

SUSTAINABLE DENTISTRY & MEDICINE



DOCUMENTATION

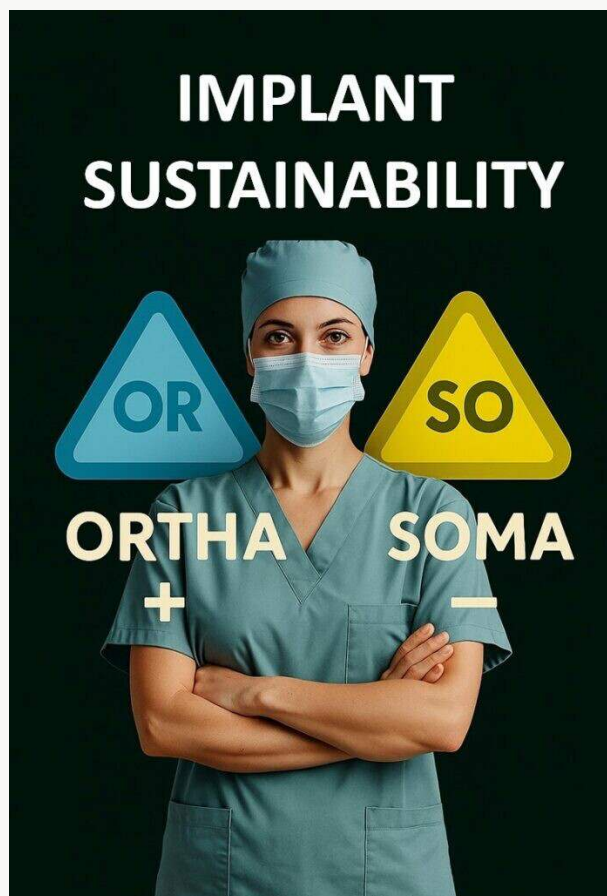
Sustainable Implantology as Origin of a Paradigm

SUSTAINABLE IMPLANTOLOGY
Innovative Foundations in Oral Health & Medicine

SUSTAINABLE DENTISTRY & MEDICINE

Sustainable Implantology as Origin of a Paradigm

Sustainable Implantology is the point of origin of a paradigm that rises beyond its own field. In its conceptual ascent, it contributes a transferable framework—ORTHA, AXIA, SOMA, and NOXA—to Dentistry in general. This is not a mere technical extension, but the consolidation of a shared language of criteria capable of guiding clinical judgment across diverse contexts.



The strength of this framework lies in its capacity to universalize principles of balance, high-value action, potential precarity, and potential harm throughout dental practice, turning sustainability into a common interpretive compass rather than an isolated specialty concern.

Moreover, by establishing itself as an applicable set of categories, Sustainable Implantology projects its foundations into Medicine and the Health Sciences as a whole. The transition from the implantology domain to broader medical fields enables a cross-disciplinary lens of sustainability—one that appraises decisions not only by immediate feasibility, but by their proportional integration of benefits, risks, and responsible stewardship of resources over time.

Sustainable Dentistry under the ORTHA-AXIA-SOMA-NOXA framework

From Implantology to Dentistry and Medicine

Sustainable Implantology was the starting point: it defined a unique language that allows for classifying and guiding clinical decisions based on sustainability criteria.

This same language can be applied to all of dentistry and, in a broader sense, to medicine in general.



The Four Universal Concepts

ORTHA – AXIA – SOMA – NOXA in Medicine

ORTHA (Balance)

Proportional choices keeping benefit, risk, and resources in equilibrium.

AXIA (Value)

Good practice adequately substantiated and likely to succeed.

(Eventual Precarity)

Minimal or improvised solutions barely maintaining the case.

NOXA (Harm)

Undue, excessive, or detrimental intervention with a negative impact

ORTHA (Balance)

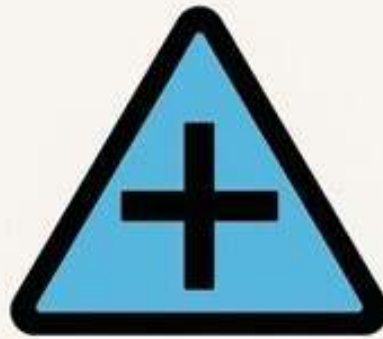
"The right measure in its highest expression. It does not depend on evidence of results, but on prudent and proportional clinical judgment, which integrates benefit, risk, and resources in a balanced manner. It can represent a relatively stable horizon of sustainability."



