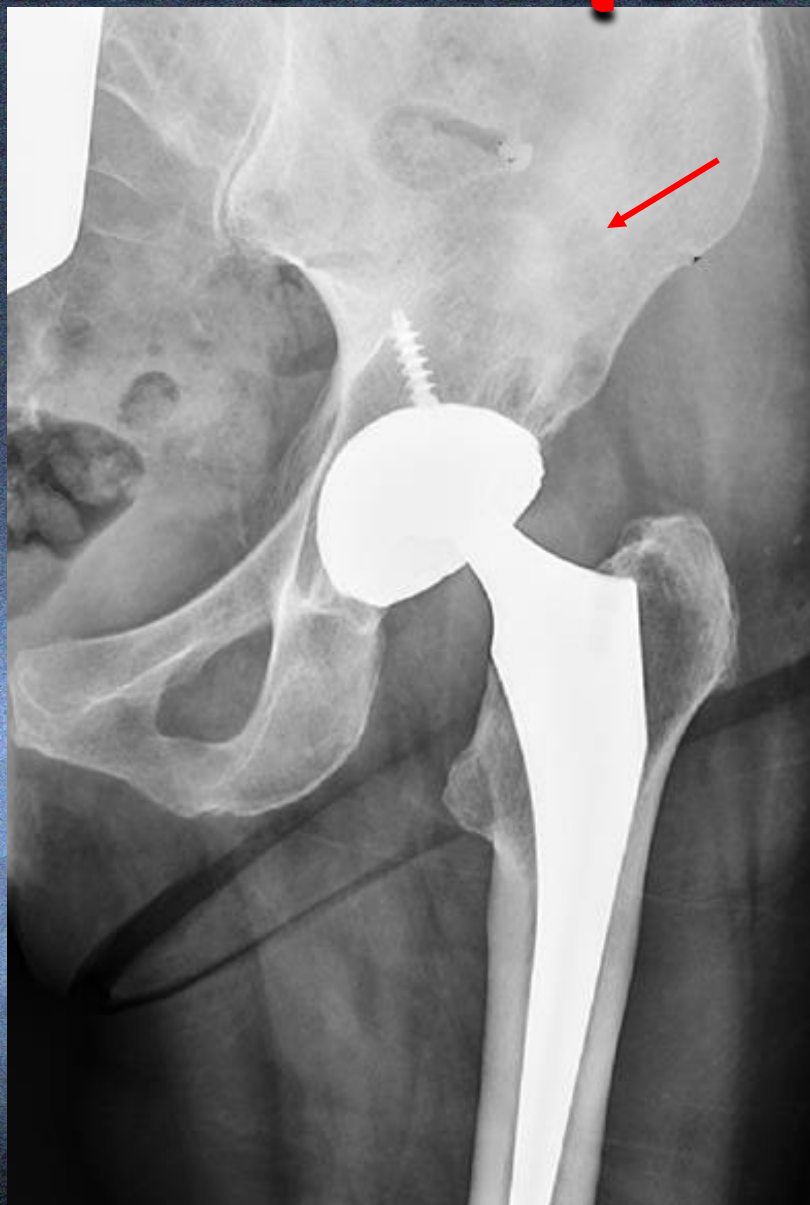


Table 1 Main published results of dual mobility cups in total hip arthroplasty

Ref.	N. of hips	Indication	Mean FU	Implant design (cup)	Head size (mm)	Intraprosthetic dislocation (%)	Dislocation rate (%)
Boyer <i>et al</i> ^[25] , 2012	240	Primary THA	22 yr	Novae ^{®1}	22.2	4.1	0
Farizon <i>et al</i> ^[23] , 1998	135	Primary THA	12 yr	Novae ^{®1}	22.2	2	0
Lautridou <i>et al</i> ^[24] , 2008	437	Primary THA	16.5 yr	Novae-1 ^{®1}	22.2	0.7	1.1
Philippot <i>et al</i> ^[47] , 2006	106	Primary THA	10 yr	Novae-1 ^{®1}	22.2	1.9	0
Philippot <i>et al</i> ^[12] , 2009	384	Primary THA	15.3 yr	Novae-1 ^{®1}	22.2	3.6	0
Philippot <i>et al</i> ^[48] , 2008	438	Primary THA	17 yr	Novae-1 ^{®1}	22.2	5.2	0
Guyen <i>et al</i> ^[19] , 2007	167	Primary THA	3 yr	Saturne ^{®2}	n/a	0	0
Leclercq <i>et al</i> ^[20] , 2008	200	Primary THA	6 yr	Evora ^{®3}	22.2 (n = 175) 26 (n = 18) 28 (n = 7)	0	0
Hamadouche <i>et al</i> ^[56] , 2012	168	Primary THA	6 yr	Tregor ^{®4}	22.2	2.4	0
Vielpeau <i>et al</i> ^[21] , 2011	437 (Group A) 231 (Group B)	Primary THA	16.5 yr 5.2 yr	Original Bousquet Novae-E ^{®1}	22.2	0.7 0	0 0
Bouchet <i>et al</i> ^[54] , 2011	105	Primary THA	2.3 yr	Novae ^{®1} , Statfit ^{®5} , Avantage ^{®6} , Gyros ^{®7}	28	n/a	0
Bauchu <i>et al</i> ^[60] , 2008	150	Primary THA	6.2 yr	Polarcup ^{®8} 3 rd gen	n/a	0	0
Combes <i>et al</i> ^[22] , 2013	2480	Primary THA	7 yr	Novae ^{®1} , Avantage ^{®6} , Collegia ^{®9} , EOL ^{®10} , Gyros ^{®7} , Tregor ^{®4} , Polarcup ^{®8} , Saturne ^{®2} , Evora ^{®3}	28 (n = 1484) 22 (n = 956)	0.1 0.6	0.7 0.5
