

Table 2 : Pollutant concentrations in ex vivo OA joint tissues.

Author and year of publication	Participants, Country	Type of OA and method of sampling	Pollutant and method to evaluation of accumulation	Main results	Potential bias
Brodziak-Dopierala 2011 ²⁶	n=53 patients Poland Industrial area	Hip OA Samples harvested during arthroplasty	Lead Spectrometry	<u>Lead</u> : Higher concentration in cancellous bone than in cartilage. No correlation with sex. Concentration increase with age in cartilage.	Small sample No comparison with non OA joint Only one country
Lanocha-Arendarczyk 2015 ²⁸	n=33 patients n=28 OA n=5 injury Poland	Knee OA Samples harvested during arthroplasty	Lead and other 9 chemical elements Spectrometry	<u>Fluor</u> : Higher concentration in bone of OA knee than in injury knee U=29, p<0.01 <u>Lead</u> : higher concentration : - in men than women U=48, p=0.01 - in smokers than non-smokers U=49, p=0.001 <u>Mercury</u> : Higher concentration in fish and seafood consumers than	Small sample Only one country Many sub analyses

				non-consumers U=71.5, p<0.04	
Kosik-Bogacka 2018 ²⁷	n=30 patients Poland	Knee OA Samples harvested during arthroplasty	Lead and other 3 chemical elements Spectroscopy	<p><u>Lead</u> _____: higher concentration</p> <p>- in patients over 65 years old than under age 65 (2.5 times higher, p=0.02)</p> <p>- in cartilage than meniscus U=14.5</p> <p>No statistically significant correlation with sex</p> <p><u>Magnesium and zinc</u> : higher concentration</p> <p>- in men than women U=27</p> <p>- in cartilage than meniscus U = 32</p>	Small sample Only one country No comparison with non OA joint
Kwapulinski 1995 ⁶³	n=49 patients Poland	Hip OA Samples harvested	Lead and other 8 chemical elements Spectrophotometry	<p><u>All chemical elements</u> : Higher concentration in cartilage than cortical and cancellous bone</p>	Small sample Only one country

		during arthroplasty		Lead : cartilage 95.58 (VC 0.17) vs cancellous bone 88.57 (VC 0.08)	No comparison with non OA joint
				Correlation with concentration of lead in air	
Lanocha 2012 ²⁹ and Lanocha 2013 ³⁰	n=37 patients Poland	Hip OA Samples harvested during arthroplasty	Lead, cadmium, mercury, copper, zinc Spectrophotometry	<u>Mercury, copper, zinc</u> : Higher concentration: - in cartilage than cancellous bone U=467, p<0.02 - if dental amalgam <u>Lead</u> : NS difference cartilage vs bone Higher concentration: - in men than women U=79, p=0.02, - in smokers vs non-smokers U = 21, p<0.05	Small sample Only one country No comparison with non OA joint
Roschger 2013 ³¹	n=4 cadavers n= 5 patients Austria	7 femoral heads, 2 patellas harvested during autopsy	Lead, zinc X-ray fluorescence Examination of tidemark (TM)	<u>Lead</u> : 35 fold higher in the TM than in the bone <u>Zinc</u> : 5 fold higher in the TM than in the bone	Very small sample Only one country No comparison with non OA joint

		or arthroplasty (fractures)			
Zoeger 2006 ³²	n=5 cadavers Austria	4 femoral heads, 3 patellas harvested during autopsy (no OA)	Lead, zinc, strontium, calcium X-ray fluorescence Examination of TM	<u>Lead</u> : 13 fold higher level in the TM than in the bone	Very small sample Only one country No comparison with non OA joint

OA: osteoarthritis, U: Mann-Whitney U test, NS: not statistically significant, TM: tidemark, VC: variation coefficient