ORTHA = Positive Balance

AXIA (Clinical Value, Safety)

LOW SUSTAINABILITY IN IMPLANTOLOGY



AXIA

AXIA represents a form of low sustainability that, although complex, is viable under rigorous clinical criteria. Its execution demands high precision, applied ethics, and controlled conditions. It is not a contraindication but a strategic requirement.

AXIA **LOW POSITIVE** SUSTAINABLE CLASSIFICATION

AXIA (Clinical Value, Safety)

"Procedures of high clinical value, consistency, and safety. However, this value can become ambivalent: reproducible in optimal settings, but restrictive due to technical difficulty, cost, or limited access."

SUSTAINABLE PERFORM:

TYPE: LOW - AXIA

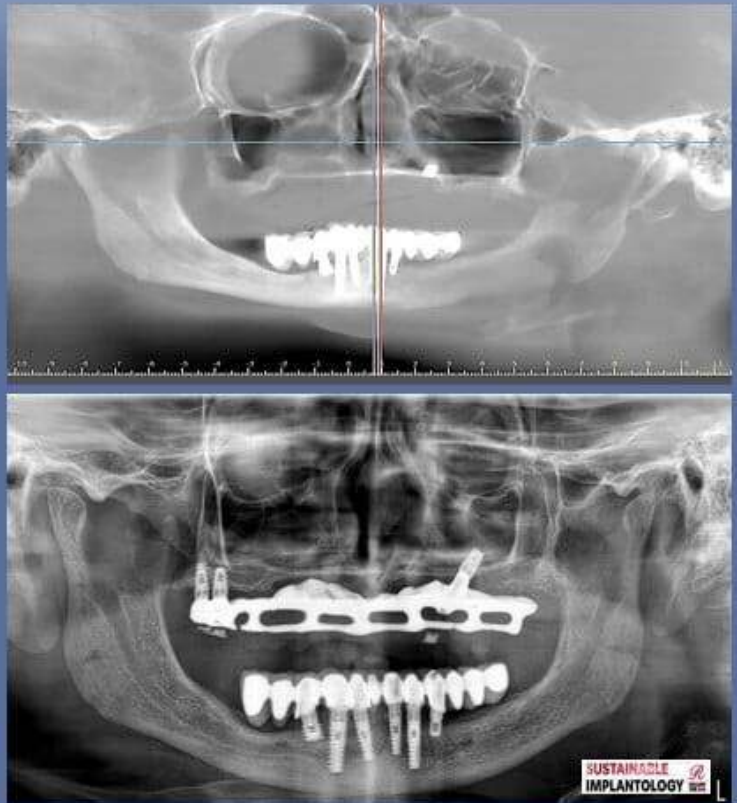
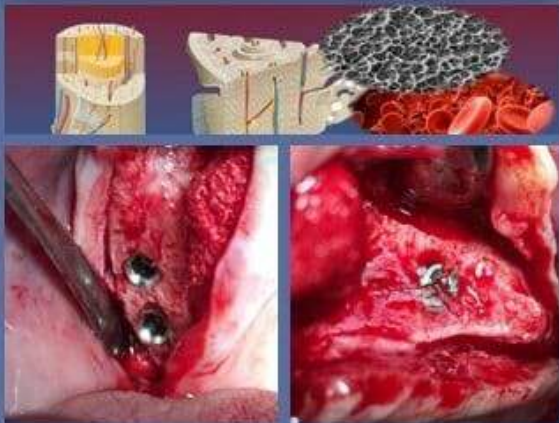
SUSTAINABLE SCORE: 17%

PARETO SCORE: HIGH (20/80)

IMPLANT TYPE: BIBLOCK

INTERFACE CRITERIA: TISULAR

OTHERS: All on three. Fractured apical remnant. Hybrid metal resin.