Tarasevicius <i>et al</i> ^[36] , 2010	42	Neck Fractures	1 yr	Avantage ^{®6}	28	n/a	0
Adam <i>et al</i> ^[35] , 2012	214	Neck Fractures	3-9 mo	Saturne ^{®2}	28 (n = 182) 22.2 (n = 32)	0	1.4
Sanders <i>et al</i> ^[44] , 2013	10	Spastic disorders	3.2 yr	Avantage ^{®6}	n/a	0	0
Philippeau <i>et al</i> ^[37] , 2010	71	Tumor resection	3.3 yr	Avantage ^{®6} , Saturne ^{®2} , Novae ^{®1} , other	n/a	n/a	9.8
Langlais <i>et al</i> ^[17] , 2008	85	Revision THA	3.2 yr	Tregor ^{®4}	22	n/a	1.1
Leiber-Wackenheim <i>et al</i> ^[14] , 2011	59	Revision THA	8 yr	Novae-1 ^{®1} Novae-E ^{®1}	28	0	1.7
Hamadouche <i>et al</i> ^[31] , 2010	51	Revision THA	4.3 yr	Tregor ^{®4}	22.2	2	2
Guyen <i>et al</i> ^[16] , 2009	54	Revision THA	3.9 yr	Saturne ^{®2}	n/a	3.7	1.8
Hailer <i>et al</i> ^[61] , 2012	228	Revision THA	2 yr	Avantage ^{®6}	n/a	n/a	2
Philippot <i>et al</i> ^[30] , 2009	163	Revision THA	5 yr	Novae ^{®1}	22.2	0	3.7

ZWICHNIĘCIA

Bone Joint J. 2017 Jan;99-B(1 Supple A):18-24. doi: 10.1302/0301-620X.99B1.BJJ-2016-0398.R1.

Dislocation following total hip arthroplasty using dual mobility acetabular components: a systematic review.

Martino I¹, D'Apolito R², Soranoglou VG¹, Poultides LA¹, Sculco PK¹, Sculco TP¹.

+ Author information

Abstract

AIMS: The aim of this systematic review was to report the rate of dislocation following the use of dual mobility (DM) acetabular components in primary and revision total hip arthroplasty (THA).

