# Data from: Flexibility of fetal tolerance: Immune function during pregnancy varies between ecologically distinct populations

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## Abstract

**Background and objectives:** Among placental mammals, females undergo immunological shifts during pregnancy to accommodate the fetus (i.e. fetal tolerance). Fetal tolerance has primarily

been characterized within post-industrial populations experiencing evolutionarily novel conditions (e.g. reduced pathogen exposure), which may shape maternal response to fetal antigens. This study investigates how ecological conditions affect maternal immune status during pregnancy by comparing the direction and magnitude of immunological changes associated with each trimester among the Tsimane (a subsistence population subjected to high pathogen load) and women in the United States.

**Methodology:** Data from the Tsimane Health and Life History Project (N=935) and the National Health and Nutrition Examination Survey (N=1395) were used to estimate population-specific effects of trimester on differential leukocyte count and C-reactive protein (CRP), a marker of systemic inflammation.

**Results:** In both populations, pregnancy was associated with increased neutrophil prevalence, reduced lymphocyte and eosinophil count, and elevated CRP. Compared to their US counterparts, pregnant Tsimane women exhibited elevated lymphocyte and eosinophil counts, fewer neutrophils and monocytes, and lower CRP. Total leukocyte count remained high and unchanged among pregnant Tsimane women while pregnant US women exhibited substantially elevated counts, resulting in overlapping leukocyte prevalence among all third-trimester individuals.

**Conclusions and implications:** Our findings indicate that ecological conditions shape non-pregnant immune baselines and the magnitude of immunological shifts during pregnancy via developmental constraints and current trade-offs. Future research should investigate how such flexibility impacts maternal health and disease susceptibility, particularly the degree to which chronic pathogen exposure might dampen inflammatory response to fetal antigens.

## Methods

This dataset was compiled by Carmen Hové and consists of data collected by the Tsimane Health and Life History Project (http://tsimane.anth.ucsb.edu/index.html) and the National Health and Nutrition Examination Survey (https://wwwn.cdc.gov/nchs/nhanes/).

## Usage Notes

This dataset contains total and differential leukocyte count (WBC = total leukocyte count, NEU = neutrophils, LYM = lymphocytes, MON = monocytes, EOS = eosinophis, BAS = basophils), leukocyte proportions (neu_pct = % neutrophils, lym_pct = % lymphocytes, eos_pct = % eosinophils, mon_pct = % monocytes, bas_pct = % basophils), C-reactive protein

concentration (crp), number of live births (NumPartos), age (Age), body mass index (BMI), participant identification number (pid), reproductive state (RepStatus), age category (AgeCat), population/original dataset (Population), number of repeat measures (Repeats), and presence/absence of repeat measures (REF). There are some missing values (coded as NA), since not all participants had data on both leukocyte differential and C-reactive protein concentration.

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## References

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## Keywords

ecological immunology, maternal-fetal interface, reproductive ecology, Tsimane

## Files

1 files for this dataset

| | | |
|---|---|---|
| Hove_et_al_2020.csv | 240.08 kB | text/csv |

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