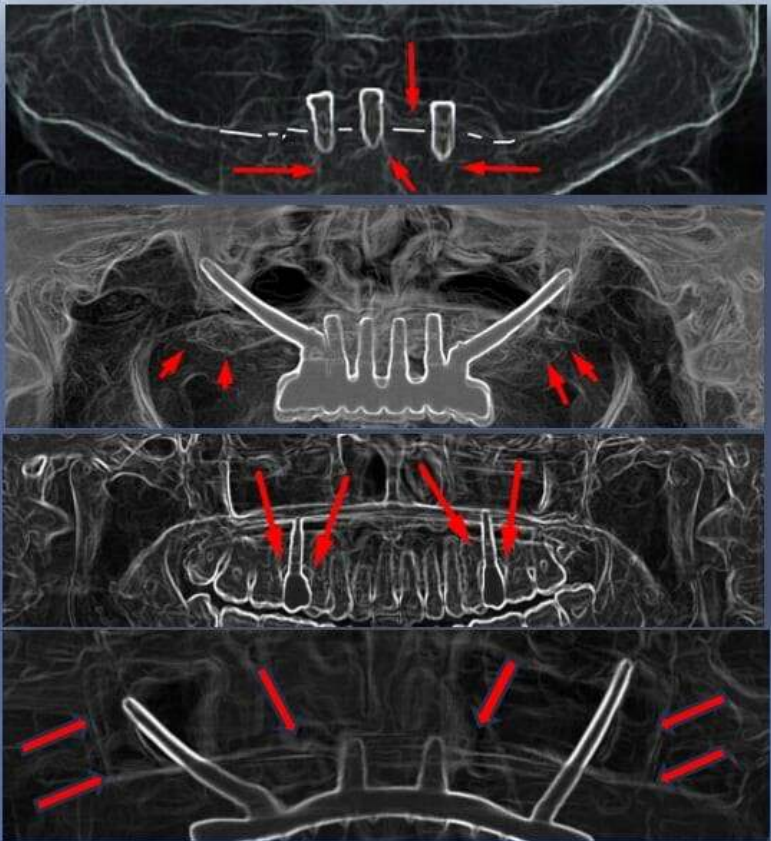
AXIA LOW POSITIVE SUSTAINABLE CLASSIFICATION

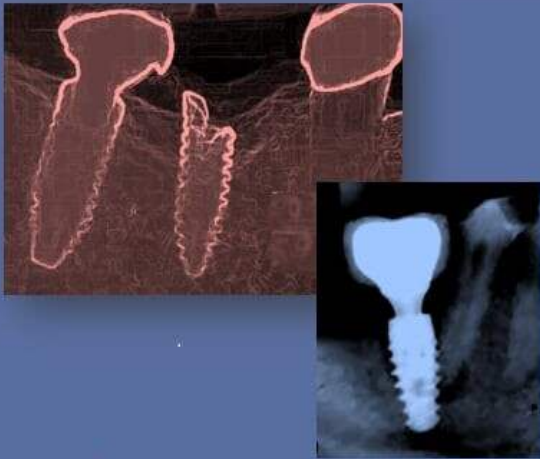
SOMA (The Body, Biological Capital)

"Contexts of limited or insufficient resources in which minimal solutions are applied. They do not equate to harm (NOXA), but represent a level bordering on precariousness, where sustainability is reduced to the basics."

SUSTAINABLE PERFORM:
TYPE: SOMA
SUSTAINABLE SCORE: LOW
PARETO SCORE: LOW (80/20)
IMPLANT TYPE: BIBLOCK
INTERFACE CRITERIA: NO APPLY
OTHERS: Poor use of bone and implant measurements. Poor choice of diameter and positions.









Representación esquemática de eventuales casos SOMA, basados en simulaciones graficas, resguardando la confidencialidad y ética en el uso de eventuales coincidencias con casos externos.