MATERIALS AND METHODS: A systematic review of the literature according to the Preferred Reporting Items for Systematic Reviews and Meta-analyses guidelines was performed. A comprehensive search of Pubmed/Medline, Cochrane Library and Embase (Scopus) was conducted for English articles between January 1974 and March 2016 using various combinations of the keywords "dual mobility", "dual-mobility", "tripolar", "double-mobility", "double mobility", "hip", "cup", "socket". The following data were extracted by two investigators independently: demographics, whether the operation was a primary or revision THA, length of follow-up, the design of the components, diameter of the femoral head, and type of fixation of the acetabular component.

RESULTS: In all, 59 articles met our inclusion criteria. These included a total of 17 908 THAs which were divided into two groups: studies dealing with DM components in primary THA and those dealing with these components in revision THA. The mean rate of dislocation was 0.9% in the primary THA group, and 3.0% in the revision THA group. The mean rate of intraprosthetic dislocation was 0.7% in primary and 1.3% in revision THAs.

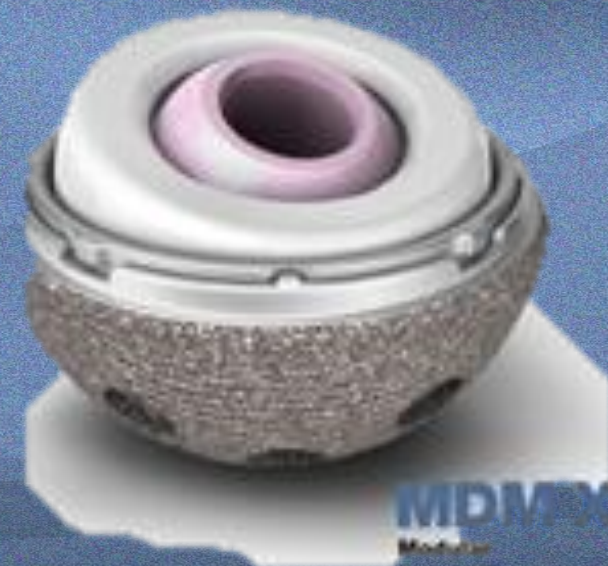
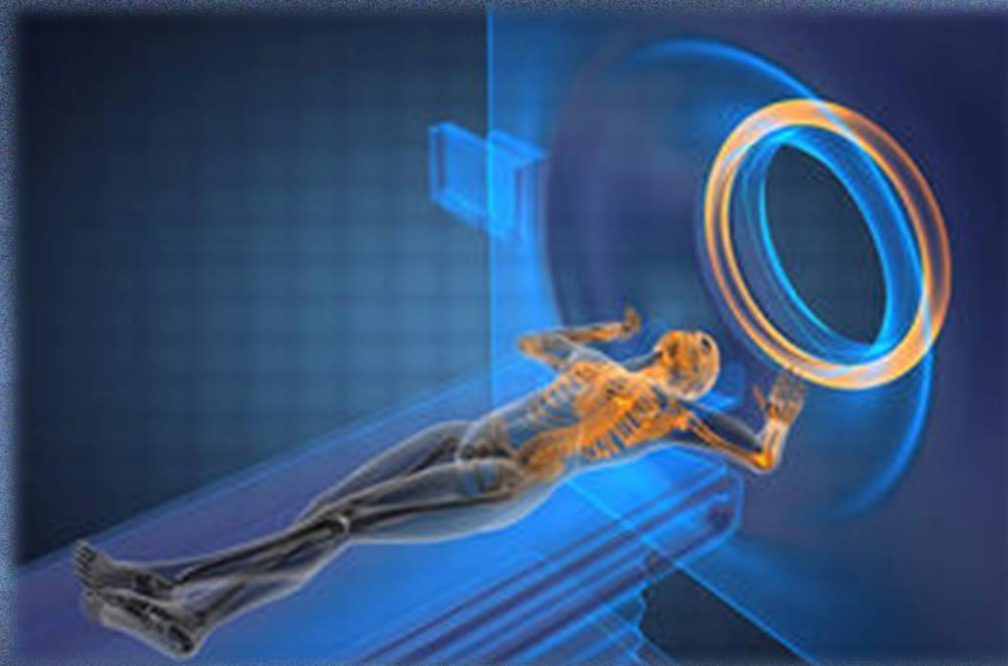
CONCLUSION: Based on the current data, the use of DM acetabular components are effective in minimising the risk of instability after both primary and revision THA. This benefit must be balanced against continuing concerns about the additional modularity, and the new mode of failure of intraprosthetic dislocation. Longer term studies are needed to assess the function of these newer materials compared with previous generations. Cite this article: Bone Joint J 2017;99-B(1 Supple A):18-24.