SOMA **LOW SUSTAINABLE** CLASSIFICATION

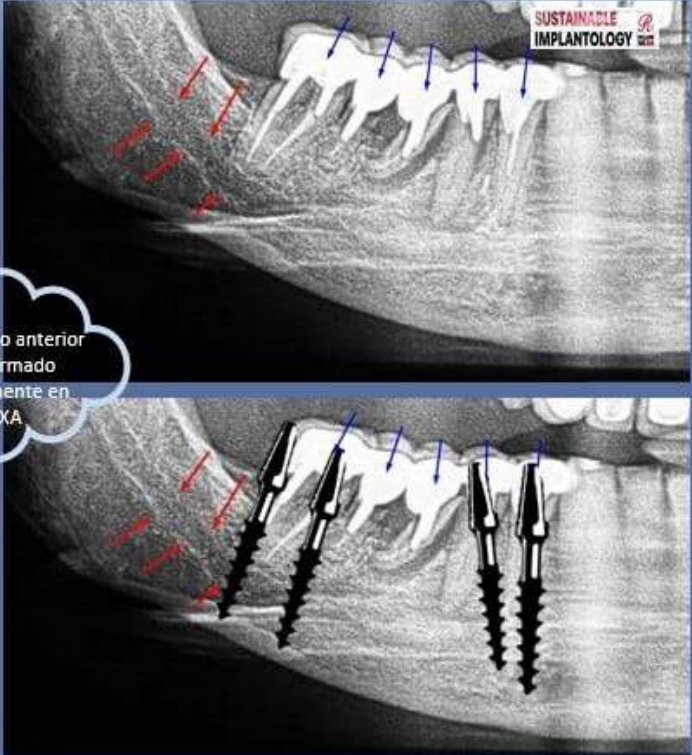
NOXA (The Harm, the Biological and Social Cost)

"NOXA refers to interventions with a potential risk of harm, whether due to excess, disproportion, or error. It is the zone of low sustainability, where the harm outweighs the benefit."

SUSTAINABLE PERFORM:
TYPE: NOXA
SUSTAINABLE SCORE: 11%
PARETO SCORE: LOW
IMPLANT TYPE: MONOBLOCK
INTERFACE CRITERIA: MECHANICAL
OTHERS: Immediately after extraction. Immediate load. One-stage. No ordered osteointegration or fixation.



Mismo caso anterior transformado gráficamente en NOXA



 Representación esquemática de como el mismo caso puede pasar de ORTHA a NOXA, basado en simulaciones, resguardando la confidencialidad y ética en el uso de casos ajenos

NOXA **LOW NEGATIVE** SUSTAINABLE CLASSIFICATION

TRASPOSITION TO DENTAL AREAS (as a generical examples)

Pediatric Dentistry:

NOXA = Disproportionate interventions that cause unnecessary trauma or irreversible damage to developing teeth and tissues.

ORTHA = Balance between prevention and treatment, prioritizing proportional interventions with low or moderate risk.

AXIA = High-complexity procedures that require advanced skills, a steep learning curve, and reproducibility limited to specialized centers.

SOMA = Care conditioned by scarce resources, with minimal or provisional techniques that maintain function without achieving full quality.

Orthodontics:

NOXA = Severe complications such as root resorptions, iatrogenesis, or endless treatments with functional sequelae.

ORTHA = Adjusted treatments that seek function and stability, avoiding overtreatment and unnecessary prolongation.

AXIA = Modern, digitalized, or highly complex protocols with a prolonged learning curve and eventual risk if not mastered.

SOMA = Tooth movements applied without respecting biology or physiological timing, leading to precarious results.

Prosthetics and Rehabilitation:

NOXA = Prosthetic failures or inadequate designs that compromise the patient's oral and systemic health.

ORTHA = Rehabilitation proportional to the patient's needs, without excesses or unnecessary indications.

AXIA = Use of innovative materials and advanced protocols, predictable in controlled contexts, but not always accessible and requiring superior skills.

SOMA = Solutions that preserve abutment teeth and mucosa, although limited in resources and outcomes.

Oral and Maxillofacial Surgery:

NOXA = Severe postoperative complications, functional or social, resulting from disproportionate or poorly executed interventions.

ORTHA = Surgeries indicated only when strictly necessary and proportional to the clinical condition.