MATERIAŁY

STAL



CHROM-KOBALT





MDM

- typowa kapa metalowa Trident
- wkład chromowo - kobaltowy
- polietylen X3
- głowa ceramiczna



Decyzja śródoperacyjna

WSKAZANIA DO MDM

- ✓ idiopatyczna chzb
- ✓ złamania szyjki kości udowej
- ✓ jałowa martwica kości udowej
- ✓ otyłość
- ✓ **realloplastyka**
- ✓ schorzenia neurologiczne
- ✓ aktywni chorzy
- ✓ biodro dysplastyczne



RYZYZKO ZWICHNIĘCIA TPB



Chory:

Demencja

Parkinson

AVN

Neuromuscular

Dysplazja

Kobiety

Złamanie szyjki



Procedura:

Ustawienie elementów

Balans tkankowy

Doświadczenie chirurga

Rodzaj implantu

Dostęp tylny ?

KTO JEST NARAŻONY NA ZWICHNIĘCIE ?

[J Arthroplast.](#) 2017 Jun;32(6):1910-1917. doi: 10.1016/j.arth.2016.12.039. Epub 2016 Dec 27.

Total Hip Arthroplasty in the Spinal Deformity Population: Does Degree of Sagittal Deformity Affect Rates of Safe Zone Placement, Instability, or Revision?

[DelSole EM](#)¹, [Vigdorichik JM](#)¹, [Schwarzkopf R](#)¹, [Errico TJ](#)¹, [Buckland AJ](#)¹.

[J Bone Joint Surg Am.](#) 2018 Nov 7;100(21):1845-1853. doi: 10.2106/JBJS.18.00078.

Late Dislocation Following Total Hip Arthroplasty: Spinopelvic Imbalance as a Causative Factor.

[Heckmann N](#)¹, [McKnight B](#)¹, [Steffl M](#)¹, [Trasolini NA](#)¹, [Ike H](#)², [Dorr LD](#)¹.

[Orthop Traumatol Surg Res.](#) 2017 Jun;103(4):559-568. doi: 10.1016/j.otsr.2017.02.014. Epub 2017 Apr 1.

The influence of spine-hip relations on total hip replacement: A systematic review.

[Rivière C](#)¹, [Lazennec JY](#)², [Van Der Straeten C](#)³, [Auvinet E](#)³, [Cobb J](#)³, [Muirhead-Allwood S](#)⁴.

Grupa z deformacją kręgosłupa - 8% zwichnięć vs. 1.5% grupa kontrolna

Boczne rtg kręgosłup-miednica-biodro pozwala na zmniejszenie % zwichnięć

Kinematyczne ustawienie panewki



KTO JEST NARAŻONY NA ZWICHNIĘCIE ?

Zwichnięcia zależne od liczby poziomów usztywnienia

Grupa kontrolna - 1.55% (839004 chorych)

1-2 poziomy - 2.73% (12079 chorych)

3-7 poziomów - 4.62% (2594 chorych)



[Bone Joint J.](#) 2017 May;99-B(5):585-591. doi: 10.1302/0301-620X.99B5.BJJ-2016-0657.R1.

Dislocation of a primary total hip arthroplasty is more common in patients with a lumbar spinal fusion.

[Buckland AJ](#)¹, [Puvanesarajah V](#)², [Vigdorchik J](#)¹, [Schwarzkopf R](#)³, [Jain A](#)⁴, [Klineberg EO](#)⁵, [Hart RA](#)⁶, [Callaghan JJ](#)⁷, [Hassanzadeh H](#)⁸.

CO ROBIĆ ?