AXIA = High- or medium-complexity techniques—such as digital planning, guided surgery, zygomatic or subperiosteal implants, transnasal implants, pterigoides, trasposition & bypass of the dental inferior nerve, etc., etc., possibly effective but with risk and dependent on advanced training and technology.

SOMA = Procedures aimed at relative preservation of bone, nerves, and aesthetic structures, though conditioned by limited resources.



TRANSPPOSITION TO GENERAL MEDICINE

ORTHA – AXIA – SOMA – NOXA in Medicine

Medicine, understood as both science and practice in the service of life, can be analyzed through the lens of sustainability by means of four conceptual categories that originate in Sustainable Implantology and extend to all of its branches.

These four axes, **ORTHA**, **AXIA**, **SOMA**, and **NOXA**, constitute a transversal language to interpret the medical act beyond particular contexts, establishing a common criterion of balance, value, precarity, and harm.

ORTHA represents balance in medical decision-making. It is not only about selecting an appropriate treatment but about proportionally weighing the benefits, risks, and resources involved. Sustainable medicine recognizes ORTHA as the expression of the “golden mean”: interventions that neither overtreat nor fail to act when necessary, creating a horizon of stability and trust for both professionals and patients.

AXIA is linked to the value of medical practices in their reproducible and reliable dimension. Sustainable medicine does not rely on heroic skills or exceptional contexts, but on validated methods, with consistency in outcomes and accessibility to the majority of trained professionals.

AXIA is the dimension that grants predictability, ethical standardization, and practical applicability, reducing extreme variability and ensuring that knowledge remains transferable.

SOMA reflects eventual precarity. It is the situation in which medical practice must be sustained in contexts of scarce resources, applying minimal solutions that preserve essential functions, although without reaching an optimal level. It is not harm in itself, but rather a borderline state, close to precariousness, where sustainability is preserved in its most fragile form. SOMA illustrates that medicine must also be able to respond in adverse scenarios, even if the standard is reduced.

NOXA designates harm. It is the zone in which interventions, through excess, error, or disproportionality, cause more damage than benefit. Here sustainability collapses, whether through adverse effects, iatrogenesis, or the unjustified omission of necessary care. NOXA emphasizes the medical responsibility of preventing action or inaction from becoming a source of deterioration for the individual and the community.

ORTHA – AXIA – SOMA – NOXA in Medicine & Dentistry				
Medical & Dental Area	ORTHA (Balance – High Sustainability)	AXIA (Value – Low Sustainability)	SOMA (Eventual Precarity – Low Sustainability)	NOXA (Harm – Low Sustainability)
Preventive Care	Balanced health education and promotion, avoiding both excesses and omissions.	Preventive programs and policies grounded in reproducible but restrictive evidence.	Minimal preservation of functions in resource-limited contexts.	Over-medicalization or unnecessary prevention leading to adverse effects.
General Clinical Practice / Surgery	Proportional indication and treatment choice, neither excessive nor insufficient for the real need.	Use of validated, reproducible techniques with limited accessibility or requiring high expertise.	Minimally invasive approaches or reduced sacrifice of structures when resources are constrained.	Complications or disproportionate risks arising from excessive or poorly indicated interventions.
Therapeutics & Chronic Care	Balance between therapeutic intensity and long-term quality of life.	Protocols supported by evidence, though often costly or difficult to generalize.	Preservation of essential functions and continuity of care under precarious conditions.	Adverse effects, iatrogenesis, or overtreatment outweighing the intended benefit.





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AXIA – The ambivalent value

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From Sustainable Implantology to Sustainable Health

A cross-cutting framework in Medicine and Dentistry

The 4 categories



ORTHA (Balance – High sustainability): proportional decision integrating benefit, risk and resources



AXIA (Value – Low sustainability) reliable and reproducible practice, but limited for complexity or access.



SOMA (Eventual precarity – Low sustainability) minimal viable response in scarcity, preserving essential functions



NOXA (Harm – Low sustainability) intervention and emission with disproportionate harm over benefit

Keys of use

- Common language to assess clinical acts in any discipline
- Applicable criteria in planning, indication and follow-up
- Guides decisions towards real (present and future) sustainability



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NOXA – Risk of harm

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