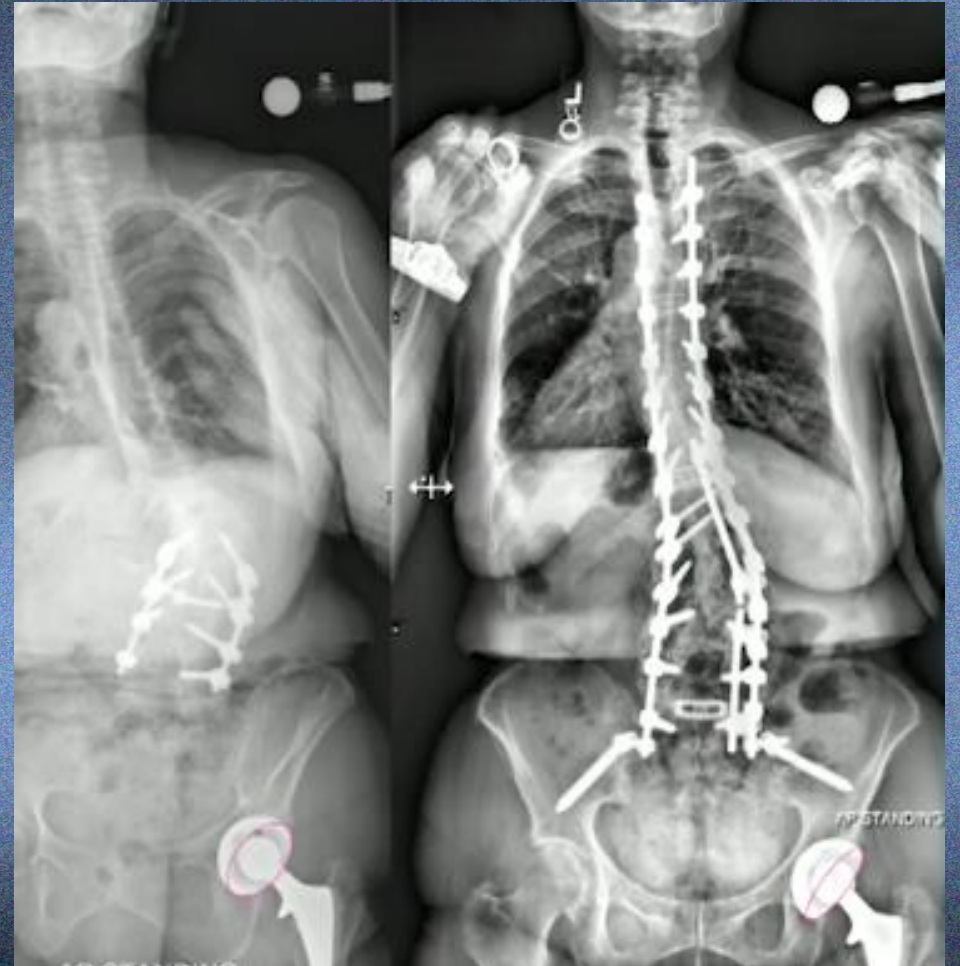
Zidentyfikować:

1. deformacja kręgosłupa

TAK / NIE

2. sztywność kręgosłupa

TAK / NIE



CO ROBIĆ ?

Dwa zdjęcia:

1. boczne na stojąco
2. boczne na siedząco

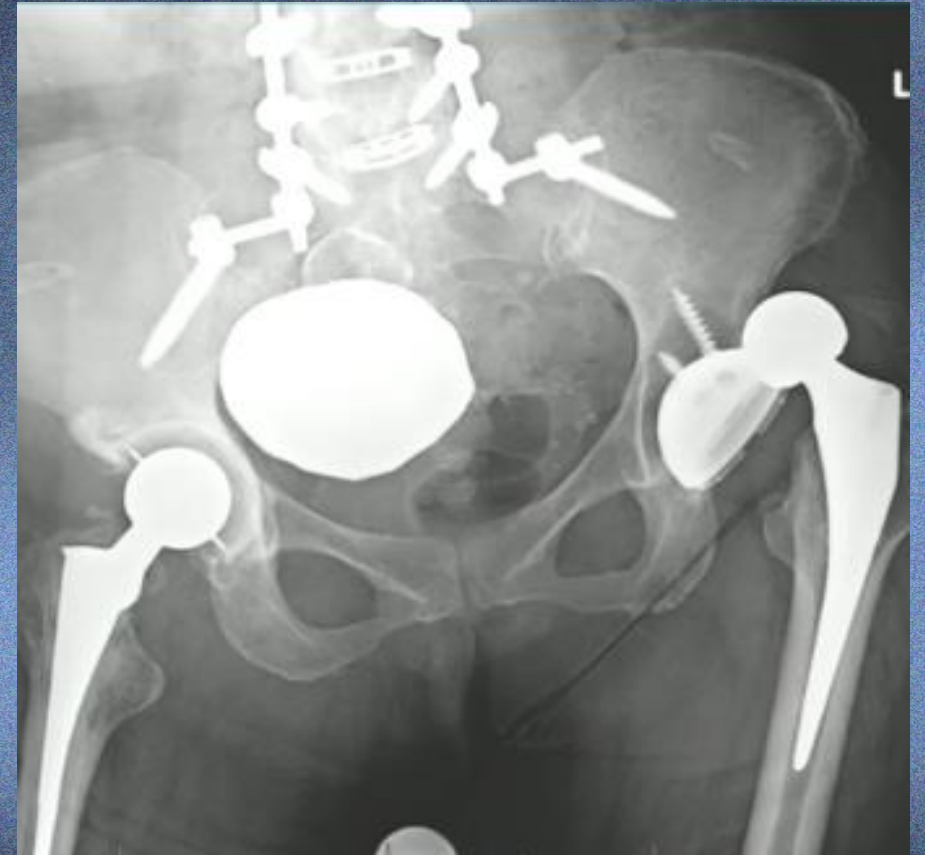
Dwie linie:

1. Przodopochylenie miednicy (APP)
2. kąt nachylenia k. krzyżowej (ss)



KTO WYMAGA OSTROŻNOŚCI ?

- ~ 15% chorych
- z usztywnieniem kręgosłupa
- z operacjami na kręgosłupie
- z chorobą dyskową
- ze skoliozą
- ze zwichnięciem TPB
- z „dziwacznym” zdjęciem



SZTYWNOŚĆ

Porównaj rtg na stojąco i na siedząco

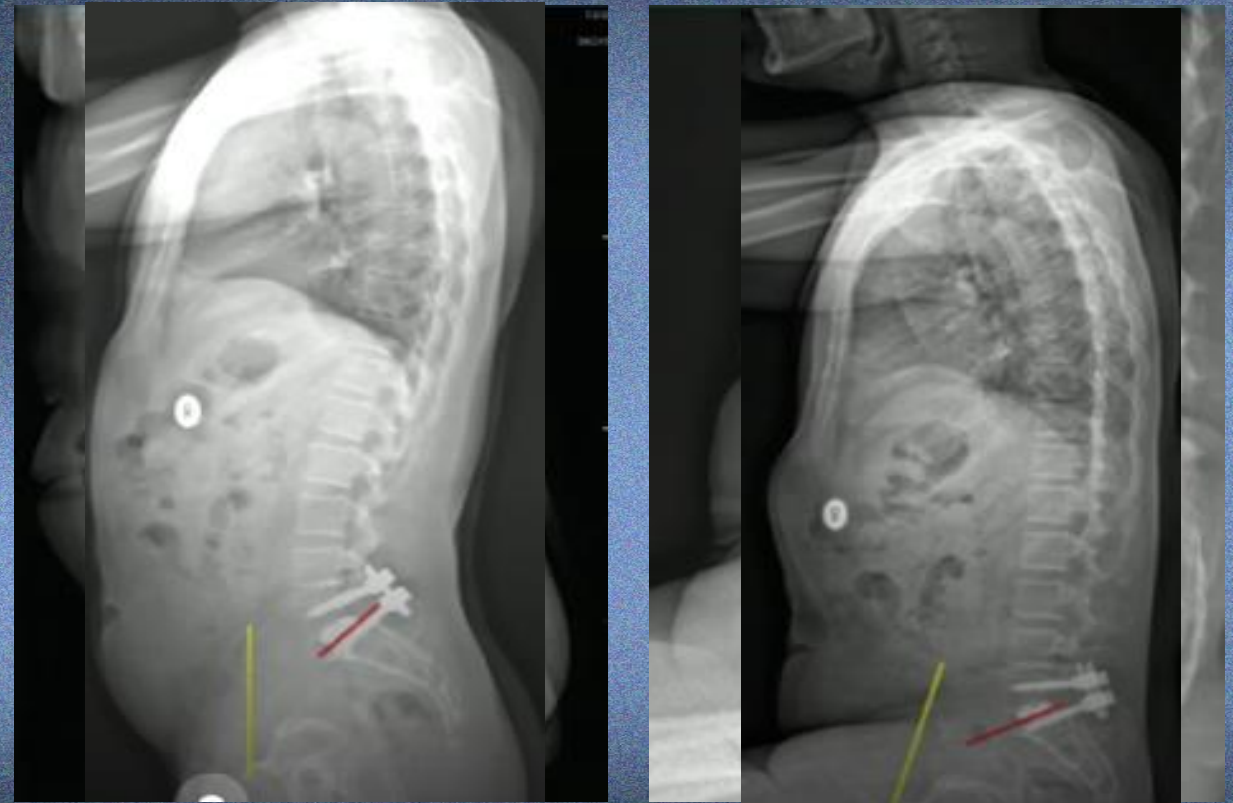
Jest sztywność:
zmiana o $< 10^{\circ}$



SZTYWNOŚĆ

Porównaj rtg na stojąco i na siedząco

Nie ma sztywności:
zmiana o $> 10^\circ$



Patients at High-Risk of Dislocation following Total Hip Arthroplasty

Jonathan M. Vigdorchik, MD¹; Ameer M. Elbuluk, BA¹; Kaitlin M. Carroll, BS²; Richard Iorio, MD¹; Aaron Buckland FRACS¹;

Seth A. Jerabek, MD²; David J. Mayman, MD²

AAOS 2018

¹NYU Langone Orthopedic Hospital, NYU Langone Health, New York, New York ²Hospital for Special Surgery, New York, NY

**U 192 chorych z 1009 zastosowano
kryteria ryzyka i u 143 założono DM**

1082 chorych vs. 1009 chorych

3.1% vs. 0.5% zwichnięć



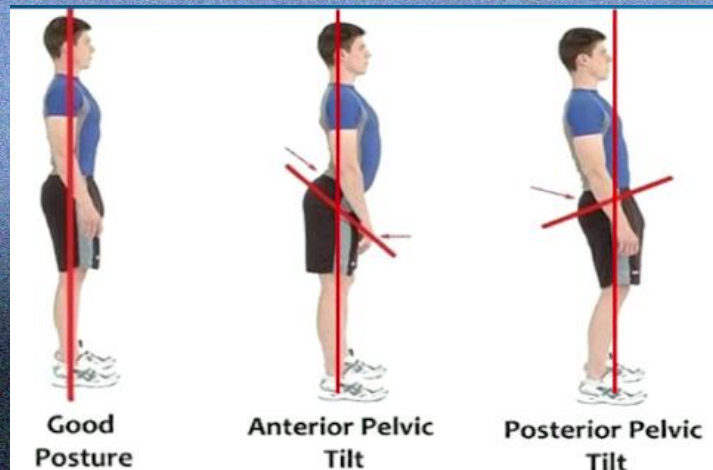
PODSUMOWANIE

Sztywny kręgosłup - zwiększ antetorsję nawet do 30°

Zaakceptuj to nawet jeżeli nie chcesz

Musisz wiedzieć gdzie jest 0° antewersji

Wysokie ryzyko, gdy usztywnione są 3+ poziomy L



A photograph of a group of people in a meeting room. Many of the people are sleeping or resting their heads on their hands, indicating a lack of attention. The text "DZIĘKUJĘ ZA UWAGĘ" is overlaid on the image.

DZIĘKUJĘ ZA UWAGĘ